ATHLETIC TRAINING EDUCATION JOURNAL

www.natajournals.org
ISSN: 1947-380X
DOI: 10.4085/1202106

COMMENTARY

A Time for Reflection: Should We Reconsider the Direct Supervision Standard in Clinical Education?

Stephanie M. Mazerolle, PhD, ATC, FNATA*; Thomas G. Bowman, PhD, ATC†
*Department of Kinesiology, Athletic Training Program, University of Connecticut, Storrs;
†Department of Athletic Training, Lynchburg College, VA

Context: Educational reform is occurring again in athletic training. The profession, at this time, should reflect on the structure of clinical education, particularly with direct supervision. Clinical education plays a critical role in the development of future practitioners and should provide students with a chance to gain autonomous experience, with appropriate feedback and discourse.

Objective: In this commentary, we discuss direct supervision and present an alternative model for supervision (graduated supervision) in athletic training.

Background: Currently, there are concerns regarding the readiness of students to transition to independent practice. These trepidations are centered on the policies related to direct supervision and chances for students to gain autonomous experiences needed to prepare them to make clinical decisions.

Synthesis: Graduated supervision may provide an alternative lens for athletic training to regulate clinical education, while facilitating experiences that can assist in student development and preparedness to transition into independent, credentialed patient care.

Results: Athletic training supervision policies do not align with other health care professions, yet a major impetus for educational reform was founded on the premise that we should model our degree level more comparably.

Recommendation(s): Programs should allow for supervision that encompasses a trusting relationship between preceptors and students. Supervision can be modified (more versus less constant interactions) based upon the students' performance, knowledge, and skills. Shifting the way supervision is implemented can still allow for ensuring patient and student safety, but also allow for students to become critical thinkers.

Conclusion(s): Direct supervision policies should be updated to allow students to develop confidence, competence, and critical thinking abilities as well as to better align the athletic training profession with other health care programs.

Key Words: Graduated supervision, entrustment, socialization

Dr Mazerolle is currently Director of the Professional Bachelors Athletic Training Program at the University of Connecticut. Please address all correspondence to Stephanie M. Mazerolle, PhD, ATC, FNATA, Department of Kinesiology, Athletic Training Program, University of Connecticut, 2095 Hillside Road, U-1110, Storrs, CT 06269-1110. stephanie.mazerolle@uconn.edu.

Full Citation:
Mazerolle SM, Bowman TG. A time for reflection: should we reconsider the direct supervision standard in clinical education? *Athl Train Educ J*. 2017;12(2):106–112.

A Time for Reflection: Should We Reconsider the Direct Supervision Standard in Clinical Education?

Stephanie M. Mazerolle, PhD, ATC, FNATA; Thomas G. Bowman, PhD, ATC

Clinical education is the platform whereby athletic training students are given the chance to apply the knowledge, skills, attitudes, and values of an athletic trainer that they have accumulated didactically.[1–3] Over the last decade, the landscape of clinical education has changed, particularly as it pertains to preceptor supervision of students.[4] Current standards do not allow for students to be unsupervised for any given period of time.[4] The change to direct supervision unequivocally was in the best interest of students and patients; however, it has sparked professional discourse on transferability of knowledge and skills into clinical competence and the ability to practice autonomously.[5,6] Within this commentary, we hope to challenge the current interpretation of the direct supervision standard and encourage reflection on its place in clinical education.

