

A Qualitative Description of Self-Regulatory Behaviors of Male Expert and Novice Athletic Trainers in Collegiate Settings

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Context: Understanding the transition from a novice to an expert has the potential to provide valuable information for young professionals and athletic training educators to aid in the development of tools necessary for lifetime professional learning.

Objective: The purpose of this study was to identify and describe the self-regulated learning behaviors of male athletic trainers used to develop expertise in clinical evaluation and diagnosis domain knowledge in athletic training.

Design: Descriptive qualitative study using a phenomenological approach.

Setting: NCAA Division I and II colleges in NATA District 3 (DC, MD, NC, SC, VA, and WV.)

Participants: A total of 20 male $n = 10$ novice (limited experiences) and $n = 10$ expert (at least 10 years of experience) athletic trainers in the college setting participated in the study.

Data Collection and Analysis: Data were collected using an interview and questionnaire. Data were transcribed and analyzed using interpretive thematic analysis procedures. Member checks, triangulation of data, audit trail, and peer debriefing techniques were utilized to ensure trustworthiness of the data.

Results: Three major themes of (1) environment, (2) experiences and goals, and (3) sources of feedback were identified and appear to describe different ways of self-regulating learning behaviors in the clinical evaluation and diagnosis domain.

Conclusions: Awareness of the types of experiences needed to develop in the clinical evaluation and diagnosis domain is important to the athletic training profession. The findings of this descriptive study raise questions regarding future study of self-regulated behaviors. Post-professional education might benefit from a better understanding of self-regulated learning but research is needed.

Keywords: Post-professional education, professional development, expertise, qualitative research

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A Qualitative Description of Self-Regulatory Behaviors of Male Expert and Novice Athletic Trainers in Collegiate Settings

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Professional development and growth of athletic trainers and other healthcare professionals do not cease after the completion of formal education and credentialing. The development of expert-like professional skills is a process extending well beyond completing the entry-level requirements of a profession. An understanding of the process of how one transitions from a novice to an expert has the potential to provide valuable tools for both the young professional as well as athletic training educators as they help students develop the skills and behaviors necessary for lifetime professional learning.

An expert is defined as one having, involving, or displaying special skill or knowledge derived from training or experience.^{1,2} In healthcare education and professional development, individuals must acknowledge the idea that familiarity with facts and procedural skills acquired during formal training programs constitutes only a small fraction of what is relevant to the field.³ It is likely that after completing formal education some facts and procedures learned will be outdated due to emerging techniques and advancements in research.

Athletic trainers assume responsibility for their continuing professional education after receiving their credentials. After completing their formal education professional growth must include self-regulated behavior. Zimmerman states that self-regulated learning can be used to describe learning that is guided by metacognition (thinking about one's thinking), strategic action (planning, monitoring, and evaluating personal progress against a standard), and motivation to learn.⁴ Studies on experts have identified that in addition to many other traits, individuals considered domain experts are self-regulating in their development of expertise and engage in thinking about their thinking.²

Professional learning and growth toward expertise involves self-evaluation of professional practice and decision making with the goal of developing strategies to improve one's performance. The process has been identified in the literature as self-regulated behavior.⁵ This process involves formative self-evaluation (evaluation with the purpose of improving one's own performance), goal setting and development of strategies for learning and improvement, and performance in the clinical setting using tools and strategies designed to address those goals. There is a reciprocal interaction between three components: self (reflection and judgment), professional behavior (performance) and one's environment (forethought).⁴ The cycle then repeats, providing the professional with the opportunity to reassess, modify goals and put the changes into practice again.

Previous literature in athletic training has discussed learning theory from a social cognitive perspective.⁶ Social cognitive learning theory posits that learning is preceded by social interaction and socialization. This study takes a different approach to examine

the self-regulatory behaviors that athletic trainers engaged in to enhance their professional development in the domain of clinical evaluation and diagnosis skills. Our study examined the post-certification learning experiences of athletic trainers with the intent of increasing our understanding of the types of activities that lead to the development of expertise in the clinical evaluation and diagnosis domain.

