Clinical Education in Athletic Training

Jessica R. Edler, MS, ATC*; Lindsey E. Eberman, PhD, ATC*; Stacy Walker, PhD, ATC† *Applied Medicine and Rehabilitation, Indiana State University, Terre Haute; †School of Kinesiology, Ball State University, Muncie, IN

Context: Clinical education is a foundational component of healthcare education by which students acquire, practice, and demonstrate competency in clinical proficiencies through classroom, laboratory, and clinical experiences. Currently, the most common practice of clinical education in athletic training is clinical integration.

Objective: The purposes of this article are to describe how athletic training and similar health professions implement clinical education and to present clinical immersion as an alternative to clinical integration.

Background: Clinical education is delivered differently across healthcare disciplines. Some disciplines use clinical immersion, while others use clinical integration. Some professions have specific requirements, while others are left to the discretion of the program administrators. However, few professions are measuring the effectiveness of each, leading to questions about best-practice models in clinical education.

Description: Clinical integration occurs when students complete clinical and didactic course work concurrently, while in the clinical immersion model, students are immersed in patient care full time with little or no didactic course work. A hybrid model of clinical education includes both integration and immersion.

Clinical Advantage(s): Preliminary research within nursing suggests that students engaged in clinical immersion perform better on certification examinations than do those from an integration model. The clinical immersion model is enhanced by the implementation of standardized patients and simulations to prepare students for immersive experiences. These encounters provide an opportunity for students to demonstrate competency before engaging in patient care, which promotes patient safety.

Conclusion(s): Program administrators have the opportunity and professional responsibility to explore different curricular models and to ultimately develop better methods of preparing future athletic trainers. Moreover, educators have a responsibility to measure and report outcomes to help provide a body of knowledge regarding best practices in clinical education.

Key Words: Clinical immersion, simulated learning experiences, evidence-based teaching

Ms Edler is currently Doctural Student in the Department of Applied Medicine and Rehabilitation at Indiana State University. Please address all correspondence to Jessica R. Edler, MS, ATC, Applied Medicine and Rehabilitation, Indiana State University, 567 North 5th Street, Sycamore Center for Wellness and Applied Medicine, Terre Haute, IN 47809. jedler@sycamores.indstate.edu.

Full Citation:

Edler JR, Eberman LE, Walker S. Clinical education in athletic training. Athl Train Educ J. 2017;12(1):46-50.

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Jessica R. Edler, MS, ATC; Lindsey E. Eberman, PhD, ATC; Stacy Walker, PhD, ATC

INTRODUCTION

Clinical education is a student's professional preparation, and it involves the formal acquisition, practice, and evaluation of clinical proficiencies through classroom, laboratory, and clinical experiences in healthcare environments.¹ Competency-based medical professions such as nursing, occupational therapy, physician assistant, and physical therapy require clinical education as part of their educational training.²⁻⁶ However, when (eg, didactic and clinical education occur concurrently or sequentially) and for how long (eg, weeks, months, a semester) the clinical education lasts vary greatly by profession.^{2–6} In some cases, the educational programs within a profession have different clinical education requirements. Within the field of athletic training, some programs are implementing clinical and didactic education concurrently, which we are calling a *clinical integration model*. Other programs are integrating periods of clinical immersion, in which students function on a full-time basis in clinical education during their curricula, what we term a *clinical* immersion model. Clinical immersion refers to intensive experience designed to enable graduates to transition readily to practice.⁷ Based on anecdotal findings, the most common practice of clinical education in professional programs is clinical integration; however, we lack substantial evidence to accurately depict the current methods and effectiveness of clinical education, regardless of whether programs are using clinical integration or immersion models.

Athletic training professional programs will be moving to the master's-degree level in the next decade. This provides an opportunity to redefine how didactic and clinical education is delivered and how effectiveness is measured because there is an impetus to educate our students "differently." We believe the timing of the degree change allows program administrators the opportunity to rethink and restructure the curriculum as a component of the substantive change process. While some of the reasons to elevate the degree include structural limitations and the failings of baccalaureate degrees,⁸ we need to consider alternative approaches to teaching students in professional programs. Students could be clinically immersed and be placed in clinical education for prolonged periods of time so that they can appreciate the full-time experience of an athletic trainer. The purposes of this article are to describe how athletic training and similar health professions implement clinical education and to present clinical immersion as an alternative to clinical integration.