Prior to 2012, when the Commission on Accreditation of Athletic Training Education (CAATE) ruled that any form of "first aider" policies were in violation of the standards, many programs used this language in good faith to not only placate the standard, but also to promote some independent learning opportunities.[7,8] However, this is no longer acceptable educational practice as outlined in the current standards.[4] Some suggest that direct supervision limits the opportunities for students to assume responsibility and act quickly in their skills during clinical education, resulting in young professionals who are not prepared for the transition to autonomous clinical practice.[6] Perhaps this is due to preceptors and program administrators implementing a direct supervision policy that is too strict to allow students to make clinical decisions independently. Advocates of the direct supervision model take stock in the need for encouragement and feedback[1] that can ultimately improve performance of the student; a direct tool designed to improve patient care.[9–11] Regardless of the vantage point, there are clear benefits gained from each proposed model of supervision, yet it appears as though perhaps the shift away from the "old model" has limited independent thinking due to supervision that is too strict.[7,8]

In reflection and evaluation, it appears as though the pendulum may have swung too far in requiring strict direct supervision. Simply, we need more balance between autonomy and supervision to allow students to gain confidence and prepare for professional practice. Under the previous model of supervision, students were permitted to act as first aiders when their preceptors were not directly accessible, a situation that could enable students to make some immediate decisions and implement their skills, skill implementation we recognize as reflective of their scope of practice within their state practice acts. The opportunity to do so may help students continue to develop and refine their athletic training skills as well as build confidence when making decisions. In the new model, however, if the preceptor is not physically present, a student must not be allowed to engage in clinical education experiences. The former set the stage for possible abuse (ie, substitute coverage, performing roles of professional), where meaningful learning was not occurring and feedback could be limited, whereas the current may limit clinical reasoning and critical thinking as students may not be able to demonstrate or apply their knowledge. We recognize that the fault may lie with both programmatic decisions and training of preceptors, but also with the strict standards established by the CAATE. Ultimately, the mindset must be to provide students with structured learning that blends a balance of "helicoptering" and "independence" depending on student knowledge, skills, and confidence, something that must be advocated within each program and supported by the preceptors supervising students. We believe this integrated approach will lead to autonomous practitioners whoare capable of displaying critical thinking and independent decision making that is deemed competent and effective.

The current model of supervision sits in a position where questions arise on the readiness of newly credentialed athletic trainers, a debate that has become popular among athletic training professionals.[12] There is some postulation that the professional education of athletic training students has some shortcomings, most notably with their ability to practice independently.[13] Carr and Volberding[14] reported that independent decision making was a weakness exhibited by recent graduates, a finding that has been reported by other researchers[13] following this initial investigation. The concern regarding the ability of a student to directly transition to independent clinical practice has only grown over recent years when the internship route to certification was discontinued.[15–17] Although the most recent reform to an accredited-based curriculum produced better performance on the Board of Certification (BOC) examination,[18] problems with the level of preparedness still remain. This may indicate that the didactic aspect of professional preparation may be adequate (based on BOC pass rates), but there could be a need to evaluate the current structure of clinical education to improve independent clinical decision making. However, it is important to note that we surmise that concerns regarding level of preparation for independent clinical practice are not unique to athletic training, as providing autonomous learning can be challenging in any health care program.

Perhaps improving the level of training for preceptors may also be warranted. Based on the current CAATE standards,[4] preceptors "must receive planned and ongoing education from the program designed to promote a constructive learning environment."[4(p5)] Unfortunately, the standards[4] do not mention supervised autonomy,[19] situational supervision,[20] graduated autonomy,[21] or other phrases to describe how supervision should occur; only that they must "facilitate the clinical integration of skills, knowledge, and evidence regarding the practice of athletic training."[4(p5)] Thus, providing adequate training on how supervision should occur falls on the clinical education coordinator and, ultimately, the program director.[4] In addition to improving the training preceptors receive, employers need to provide orientation and mentoring to help new employees, and especially young

professionals, assimilate into their new roles.[22] Providing clear expectations and mentors for new employees may help the transition to new practice or first practice.[22,23]

As we begin to navigate another educational reform, skeptics question whether a professional master's model can produce independent, critical thinkers ready to assume autonomous clinical practice.[24] We believe these concerns are transferrable to the master's degree educational model as expectations and standards for educational delivery are the same. Moreover, the foundation for these concerns of clinical readiness are centered on the current CAATE standard of direct supervision:

> 63. The program must include provision for supervised clinical education with a preceptor (see Personnel Standards). Students must be directly supervised by a preceptor during the delivery of athletic training services. The preceptor must be physically present and have the ability to intervene on behalf of the athletic training student and the patient.[4]

The current standard regarding supervision has fostered a model of clinical education that appears to be viewed as helicopter supervision. Because the supervision policy is strict and does not mention how supervision should be provided based on the knowledge, skill, and confidence of students, preceptors may be hesitant to allow students to provide patient care while being minimally supervised when preceptors are physically present, but not looking over the students' shoulders. The parallel draws its application from helicopter parenting, whereby parents police their children in all aspects of development.[25] In this case, behavior of parents stymies the children's development of critical thinking and confidence in making their own decisions.[23] Paralleling this theory, Scriber and Trowbridge[6] suggest that direct supervision of all clinical education experiences can limit self-reflection as they are isolated to following prescribed orders, something that leads to insufficiency in independent thinking and decision-making skills as students are never challenged to implement their own actions.[6] As written now, the standard is meant to imply that students need to be supervised at all times,[4] partly to protect them from being misused, but also to ensure proper treatment of patients and to avoid state practice act violations. The standard of direct supervision also seems to convey the message that learning is only supposed to occur when preceptors are present or when there is a direct exchange between students and educators.[5,6] This premise refutes not only student-centered learning, but also adult learning theories (adult learning = self-directed, autonomous, relevant, and practical[26]) and brings to mind the old adage, "when a tree falls in the forest does it make a sound?" Yes, of course it does; thus, in similar fashion, learning and professional development can take place without the direct interactions of preceptors. Such development may require self-reflection and effective education, however.[6]

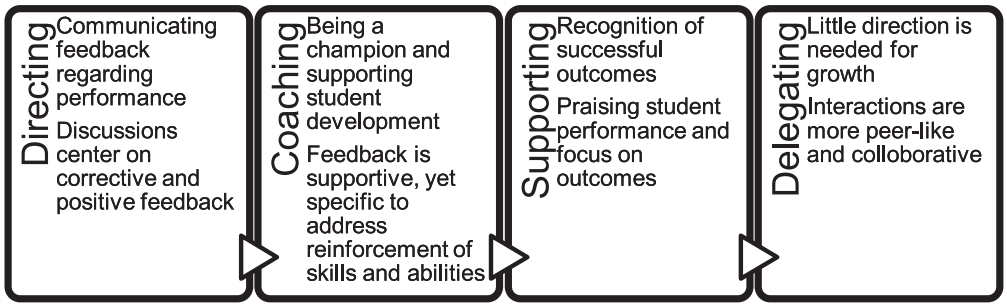
As we prepare to reevaluate and implement a professional master's model for athletic training, program administrators need to remember previous recommendations[7,27] for clinical supervision as well as today's guidelines.[4] The most critical aspect for supervision is to gain feedback, corrective and affirmative, as a means to promote appropriate development of skills and competence while keeping patients safe.[5,6] However, students can go unsupervised and gain confidence in their abilities, yet never know that they are incorrectly treating a patient or improperly applying a clinical diagnostic test. Conversely, they can go minimally supervised and gain confidence in their skills and abilities, such as traveling for the first time with their preceptor and having to find ice and the visiting team's locker room independently, and engaging in a conversation with the host athletic trainer to establish procedures to provide medical care in a foreign environment. While direct supervision is not a bad thing, similar to helicopter parenting, too much of it can possibly be detrimental to development.[5,6]