Literature on the development of athletic training expertise has been discussed in terms of major influences over a career citing meaningful experiences, personal attributes, and mentoring as key themes.⁷ But this does not inform us about how athletic trainers regulate the preservation and continued development of their practical knowledge and skills. Post-professional athletic training education has also been cited in the literature as a key component to the transition from novice to expert. Neibert⁸ identified a model that extended the current principles of athletic training post-professional educational programs. However, the findings of Neibert's⁸ study serve as a model for post-professional educational program standards rather than for ways to address learning and behavior from an individual standpoint.

To assist novice practitioners in developing the strategies and tools necessary to effectively transition to clinical evaluation and diagnosis domain experts, it is important to identify common self-regulated learning behaviors and strategies of both novice and expert athletic trainers. Having an understanding of what types of self-regulated learning behaviors are useful in developing skills and knowledge may also guide post-professional education and research on promoting expert-like traits. The focus of this study was to explore the self-regulatory behaviors and experiences of expert and novice athletic trainers in the college and university setting. The specific aim of this study was to identify and describe the behaviors of athletic trainers that exhibit the components of self-regulated learning in the development of expertise in clinical evaluation and diagnosis.

METHODS

A qualitative method was used to explore the specific behaviors and experiences related to the research questions with a phenomenological design. The aim of phenomenological qualitative research is to identify and describe the way that a trend is perceived by those who experience it.⁹ In-person interviews consisting of open-ended questions were conducted with each participant deemed to be either an expert or novice male college/university athletic trainer. An open-ended interview guide was used to maintain consistency in the interview format and questions between subjects. This open-ended question format allowed the participants to explain the descriptions of their developmental behaviors and processes in a way that they felt best answered the primary question. Additional questions or probes were

used during the interview to gain increased understanding and clarity of the descriptions provided. These interviews were audio recorded using a digital voice recorder and were transcribed by the interviewer. Institutional Review Board approval was obtained prior to requesting participation and conducting data collection procedures.

Participants

Criterion sampling was used in this study. The inclusion criteria for the expert group required each participant to have practiced as a Board of Certification (BOC) certified athletic trainer for a minimum of 10 years in the college/university setting. The novice inclusion criteria required each participant to have less than 2 years of experience with professional experiences primarily in the college/university setting. The criteria of years of experience were used to be consistent with the theory of deliberate practice established by Ericsson, Krampe, and Tesch-Romer¹⁰ and other studies applying the same standard of relative expertise.^{2, 7}

The theory of deliberate practice states that in order to become an expert in a field, one must engage in 7 to 10 years of practice or the equivalent of about 10,000 hours for the purpose of improving one's skills.¹¹ In addition, literature on the nature of expertise has identified that experts can be adequately studied in comparison to non-experts or as the top performers in a field.¹²

The college setting was chosen for two reasons. First, according to the most recent National Athletic Trainers' Association (NATA) membership statistics at the time of the study, 24% of NATA members are employed in the college or university setting, which provided a large group to sample.¹³ Second, the college or university setting provided a more homogeneous setting than other athletic training settings, eliminating differences in experiences that we would not be able to explain.

We obtained contact information for each participant through university athletics directories. We emailed participants informing them of the study and asking for their participation. Those who replied were contacted via telephone to establish a mutually agreed upon time and location for the interview. All participants

reported having current athletic training positions in National Collegiate Athletic Association (NCAA) member institutions. There were 10 expert participants and 10 novice participants who met the inclusion criteria and chose to participate in the study. Participant demographic information may be found in Table 1. Participants in this study represented athletic trainers practicing in National Collegiate Athletic Association (NCAA) Divisions I and II. This descriptive information regarding participants may be found in Table 2.