CLINICAL EDUCATION MODELS ACROSS HEALTHCARE PROFESSIONS

Clinical education is defined and implemented differently across disciplines. In the upcoming paragraphs, we aim to provide an overview of clinical education in occupational therapy, physician therapy, physician assistant, and nursing fields.

The Accreditation Council for Occupational Therapy Education (ACOTE) requires integrated clinical observation expe-

riences and allows for participation in selected aspects of occupational therapy (Level 1 fieldwork) and an immersive clinical experience (Level II fieldwork).³ The purposes of Level I fieldwork are to introduce students to the experience, to apply knowledge to practice, and to develop an understanding of patient needs.³ Level II fieldwork is intended to develop competent, entry-level occupational therapists.³ These experiences are progressive in that they are intended to provide foundational observation and skill-centered experiences first and then more comprehensive and immersive experiences as students near graduation. The ACOTE requires a minimum of 24 weeks of full-time Level II fieldwork to complete the degree requirements.³ Students may complete Level II fieldwork on a part-time basis as long as it comprises 50% of the full-time equivalent of the site.³ The American Occupational Therapy Association has developed a model curriculum guide for educators, which includes a content sequence guide.⁹ In this guide Level I fieldwork is integrated into the first 2 semesters each year, with Level II fieldwork integrated into the third semester.9

The Commission on Accreditation in Physical Therapy Education (CAPTE) requires a full-time, immersive clinical experience (time undefined) at the conclusion of the student's didactic course work.⁶ The CAPTE also requires integrated clinical experiences throughout the curriculum to supplement didactic course work.⁶ The CAPTE does not have any specific requirements regarding how clinical education should take place within the curriculum, nor does it specify experiences the students must receive before completion of the program.⁶

The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) does not specify the type of clinical experience required, nor does it place parameters on time requirements.⁴ The ARC-PA has a list of specific patient populations and settings with which the students must have interaction and to which they must be exposed before the completion of the program.⁴ However, the ARC-PA defines supervised clinical practice experiences as experiences in which the student engages in comprehensive patient assessment and involvement in patient-care decision making.⁴ Anecdotally, physician assistant programs use clinical immersion toward the end of the academic experience, but little research has discussed the structure and efficacy of clinical education in this discipline.

The nursing profession has multiple accreditors for nursing programs; however, the standards provide institutional autonomy.^{2,10} The Accreditation Commission for Education in Nursing (ACEN) accredits all types of undergraduate (practical, diploma, associate, and bachelor) and graduate (master and clinical doctorate) nursing programs. The Commission on Collegiate Nursing Education (CCNE) accredits only bachelor and master programs. Neither the ACEN nor the CCNE specify the type(s) of clinical experience required, but they do suggest that learning environments and clinical experiences reflect contemporary practice.^{2,10} However, the American Association of Colleges of Nursing (AACN)

	Clinical Integration Model Didactic and Clinical Components	Clinical Immersion Model		Hybrid Integration/Immersion	
		Didactic Component	Clinical Component	Didactic Component	Clinical Component
Time spent in the classroom	3–4 h/d 3–5 d/wk Total: 9–12 h	9–12 h/wk (Face to face)	1–2 h/wk Associated with clinical education course (online)	6–9 h/wk (Face to face)	3–6 h/wk Taking online courses
Time spent in clinical education	3–5 h/d 3–6 d/wk Total: 15–20 h	0 h/wk	40 h/wk	0 h/wk	25–35 h/wk

Table. Clinical Education Models

recommends, but does not require, that baccalaureate nursing programs use clinical immersion as a final, culminating experience for students.¹¹ The AACN also recommends the integration of simulation experiences throughout the didactic course work to provide effective, safe environments for learning in which the student is able to apply the cognitive and psychomotor skills needed for clinical practice.¹¹ Previous research⁷ in nursing clinical education suggests that the clinical immersion model improves student test scores and offers better learning opportunities for students.