A NEW MODEL OF SUPERVISION

Consider that supervision can be graduated. That is, as students are able to demonstrate the appropriate level of knowledge, skills, and professional behaviors, the less helicopter preceptors need to be since the students are ready to be more autonomous. The end goal of clinical education and the professional socialization process is the development of students who demonstrate competence and readiness to transition to independent clinical practice. Thus, graduated supervision would be necessary to achieve this goal. Referencing the previous guidelines for supervision,[8] preceptors only needed to be readily available to students, much like clinical supervision in other medical and health care models.[8,28–29] In athletic training, perhaps a more graded model, whereby students earn their independence as they mature and demonstrate clinical competence as well as effective, appropriate levels of critical decision making, is appropriate. As Liberi[28] previously suggested, direct supervision can coexist with independent learning. Similarly, others such as Sexton et al,[19] Sexton,[29] Levy et al,[20] and Scriber and Trowbridge[6] discuss that direct supervision reframed as graded autonomy can facilitate the outcomes we desire in athletic training clinical education, a clinical education outcome that directly relates to supporting students' transitions to autonomous clinical practice, which displays appropriate decision making. Supervision guidelines should speak to preceptors evaluating students' levels of competence and then modifying the amount of supervision required to facilitate and support professional development.[20] Theoretically, this would indicate that, as students mature and demonstrate their knowledge, abilities, and competence, more freedom is provided to support their development. For example, if students have demonstrated competence when performing knee examination skills, they could complete a knee examination on patients while their preceptors engage in different tasks. When the students are finished, the preceptors would engage the students in a conversation about the examination process and findings and could perform their own examination allowing for correction and feedback. This structure to supervision follows the guidelines of situational supervision,[20] whereby the continuum of learning and feedback is based upon the students' performance and needs (Figure 1).[30] The foundation to situational supervision is task based as the students' direct performance is matched by the amount of supervision needed and direction provided.[30]

Many athletic training program administrators frontload their curriculum with coursework that provides students with the core content necessary to navigate clinical education experiences.[31] Clinical education during the first year is often a

Figure 1. A continuum of learning and feedback.[37]



catalyst to application, whereby students are more reflective learners and "see it all."[32] Learning often requires directed supervision, as currently mandated.[4] However, as students matriculate and demonstrate the appropriate level of knowledge, skills, and critical thinking, the clinical education experiences become more of reinforcement through active engagement.[33] Learning, here, may be better served using the previous recommendations and discussions of supervised autonomy[19] or situational supervision.[20]

The debate over how students are supervised in clinical education will continue, particularly as we move to the professional master's model. The move will likely cause the end of what many used as their transitionary role in the form of graduate assistant or internship positions to gain confidence and autonomy, as they remain supported in a model that mirrors situational/graduated supervision.[34] In addition to properly orienting athletic trainers through job training, formal mentorship, or residencies, the idea of graduated supervision may benefit the professional socialization of students. Early clinical education requires more constant supervision and feedback, while late stages of clinical education should, in theory, require less helicoptering because students should be showcasing a skill set level that matches readiness to enter into independent patient care.[20] Entrustable professional activities (EPAs)[35] may be a model that can blend old and current direct supervision policies as currently outlined in the CAATE standards. Although EPAs are founded within a model that includes a student who is a credentialed/licensed practitioner, we can adapt the fundamental principle behind it to improve the current model of supervision. Simply, an EPA is a model of supervision that requires preceptors to evaluate, through observation, the abilities of their students and then decide upon the level of supervision students require for development.[35] Clinical education is the foundation for skill development and competency; thus, those who provide supervision within that setting should be permitted to assess the students' readiness to perform skills and make decisions with modifiable and flexible supervision.