Pilot Study

Prior to any data collection procedures, the primary investigator tested the interview protocol and data analysis techniques with 4 volunteers who were geographically closest. Two of the volunteers meet the inclusion criteria for the expert group and the other two meet the criteria for the novice group. This brief pilot study allowed us to determine the appropriateness of the open-ended interview protocol and identify any anticipated probing questions to gain a deeper understanding of the participants' comments.

These interviews were conducted in settings chosen by each of the participants. The novice participant pilot interviews were conducted in the office of the primary investigator and the expert pilot interviews took place in each of the 2 participants' offices at their home institutions. All pilot interviews were audio recorded using the same digital voice recorder and then transcribed. Transcriptions were analyzed using thematic analysis. No changes were made in the interview process based on the results of the pilot study. These results were not used as data for the study since the purpose of these interviews was to determine the appropriateness of the interview process.

Data Collection and Analysis

In-person interviews were conducted between the primary investigator and each participant individually. Once interviews were arranged, informed consent was completed, and demographics questionnaires were collected. Each interview began with the question: "Describe times in your professional development where you feel like you improved your skills in clinical evaluation and diagnosis." Data were collected until saturation (the point of consistency of statements) of data occurred. The saturation point of data was reached after 12 interviews. Additional data were collected beyond this point, however, to ensure depth of data. We believe that the additional interviews confirmed adequacy of emergent themes and that no new concepts emerged.

We used an interpretive qualitative design for this study to analyze

Table 2. Participant Distribution by Experience, NCAA Division, and State

	NCAA D1	NCAA D2	NC	SC
Expert	8	2	4	6
Novice	8	2	5	5

Table 1. Participants

Group	Age			Experience	
	N	M	SD	M	SD
Expert	10	41.9	9.78	17.9	10.24
Novice	10	24	1.94	1.3	.48

Note: Age and experience refer to number of years. Experience refers to years (yrs) as a BOC certified athletic trainer. N = sample size, M = mean, and SD = standard deviation. Job titles reported for each group were Expert: Director (3), Head AT (4), and Assistant/Associate AT (3) Novice: Graduate Assistant (5), Intern (4), and Assistant AT (1).

the data, allowing us to engage in phenomenological data analysis as described by Grbich.⁹ This approach involves bracketing one's own experiences, engaging in dialogue with participants, reflecting upon experiences gained from the encounter, and conducting thematic analysis from what was learned.

Before the analysis, we had to deal with our presuppositions as athletic trainers prior to engaging in the interview process and data analysis. These potential biases included beliefs about how one engages in post-professional learning activities to maintain and/or improve clinical evaluation skills. To accomplish this we engaged in a process of bracketing to identify biases. We took steps to anticipate the need for participants of a younger professional age to seek advice during the interview, and to control the urge to ask advice of those participants who were professionally more advanced. Once these potential biases were identified, the influence of these subjectivities in the data analysis could be further identified.

Data analysis took place in two stages: (1) gathering of closely related concepts, and (2) searching for abstract principles in the data. In the first stage, we began data reduction through identifying key categories by reading each complete transcript and creating a list of major concept categories. We then isolated key meaning units in the categories by looking in the data for similarities and differences. After identifying the major themes in the data that emerged from the isolated meaning units, we engaged in memoing.⁹ The process of memoing is used to determine how the themes address the research questions. The memoing process is used to allow the researcher interpreting the data to clarify thoughts and to refine the concept believed to be present in the data.

In the second stage of data analysis, the memos of the themes were organized into interrelated fields around the phenomenon of self-regulatory behaviors and experiences. We then ranked their importance based upon the frequency of the themes from the data. Finally, we then took these data and attempted to summarize the phenomenon in a grand theme.

Establishing Trustworthiness

We established trustworthiness of the data by using various triangulation techniques including (1) member checks, (2) an audit trail, and (3) peer debriefing strategies. Member checks were conducted by having each of the 20 participants review their own transcript to validate that it was clear and stated what was implied by the analysis. We maintained an audit trail or a log of the sequence of how decisions were made and how data was handled to confirm that we took the appropriate steps to gather and handle data rigorously according to qualitative methods. We engaged in peer debriefing by having a second researcher cross-examine the process of data analysis and make comments on the emergent themes to determine that the process was systematic and valid and that the data appear unbiased. Further cross-examination of data was established by comparing codes during the analysis to the actual words used in the statements of our participants and recoding to use participants' statements as the code when possible.