The variability in terms of how healthcare professions define and implement clinical education has drawbacks and benefits. Some professions, such as occupational therapy, define a time limit, while others leave timing to the discretion of program coordinators. While most programs and professions appreciate the academic freedom, few programs are measuring the effectiveness of different models of clinical education, leading to questions about best practices in clinical education. In athletic training we, too, have little evidence to support or refute our current approaches to clinical education.

ATHLETIC TRAINING CLINICAL EDUCATION

The Commission on Accreditation of Athletic Training Education is similar to other health profession regulators in that there are limited restrictions on how a program must deliver clinical education.⁵ Expectations include the logical progression, with increasing amounts of responsibility spanning at least 2 academic years, leading to autonomous clinical practice upon certification.⁵ These experiences must address the continuum of care necessary to prepare students for clinical practice in a variety of settings,⁵ yet there is no formal standard prescribing the mode of clinical education. In the clinical integration model, students complete clinical and didactic course work concurrently (Table). Although no data currently exist, anecdotally we conclude that clinical integration is the most commonly used model of clinical education in athletic training. In this model, students are engaged in didactic education (\approx 50%-75% of course load) and then spend a few hours a day, 4 to 6 days a week at their clinical sites ($\approx 25\%$ of course load) in the same semester. Typically, these clinical experiences occur throughout 4 to 6 semesters of the program. Clinical integration is most likely used as a result of the inflexible nature of undergraduate education. This facet was discussed at length in the Professional Education in Athletic Training document (Key Finding No. 8), whereby clinical education requirements are often in competition with other required courses and degree requirements.⁸

The clinical immersion model of clinical education immerses students in patient care on a full-time basis ($\approx 100\%$ of course load), with little or no didactic course work ($\approx 0\%$ of course load) required concurrently (Table). Students engage in clinical education and didactic education in different semesters. For example, students in an athletic training program with an immersive experience could complete all of their didactic course work before engaging in clinical education. At the conclusion of their didactic course work, the students would engage in 1 to 2 semesters of clinical education (likely assuming their entire course load). Another example would include immersive and didactic experiences taking place in the same semester. In this case, the student would complete didactic education for half of the semester and be immersed in clinical education the other half of the semester. This structure currently exists in some programs, often as an internship experience within or at the end of the curricula, but it does not appear to be common practice at this time.¹²⁻¹⁴

It is also possible to consider a hybrid model of clinical education that includes both integration and immersion (Table). In this model, students could complete the bulk of their didactic course work while not engaging in clinical experiences. However, the students may also take 1 to 2 courses while immersed in their clinical settings. For example, an organization and administration course that requires less "hands-on" training may be facilitated using online distance education principles while the student is engaged in an immersive clinical experience. The key difference with the hybrid integrated/immersion model is that the student is taking less didactic credit hours (\approx 25% of course load) while immersed in clinical education (\approx 75% of course load).

Athletic training continues to struggle with issues related to transitioning to practice.¹⁵ It is unclear how models of clinical education affect transition to practice, patient care, communication, clinical decision making, and time management. We have not yet compared clinical education outcomes using the different approaches. For this reason, there is no evidence to support any of the aforementioned curricular models. However, we have provided examples, although not all inclusive, and suggest program autonomy in implementation, but we also encourage systematic evaluation and comparison so that best practices can be identified.

CLINICAL ADVANTAGES

Clinical education varies among the different healthcare professions, and determining which approach is best to

prepare students for future clinical practice has not yet been thoroughly explored in any of these disciplines. Nursing has identified some helpful preliminary findings in which educators at one large institution revised their clinical education from an integration model to an immersion model.¹⁶ The researchers compared student perceptions, student exit surveys, and the pass rates on the National Council Licensure Examination for Registered Nurses (NCLEX-RN) for 5 years before and after their revision.¹⁶ Overall, students engaging in clinical immersion experienced higher first-time passing rates on the NCLEX-RN (92.14% compared with 89.19%).¹⁶ In this case, the program was successful and met the minimum passing rate requirements for accreditation $(80\%)^{2,10}$; however, if we consider a program that may be close to meeting or not meeting this standard, this difference may be substantial in moving the program forward. Researchers^{16,17} also found that early observation/fieldwork and simulation experiences were important in preparing students for the immersive experience. Observation/fieldwork experiences included opportunities such as observation at a rehabilitation center where the students witnessed medication administration and health assessments.⁷ Simulation experiences were conducted in a simulation laboratory, which was designed to mimic a healthcare facility.⁷ Students engaged in simulations, which included case studies, part-task training, and virtual clinical experiences to demonstrate competence before their culminating, immersive experiences.7 These findings, in combination with other educational learning theories,¹⁸ which we will discuss next, strongly support the process of situated learning in healthcare and medical education.