A main motivation behind the transition to graduate level education was to align the athletic training professional preparation to other health care professions,[36] such as physical therapy, occupational therapy, and medicine. In fact, those who are in favor of the transition note that aligning with other health care programs is necessary and viewed as a positive impetus behind the decision to change.[24] Perhaps a more robust definition of supervision is required in our accreditation standards to more adequately reflect the flexibility preceptors should have within supervision. We present a direct supervision policy dichotomy between athletic training and other health care programs in Table 1. The take-home message, when comparing athletic training to other health care or medical education programs, is the deficiency in a graduated model of supervision, something that allows for the recognition of development skills, knowledge, and performance that indicates readiness to be indirectly supervised. Therefore, if we are to be more like other health care professions, we must consider a supervision policy that is reflective of program control and the ability of preceptors to evaluate and determine what supervision level is appropriate for not only student performance, student demands, and patient care, but also for learning and development. Preceptors should be encouraged to make such decisions using their discretion based on student knowledge, skills, confidence, and previous interactions with patients. In short, students should not be put in positions where they feel uncomfortable or where patients may be in harm's way, but placed in situations that allow them to learn autonomously, gain confidence, and practice independence. Additional forms of summative feedback that a preceptor may use to determine the level of supervision can include daily interactions (ie, professional discourse), observations of patient interactions, as well as students' engagement in reflection of performance and openness and acceptance of feedback for growth.[27] We present a more robust presentation of this feedback in Table 2.

Borrowing from the medical educational model, supervision should be viewed as modifiable and reflective of training and performance.[34] Supervision ought to be on a scale whereby, as skills and knowledge grow, so does the level of interaction of students with patients, while concurrently the level of supervision lessens.[6,19,20] In a recent report, Ten Cate et al[35] present a model of education (Figure 2) that showcases levels of supervision that reflect students' capabilities and demonstration of knowledge and readiness. Much like our current guidelines for advancing students' clinical education experiences, the model suggests that supervision is a product of student development and needs. This does require supervisors to recognize and evaluate student progression and readiness to handle responsibilities with and without supervision.[35] Students who are ready to be independent are likely to demonstrate traits that are measurable, recognizable, and definable (Table 2). In turn, this will place more responsibility (and provide autonomy) to program administrators in the selection and training of qualified preceptors who are educated on making such decisions.

CONCLUSIONS

Clinical education continues to be viewed as the pillar of professional development for our students, as well as other

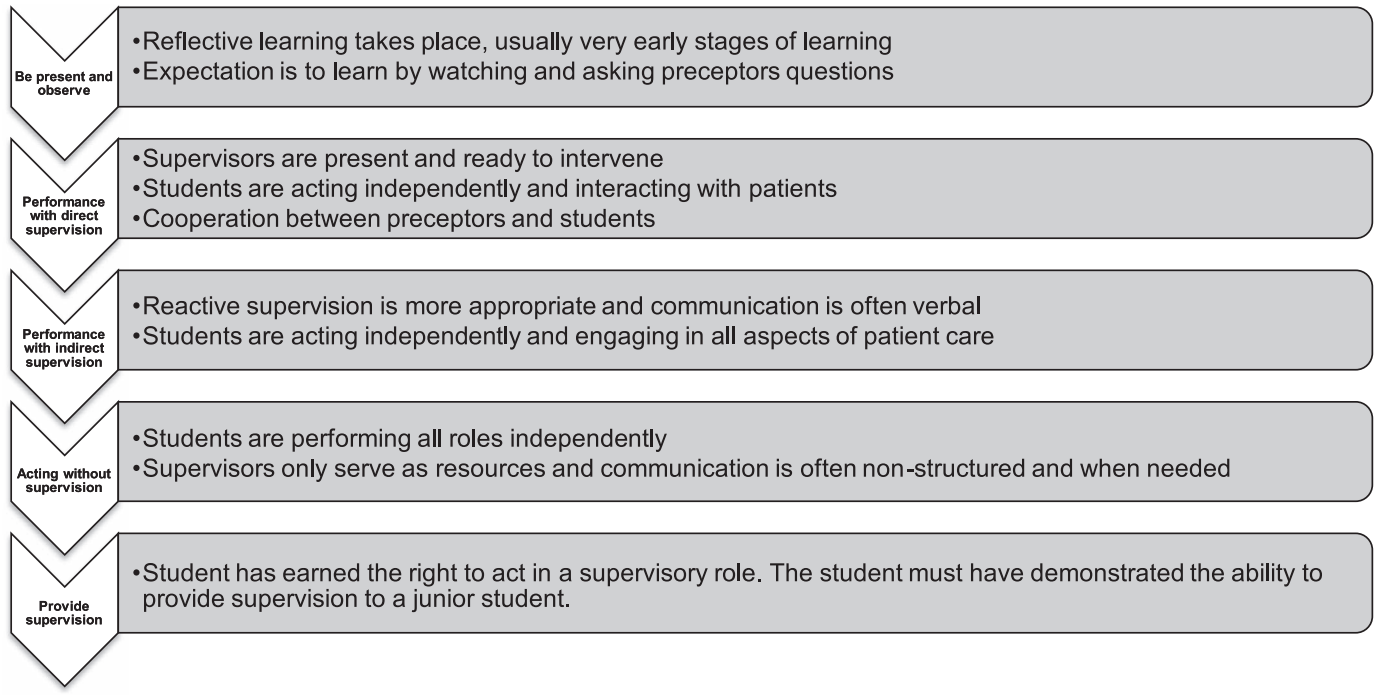
Table 1. Models of Supervision in Health Care Education