RESULTS

Qualitative analysis of the self-regulatory activities revealed 3 major themes describing both expert and novice experiences. These themes were environmental focus, goal setting and experiences, and sources of feedback that participants described as important activities for the development of their clinical evaluation and diagnosis skills. Emergent themes from the findings can be found in Table 3. Within each of these major themes, years-of-experience was a factor in determining sub-themes that indicated deeper description regarding their self-regulated learning activities. These smaller components were organized to demonstrate the reported differences in how participants self-regulated their development of knowledge and skills related to the assessment and evaluation of injuries.

Environmental Focus

With regard to the environment, experts and novices in the study described experiences suggesting the importance of either consistency or autonomy. For example, experts described experiences when they developed their clinical evaluation and diagnosis skills as being autonomous. However, the novices displayed an emphasis on the environment, but the focus with the less experienced group was on consistency or repetition. Samples of expert statements included:

"...When I first graduated I was at a high school by myself..."

"...Working summer camps at the university was the first time to be by myself..."

"...First time on my own out of school, I was thrown into the fire and had to develop skills rapidly..."

Samples of novice statements were as follows:

"...I have had the opportunity to enhance my shoulder and elbow evaluation skills on a daily basis working with baseball..."

"...I would deal with the same injuries but different athletes..."
and

"...I got to evaluate a large number of athletes in a very short period of time..."

These excerpts are sample important statements that led to the development of our main categories. After completing the memoing⁹ process and comparing the data, we made the interpretation of a relationship suggesting that the context or environment was an influence. Autonomy was a major concept in 5 of the 10 experts in the study leading to the acceptance of the sub theme of autonomous environments. The novice group statements appeared to have a variety of relationships with the most common being consistency in the environment.

Goal Setting and Experiences

Goals and experiences made up the second major theme from the participant responses. In this theme, participants described the ways they perceived their clinical evaluation and diagnosis skills to improve. Both experts and novices commented on the importance of post-professional experiences leading to improvement. These experiences included post-professional education and clinical encounters where other healthcare providers supervised them. However, experts described these experiences in terms of “extended practical experiences” over a period of time and opportunities to evaluate a variety of injuries and engage in new experiences. This differed from how novice participants described improvements in skilled clinical evaluation and diagnosis techniques through learning the breadth of a differential assessment and identifying ways to maintain objectivity during an evaluation. Samples from expert statements included:

“...Working five straight in-season footballs really helped develop my field and rehab skills...”

“...I learned to do things that I had never done before...”

“...For me it was in the classroom as an educator. Daily preparation of material to teach things that I honestly never learned myself...”

Samples of novice statements were as follows:

“...Never rule out a differential without being 100% sure...”

“...to never jump to conclusions or keep hoping or thinking it is just one injury...”

“...Make sure I spot differences between acute and chronic pain/problems...”

Concepts leading to the interpretation of this emergent theme had more variety of experiences but we believed that they had the same relationship. Memos from this section of our analysis yielded that while specific goals led to self-regulated learning experiences, it did so in very different ways in the two groups. The most frequently reported relationship in the expert group was with a variety of new experiences and injuries, occurring among 5 of the experts. The second most frequent relationship was with the category of extended practical experiences, which the participants described as being in a setting for multiple seasons or years. This relationship was present among 3 of the experts. In addition, the experts reported that their post-professional experiences were important in their development of clinical evaluation and diagnosis skills but this was more strongly seen in the novice group with all reporting on the relationship. Three of the novices also reported a goal of developing objectivity and breadth in their clinical evaluations and diagnoses. They described objectivity as remaining focused on identifying the condition with objective measures rather than solely relying on symptoms. In addition, the breadth referred to was described as knowing when to rule in or out a potential condition in the differential assessment and when to rule out.