A progressive approach beginning with observation and resulting in immersion is substantiated in multiple learning theories.¹⁸ Situated learning, for example, is an enhancement of the apprenticeship model whereby students gain skills, knowledge, and an understanding of social norms within their respective future employment settings.¹⁹ Students start at the periphery, often engaged in observational learning, which is thought to help transmit values, attitudes, and patterns of behavior.²⁰ In addition, observational learning can teach students, through vicarious acquisition, positive and negative outcomes that result from certain behaviors, helping students to develop impressions about effective and ineffective practice.²⁰ As the clinical education evolves into more immersive experiences, the students absorb the cultural nuances of the environment.²¹ The desire to become a full participant, or to become legitimized as an actual professional of the discipline, is a motivator for more learning.²¹ This process of socialization into the profession seems to require periods of observational and immersive learning, or so the theory suggests.¹⁹⁻²¹

In applying situated learning theory to clinical immersion or a hybrid model, students would spend a substantial amount of time engaged in clinical practice with their respective preceptors. Situated learning expands student exposure and would more than likely provide more patient encounters. It is possible this extended time could include experience and exposure to those areas of clinical practice in which most recent graduates (and their employers) claim clinicians transitioning to practice are weakest. Specifically, evidence^{15,22} suggests that recent graduates struggle with aspects of healthcare administration, interpersonal communication, decision making/independence, initiative, confidence, reflective practice, and time management. Researchers²³ have also found that students who have the opportunity to have authentic experiences observing their preceptor engaging and demonstrating professional behaviors are better prepared to demonstrate similar behaviors as novice clinicians. Students engaged in clinical immersion also have the opportunity to better understand the daily work expectations of athletic trainers and to learn how to maintain work-life balance.²³ Immersive experiences, especially with an effective preceptor, could increase student exposure to these skills without the typical time constraints avowed as a problem in the current clinical education model.

Since students may have few to no consistent patient encounters, it is important to prepare students for these immersive experiences with simulations and standardized patients.^{16,24,25} Simulations and standardized patients provide an opportunity to practice cognitive and psychomotor skills and to demonstrate proficiency before implementing them on a patient.²⁵ These types of encounters protect the patients' safety and increase student confidence.^{24,25} Simulations and standardized patients could be used to better prepare students for clinical education, supplementing or even replacing some clinical education time,^{15,26} to enhance the quality of situated learning. Students who completed simulations before engaging in clinical practice scored higher on clinical assessments than did those engaged in clinical practice first.²⁶ This increase in score suggests that students who engage in simulations may be able to practice the skills during the simulation first, and then the skills are reinforced during their clinical experience.²⁶ Simulations and standardized patients are widely used in medicine to provide both formative and summative learning experiences to enhance and evaluate clinical and communication skills.^{27–32} The debriefing process, which is used after a simulation or standardized patient experience, enhances the characteristics of reflective practice.³³ This reflection enables students to learn from experiences and develop professional expertise by critically analyzing how their knowledge, attitudes, and skills develop.²⁰

CONCLUSIONS

Athletic training is again experiencing education reform after the recent degree decision made by the Athletic Training Strategic Alliance.³⁴ Program administrators have the opportunity and professional responsibility to explore different curricular models and ultimately to develop more effective methods of preparing future athletic trainers. We urge program administrators to consider clinical immersion or hybrid models to promote student preparedness and socialization into the profession. We are not advocating for the removal of integrated experiences in clinical education altogether; we believe that a variety of learning experiences throughout the students' education will best prepare students for the profession. These learning opportunities could likely include observation, standardized patient encounters, simulations, and immersive experiences. We also encourage programs to evaluate program effectiveness within this model, so that we can all make sounder educational decisions based on evidence.

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