Professional Program	Terminology/Standard	Definition
Physical therapy[40]	Student supervision	Supervision must be onsite supervision, but not necessarily direct, personal supervision. Students must be formally enrolled in education program.
Occupational therapy[41]	Supervision of students	Ensure that supervision provides protection of consumers and opportunities for appropriate role modeling of occupational therapy practice. Initially, supervision should be direct and then decrease to less direct supervision as appropriate for the setting, the severity of the client's condition, and the ability of the student.
Speech and language therapy[42]	Direct supervision	Direct supervision must be in real time and must never be less than 25% of the student's total contact with each client/patient and must take place periodically throughout the practicum. These are minimum requirements that should be adjusted upward if the student's level of knowledge, experience, and competence warrants. The amount of supervision must be appropriate to the student's level of knowledge, experience, and competence. Supervision must be sufficient to ensure the welfare of the client/patient.
Athletic training[43]	Direct supervision	The program must include provision for supervised clinical education with a preceptor (see Personnel Standards). Students must be directly supervised by a preceptor during the delivery of athletic training services. The preceptor must be physically present and have the ability to intervene on behalf of the athletic training student and the patient.

Table 2. Identifiable Traits for Readiness to Be Autonomous in Clinical Education[34]

Trait	Summary	How It Can Be Assessed?
Competence	Demonstration of knowledge, skills, attitudes and behaviors that reflect expertise.	Information can be gained through observations, performance on exams/coursework, and engagement in clinical education experiences.
Conscientiousness and reliability	Demonstration of appropriate decision making, responsibility, and accountability for interactions in clinical education and with patient care.	Assessment often comes from interactions with preceptors and/or academic faculty.
Self-awareness of strengths and weaknesses	Demonstration of one's own limitations and strengths (ie, knowing when to act and when not to, understanding scope of practice and when to ask for assistance).	Evaluation occurs during preceptor and student interactions and feedback obtained from academic faculty, peers, or patients.
Patient interactions	Demonstration of effective attitudes and behaviors towards patients (ie, empathy, receptiveness, active listening). Patients can also include other members of the health care team, who are not viewed as medical.	Assessment often is performed through observations and feedback from patients and others.
Collegial interactions	Demonstration of appropriate and effective communication between all members of the health care team. Demonstration of effective professional discourse about patient care.	Information that is gathered through interactions with the student and feedback from academic faculty and others.