Sources of Feedback

The last emergent theme from participant statements that was critical to the development of their development of clinical evaluation and diagnosis skills was how they received their feedback. Experts and novices both explained that feedback was important but how feedback was obtained was most interesting. The participants' statements suggested differences existed in the ways that feedback was obtained. The experts described getting feedback mainly through learning to listen to their patients and by communicating with their supervising physician. Novice participants described obtaining feedback from patient and supervisor interactions, as well as, observing and communicating with the team physician. Samples of expert statements included:

Table 3. Self-Regulatory Activities

Major Theme	Novice	Expert
Environmental Focus	1. Consistency	1. Autonomy
Goal Setting & Experiences	1. Post-professional experiences 2. Diagnostic objectivity & breadth	1. Post-professional experiences 2. Extended practical experiences 3. Variety of injuries and new experiences
Sources of Feedback	1. Patient interaction 2. Supervisor interaction 3. Physician observation 4. Physician communication	1. Patient communication through listening 2. Physician communication

Note: Major themes in both experts and novices. Each major theme occurred in at least 50% of participants in a group to be included (eg, consistency was observed in 5/10 novices and autonomy in 5/10 experts).

“...The point in time when I learned to listen to an athlete describe his or her injury mechanism before coming to a conclusion...”

“...The team physicians were very knowledgeable and very helpful in bringing ATs up to speed on various diagnoses and rehabilitation...”

“...I saw improvements in evaluation when I saw the physician to get an explanation...”

Samples of novice statements were as follows:

“...The time that I spend one on one with the athlete has helped me to learn...”

“...I feel that watching orthopedic doctors as they evaluate athletes helps me...”

“...Also, when the orthopedic doctor saw the athlete just after I completed my evaluation and came to the same conclusion...”

One of the key differences between experts and novices in this study stems from our interpretation of the data suggesting that over time experts might have learned to use feedback differently. After our memoing⁹ process with the expert transcripts we noticed 2 relationships in the experts with the same frequency. These feedback sources included talking with the patient and communication with the team physician. In contrast, the relationships were different and varied for novices in the study. The most frequent practice that provided feedback among the novice group was to watch the team physician, which occurred among three of the participants. The remaining relationships of feedback were all different with the same frequency and included talking with the physician, interacting with a supervising athletic trainer, or interacting with the patient to learn the effectiveness of care.

DISCUSSION

The contrast of deliberate practice activities of experts and novices has been studied extensively, however very little has been examined with the self-regulatory behavior differences between the two groups.¹⁰ Deliberate practice is defined as practice for the purpose of improving skills in an area and is constrained by instruction, effort, and motivation.¹⁰

Measuring the capacity to change has been discussed in health care education but very little empirical research has been conducted.¹⁴⁻¹⁸ A review of this capacity for self-improvement illuminated the need to develop ways to identify and measure inadequate levels of insight and self regulatory behavior to improve performance.¹⁹ The findings of a qualitative study of medical students' learning behaviors suggests that the more successful students interacted with their learning environments in a way that was more self-regulated.³ The implications of such a measure in healthcare suggest that practitioners' ability to remain

current in professional standards and practices can be aided by development of self-regulatory skills during their education and over the course of their career.

The results of the current study of expert and novice athletic trainers' self-regulatory experiences to improve their evaluation skills raise some questions related to the nature of how we develop professional skills and abilities. There were 3 major themes from the qualitative analysis of the questionnaire data. These themes were (1) environmental focus, (2) goal setting and experiences, and (3) sources of feedback.