Figure 2. Levels of entrustment and supervision.[38,39]



medical and health care programs. Therefore, we should continue to find ways to help our students develop the necessary critical thinking and clinical skills to practice independently immediately following their successful completion of the credentialing examination, as the current benchmark of clinical competence is the BOC examination outcome. We recommend the addition of extra language to the CAATE standards outlining how supervision should be handled by preceptors. Students should be allowed graduated autonomy where they are allowed some freedom, but patients are not put at risk and state practice acts are not violated. In addition, preceptors should be trained carefully and educated regarding proper supervision. Finding a middle ground will help prepare students for professional practice through engagement in more meaningful clinical education experiences.

REFERENCES

1. Klossner J. The role of legitimation in the professional socialization of second-year undergraduate athletic training students. *J Athl Train*. 2008;43(4):379–385.
2. Pitney WA. Professional socialization of certified athletic trainers in high school settings: a grounded theory investigation. *J Athl Train*. 2002;37(3):286–292.
3. Pitney WA, Ilsley P, Rintala J. The professional socialization of certified athletic trainers in the National Collegiate Athletic Association Division I context. *J Athl Train*. 2002;37(1):63–70.
4. Standards for the academic accreditation of professional athletic training programs. Commission on Accreditation of Athletic Training Education Web site. Available at: http://caate.net/wp-content/uploads/2015/12/2012-Professional-Standards.pdf. Accessed March 30, 2016.
5. Geisler PR. The elephant in the room: adequate supervision, not direct supervision. *Athl Train Sports Health Care*. 2013;5(4):151–154.
6. Scriber K, Trowbridge C. Is direct supervision in clinical education for athletic training students always necessary to enhance student learning? *Athl Train Educ J*. 2009;4(1):32–37.
7. Commission on Accreditation of Athletic Training Education. Graded supervision and supervised autonomy. *Commission on Accreditation of Athletic Training Education Update*. 2007;6(1):2–3.
8. Commission on Accreditation of Athletic Training Education. *Standards for Accreditation of Entry-Level Athletic Training Education Programs*. Round Rock, TX: Commission on Accreditation of Athletic Training Education; 2007.
9. Nottingham S, Henning J. Feedback in clinical education, part I: characteristics of feedback provided by approved clinical instructors. *J Athl Train*. 2014;49(1):49–57.
10. Ford PD, Velasquez B. Dynamic paired-behaviors in effective clinical instruction. *Athl Train Educ J*. 2010;5(1):32–37.
11. Ende J. Feedback in clinical medical education. *J Am Med Assoc*. 1983;250(6):777–781.
12. Willeford KS, Fincher AL, Barnum MG, et al. Improving clinical education through proper supervision. *Athl Train Educ J*. 2009;4(1):6–7.
13. Thrasher AB, Walker SE, Hankemeier DA, Pitney WA. Supervising athletic trainers' perceptions of professional socialization of graduate assistant athletic trainers in the collegiate setting. *J Athl Train*. 2015;50(3):321–333.
14. Carr WD, Volberding J. Employer and employee opinions of thematic deficiencies in new athletic training graduates. *Athl Train Educ J*. 2011;7(2):53–59.
15. Kraeger D. Do our AT students need more hand-on experience? *NATA News*. 2011;January:8.
16. Carr WD. Not enough experience for students? Reader disagrees. *NATA News*. 2011;March:8.
17. Palmer R. More debate on AT student experience. *NATA News*. 2011;May:8.