Environmental Context an Important Feature of Self-Regulation

The first theme of an environmental focus suggested a natural tendency for athletic trainers with more experience to need a more autonomous environment for injury evaluation decisions while less experienced athletic trainers need consistency or stability in the type of environment in which to make decisions on injuries. These findings have implications for the environmental design for skill acquisition over time. Skill acquisition over time has been discussed in athletic training literature as a necessary component of educational programs and is a focus area of recent educational reform.²⁰ Athletic trainers need to become proficient in providing healthcare services for patients who engage in consistent sport and physical activities with similar patterns of injuries. This occurred mostly through post-professional athletic training education in this study and was identified through participant responses. This finding also supports the model proposed by Neibert's⁸ grounded theory study identifying 10 processes in post-professional education for athletic trainers that may lead to expert practice. Studies on expert nursing practice have also demonstrated this stage-like progression and would identify learners in this stage as falling somewhere between advanced beginners and competent.²¹

Since this study targeted recently certified athletic trainers in the novice group, caution should be taken while interpreting the environmental theme to avoid confusion with generalizing any implications to professional education. Professional preparation for pre-service athletic trainers in entry-level Commission on the Accreditation of Athletic Training Education (CAATE)-accredited education programs is guided by CAATE standards while these implications are for post-certification experiences. Athletic trainers in a residency experience (ie, post-certification internship or graduate assistantship) should be allowed autonomy only after having practiced in a consistent environment in order to develop expertise.

However, if the findings of this study are supported by subsequent research, then recommendations for post-professional experiences would include: (1) consistent environments early during the clinical experiences with appropriate supervision, and (2) autonomous environments for later clinical experiences once specific goals (ie, diagnostic breadth and objectivity) are met. The structure for these post-professional experiences would likely occur in a gradual progression of providing healthcare services for

one team or program. Over time, a general athlete population or new patient types are introduced to gain some variety. The most ideal environment for this arrangement seems to be the graduate assistantship where in the first year, experiences are more closely supervised in assistant roles, and in the second year they are more autonomous and move away from roles as assistants or into different settings. However, future research would need to confirm the effectiveness of this design. Autonomous environments have been discussed previously as necessary elements to enhance learning and the acquisition of skills in athletic training during entry-level education.²² Medical education has also discussed autonomous learning environments for medical students prior to medical residencies and specialty areas.^{23, 24}

Ryan and Deci's²⁵ self-determination theory provides further support for providing autonomous environments leading to learning outcomes. Self-determination theory is a large-scale theory of motivation, personality, and involving multiple psychological constructs including self-regulation. The smaller component of self-determination theory that this study may contribute to is causality orientation theory which examines how human behavior is regulated by how we orient to the environments in which we function. One of the major implications of our study is that we believe the next step to understanding the phenomenon is to further study the theme of supporting environmental design, which may provide evidence for the structure of post-certification and advanced studies programs for athletic training.

Goal Setting and Experiences as a Feature of Self-Regulation

The second theme of goal setting and experiences provided similarities and differences between expert and novice athletic trainers. Both experts and novices stated post-professional experiences, such as post-certification graduate assistantships and graduate internships, were an important developmental activity for improving the clinical evaluation and diagnosis domain. However, they described very different experiences and goals during these encounters in order to grow and develop their clinical evaluation and diagnosis skills. Experts in this study described situations when they were engaged in extended practical experiences in which they were able to "learn a new technique or skill," "develop a philosophy for performing tasks," and "teaching and sharing their knowledge with others." In addition, experts expressed that while developing their skills, they perceived there was a point when they began to encounter more variety of injuries and engaged in new practices.

In terms of the novice group, outside of their post-professional experiences they described 2 goals related to learning how to be a better diagnostician. These goals were: (1) diagnostic objectivity and (2) breadth of the differential diagnosis. Objectivity may be a difficult concept for a young professional to learn because some evaluative procedures require the clinician to interpret what is felt (eg, laxity with a ligamentous test). Breadth of a differential assessment is also important to consider as a young athletic trainer. Limiting one's range of injury possibilities may not only exclude the true answer for a clinical problem, but it may also result in the improper course of action to take with care of the patient. With this in mind, the goal of learning diagnostic

objectivity and breadth may be a very critical idea for young professionals to learn in order to progress as a professional. Previous literature in athletic training has described learning strategies to implement into athletic training education programs, which may aid in the acquisition of skills.^{6, 25} However, these strategies lack a goal setting component in both planning and in teaching young athletic trainers to self-regulate their own skill acquisition. Previous research states that in order to complete the cycle of self-regulated learning, goal setting must be included as a component of a task-analysis, supporting the implications of this study's findings.^{4, 5, 27}

Sources of Feedback as a Feature of Self-Regulation

The third theme of sources of feedback provided insight into how professionals in healthcare may obtain information about the outcome or process of a performance or decision. Experts in this study described having to "learn to listen" to their patients because they were telling them about the process of a specific procedure that was being performed on them. Communication between individuals has been discussed as a way to identify expert and novice differences in nursing through tacit knowledge which is defined as knowledge that is difficult to transfer to others.²⁸ Experts also stated that they received outcome feedback from physicians through the confirmation of their differential diagnosis.

This source of feedback was very powerful since there is no other way to obtain knowledge of results (ie, the diagnosis) or knowledge of performance (ie, taking the correct evaluation steps). Novice participants described using more sources of feedback during their development. Since they have not "learned to listen" to the patient, their patient interactions were almost suggestive of trial and error and the patient's comfort level with a procedure was the indicator of correctness. In addition, young professionals need a supervising athletic trainer who cannot only help the novice understand their role, but who can also help them to develop their skills in evaluating injuries. The role of this supervisor in developing expertise has been discussed as a mentoring role in previous studies in athletic training.⁷ In nursing literature, techniques for guided growth interventions have been discussed with mentoring. Novices in this study stated that they learned the correct way to evaluate an injury by "watching the physician do it." This observation provided the young athletic trainer with an external referent they could use to guide their future performances. Similar to the experts in the study, the novices also obtained outcomes knowledge of results about a differential diagnosis from their supervising physician. These findings regarding feedback were consistent with previous studies in motor skill acquisition suggesting feedback may be effective as a learning tool when used correctly.²⁸ However, athletic training literature on traits of the clinical supervisor and types of feedback they provide may contain directions for future studies.

LIMITATIONS

While our study may contribute to the understanding of self-regulatory behaviors of athletic trainers and raise many questions for future study, some limitations must be addressed. We must emphasize that the goal of qualitative research is not to generalize,

but to identify and describe phenomena. Therefore, this study should serve as a reference from which to raise questions for future study rather than a generalized description of all self-regulatory behaviors in athletic training.

The participants of this study were drawn from 1 setting and only 1 NATA district. Therefore, it is possible that the responses of these 20 participants are not completely representative of the college/university setting or of the entire NATA membership. In addition, we were aware that all twenty participants were male and this fact may affect the interpretations about the findings. We chose not to include female athletic trainers for 2 reasons. First, there are hypothesized differences in male and female self-regulation.³⁰ Second, we wanted a sample that was homogeneous to prevent unexplainable results, so we followed the procedures cited in previous research.⁷ However, self-regulatory activities of female athletic trainers should be considered in future investigations.

We must also remind the reader that this study took a position of relative expertise and the participants in the novice group were not true novices in the continuum of expert practice. It is important for us to state this and suggest that future study address the self-regulated learning behaviors of athletic training students prior to certification. It is the duty of the reader to determine the extent to which these findings may inform decisions for structuring post-professional education to promote self-regulated behaviors and future research.

CONCLUSIONS

In conclusion, the aim of this study was to explore the self-regulatory behaviors and experiences of expert and novice athletic trainers in the college and university setting. In our study, experts and novices demonstrated differences in self-regulatory behaviors with regard to their clinical evaluation and diagnosis skills. We identified 3 major themes in which these behaviors occurred. According to these findings, we should continue to study the way in which we regulate learning activities to facilitate professional growth and the development of skills in the domain of clinical evaluation and diagnosis.

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