18. Starkey C, Henderson J. Performance on the athletic training certification examination based on candidates' routes to eligibility. *J Athl Train*. 1995;30(1):59–62.
19. Sexton P, Levy LS, Willeford KS, et al. Supervised autonomy. *Athl Train Educ J*. 2009;4(1):14–18.
20. Levy LS, Gardner G, Barnum MG, et al. Situational supervision for athletic training clinical education. *Athl Train Educ J*. 2009; 4(1):19–22.
21. Weston MJ. Strategies for enhancing autonomy and control over nursing practice. *Online J Issues Nurs*. 2010;15(1).
22. Mazerolle SM, Walker SE, Thrasher AB. Exploring the transition to practice for the newly credentialed athletic trainer: a programmatic view. *J Athl Train*. 2015;50(10):1042–1053.
23. Walker SE, Mazerolle SM, Thrasher AB. Orientation tactics utilized in postprofessional athletic training programs. *Athl Train Educ J*. 2016;11(3):138–145.
24. Mazerolle SM, Bowman TG, Pitney WA. Multistakeholder perspectives on the transition to a graduate-level athletic training educational model. *J Athl Train*. 2015;50(9):964–976.
25. What is helicopter parenting? Parents Web site. http://www.parents.com/parenting/better-parenting/what-is-helicopter-parenting/. Accessed April 27, 2016.
26. 6 top facts about adult learning theory. eLearning Industry Web site. http://elearningindustry.com/6-top-facts-about-adult-learning-theory-every-educator-should-know. Accessed April 15, 2016.
27. Martin M. Let's not forget what the educational experience should be! *NATA News*. 2001;12:18.
28. Liberi V. Direct supervision and independent learning can coexist: not a new concept. *Athl Train Sports Health Care*. 2013;5(5):195–197.
29. Sexton P. Fostering supervised autonomy in athletic training students. Paper presented at: NATA Educators' Conference; February 27–28, 2011; Washington, DC.
30. Bedford C, Gehlert KM. Situational supervision: applying situational leadership to clinical supervision. *Clin Supervisor*. 2013;32(1):56–69.
31. Bowman TG, Dodge TM, Mazerolle SM. Program directors' perceptions of programmatic attributes contributing to athletic training student persistence. *Athl Train Educ J*. 2015;10(2):122–129.
32. Mazerolle SM, Bowman TG, Benes SS. Reflective observation in the clinical education stetting: a way to promote learning. *Athl Train Educ J*. 2015;10(1):32–38.
33. Mazerolle SM, Bowman TG, Benes SS. Defining the engaging learning experience from the perspective of the athletic training student. *Athl Train Educ J*. 2014;9(4):182–189.
34. Pitney WA. Requiring professional athletic training programs at the post-baccalaureate level: considerations and concerns. *Athl Train Educ J*. 2012;7(1):4–10.
35. Ten Cate O, Hart D, Ankel F, et al. Entrustment decision making in clinical training. *Acad Med*. 2016;91(2):191–198.
36. Professional education in athletic training: an examination of the professional degree level. National Athletic Trainers' Association Web site. http://www.nata.org/sites/default/files/The_Professional_Degree_in_Athletic_Training.pdf. Accessed April 27, 2014.
37. Hersey P, Blanchard KH. *Management of Organizational Behavior: Utilizing Human Resources*. Englewood Cliffs, NJ: Prentice Hall; 1996.
38. Frank JR, Snell LS, Ten Cate O, et al. Competency-based medical education: theory to practice. *Med Teach*. 2010;32(8): 638–645.
39. Ten Cate O. Trust, competence, and the supervisor's role in postgraduate training. *BMJ*. 2006;333(7571):748–751.
40. Standards and required elements for accreditation of physical therapy education programs. Commission on Accreditation of Physical Therapy Education Web site. http://www.capteonline.org/uploadedFiles/CAPTEorg/About_CAPTE/Resources/Accreditation_Handbook/CAPTE_PTStandardsEvidence.pdf. Accessed September 23, 2016.
41. Student supervision. The American Occupational Therapy Association Inc Web site. http://www.aota.org/education-careers/fieldwork/stusuprvsn.aspx. Accessed September 23, 2016.
42. Standards for accreditation of graduate education programs in audiology and speech-language pathology programs. American Speech-Language-Hearing Association Web site. http://www.asha.org/policy. Accessed September 23, 2016.
43. Standards for the academic accreditation of professional athletic training programs. Commission on Accreditation of Athletic Training Education Web site. http://caate.net/wp-content/uploads/2015/12/2012-Professional-Standards.pdf. Accessed March 30, 2016.