Clinical Instructional Methods Employed by Preceptors in the Clinical Setting

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Context: Clinical education is critical to athletic training students' professional development. Instructional style can vary between preceptors, and little information is available regarding popular methods used by athletic trainers serving as preceptors.

Objective: To uncover the common instructional styles used by athletic trainers supervising athletic training students in the clinical setting.

Design: Qualitative study.

Setting: Online interviewing via Question Pro[™].

Patients or Other Participants: Twenty-four athletic training preceptors with an average age of 32 ± 7 years (11 male, 13 female) volunteered for the study. On average, the preceptors had 9 ± 6 years of clinical experience, and had served an average of 5 ± 3 years as preceptors. The preceptors were employed in the collegiate (n=12) and secondary school settings (n=12).

Data Collection and Analysis: We completed a general inductive study using online, asynchronous in-depth interviewing via Question Pro[™]. Credibility was secured using peer review, intercoder agreement, and member checks. Data was analyzed inductively to uncover the dominant themes, and recruitment was guided by data redundancy.

Results: Three dominant themes emerged from the data: First, preceptors engaged athletic training students through discussions and questioning to facilitate learning and critical application; second, they provided athletic training students with the independence and autonomy to develop their own clinical style and abilities by providing an authentic experience; and finally, preceptors fostered a learning environment that allowed athletic training students to feel their preceptor was approachable.

Conclusions: Preceptors promoted learning by mentoring students through a professional relationship and by creating an authentic learning experience that challenged the student to think, apply their knowledge, and gain confidence by being an active learner.

Key Words: pedagogy, clinical education, learning.

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Introduction

Clinical education is a critical component of many allied health care programs, including athletic training, since it facilitates clinical competence through valuable hands-on training.¹ It is estimated that more than half of a student's educational experiences are spent in the clinical setting.¹ The athletic training clinical education component is largely based upon a medical model, which capitalizes on an apprenticeship or internship experience under the guidance of a mentor to aid learning and professional development.² In athletic training, the clinical mentor is the preceptor who supervises, instructs, and evaluates the student during this learning experience based on their knowledge and performance of the Athletic Training Educational Competencies.³

As outlined in the Commission on Accreditation of Athletic Training Education (CAATE) standards,⁴ the preceptor must function to facilitate student learning which is directly related to the information outlined in the National Athletic Trainers' Association (NATA) Athletic Training Educational Competencies.³ Success in this role is heavily rooted in the athletic trainer's ability to balance both patient care and clinical instruction.⁵ An effective preceptor has been defined as one who possesses increased levels of passion and enthusiasm, clinical competence, a humanistic orientation, positive attitude towards teaching, and preceptor-specific knowledge and skills.⁵⁻⁶ Athletic training students respond to these traits, and value preceptors who are interested in engaging them and facilitating clinical skill integration during supervised clinical education experiences.⁶ To ensure education is happening in the clinical setting, preceptors should be selected based upon their teaching abilities,7 receive content delivery training, and be evaluated on their ability to demonstrate effective instructional skills. Although effective instructional skills are not considered the most important standard, they are identified as necessary to facilitate student learning.7

Despite expectations to be an effective educator, many preceptors may not have training in appropriate clini-

cal instruction techniques. Some of these techniques include questioning and feedback, discussion and debate, and teachable moments.⁸⁻¹² Each method is designed to stimulate critical thinking and skill application in the clinical education setting. The use of questioning appears to be the most common method of instruction used by nursing educators,¹³ but there is a limited understanding of the methods implemented by athletic training preceptors. Therefore, the purpose of this investigation was to uncover the most common instructional methods employed by athletic training preceptors.

Methods

This was an exploratory study to uncover methods utilized by preceptors to facilitate athletic training students' clinical education experiences. An asynchronous, online method was selected to allow participants the flexibility to respond to the questions at their leisure, as well as provide time to reflect on each question contained within the interview guide.¹⁵ Furthermore, asynchronous interviewing allowed the researchers to avoid the inconveniences of scheduling a time that matches both the availability of the participant and researchers, as well as the costs associated with travel and transcription that accompany a traditional interview session, while including a geographically dispersed group of participants. To circumvent some of the drawbacks of online interviewing, such as the absence of follow-up, the researchers included a peer review to ensure methodological rigor and member checks to establish integrity of the analysis process.

Participants

Twenty-four athletic trainers (12 male, 12 female) serving as preceptors volunteered for our study. This group was recruited from a convenience sample, which we derived from professional relationships within athletic training education programs across the country. Our recruitment pool yielded approximately 40 potential participants, who each received an invitation letter for voluntary participation. We utilized data saturation as our guide for recruitment, which was reached with 24 preceptors. The participants had an average age of 32 ± 7 years, an average of 9 ± 6 years of clinical experience, and had served an average of 5 ± 3 years as a preceptor. The preceptors were employed in the collegiate (n=12) and secondary school settings (n=12). Of the 24 respondents, one held a PhD, sixteen had Master's degrees, and seven possessed Bachelor's degrees. All of Bachelor degreed participants, all were working towards a Master's degree in sports medicine, athletic training, health promotion, education or curriculum design, or exercise science. In all, most participants were studying or had studied exercise science or athletic training.

Data Collection and Analysis

We utilized online, asynchronous in-depth interviewing with the secure website provided by Question Pro[™] to collect data. We selected online interviewing to allow participants the flexibility to complete the interview at their lesiure. This was important due to their involvement in multiple, competing roles, such as patient care, adminstrative duties, and clinical instruction. Although this type of interviewing is void of partipant and researcher interactions, it can still produce rich, insightful data due to the participant's sense of confidentality and the extended time they are allotted to reflect upon the question raised, as opposed to having to respond immediately.¹⁴ Recent studies¹⁵⁻¹⁶ utilizing this method of data collection have yielded positive results, and the researchers involved in data collection for the present study were familiar with this type of qualiative data collection.

The researchers sent all participants an email containing a brief description of the study, instructions for completion, and a link to the guestionnaire. Once logged onto the questionnaire, each participant provided basic demographic information (ie, age, gender, years in the profession, years as preceptor). Next, once they completed the background guestions, the participants responded to a series of open-ended questions that addressed several factors related to clinical instruction. We instructed the participants to journal their responses in a reflective manner to each of the questions raised within the space provided. On average, the participants completed the surevy in 30 minutes. Based on a review of literature regarding preceptor effectiveness and instructional methods, we developed the open-ended questions to guage the preceptor's perceptions of which instructional styles they used to promote student learning in the clinical education setting (Table 1). An athletic training educator with knowledge of online data collection and clinical education reviewed the open-ended questions to ensure content validity. The online instrument was pilot tested prior to participant recruitment. We allowed data redudancy and equal distribution of years of experience related to clinical instruction (experienced versus inexperienced) to guide the recruitment of participants. We satisfied both requirements with twenty-four participants, 12 with less than 5 years of preceptor experience and 12 with more than 5 years of preceptor experience.

The analysis procedures followed the general inductive process, a common method used in health and social science research.¹⁷ Prior to data evaluation, we

Table 1. Interview Questions

- 1 Describe your experiences with your students as you provide direct supervision.
- 2 Do you feel prepared to be a preceptor? Why or why not? Please explain your answer.
- 3 How would you describe your instructional style?
- 4 What has been your greatest challenge as a preceptor, and how did you learn to deal with it?
- 5 What do you like best, or what are the good things about being a preceptor? Please explain your answer.
- 6 What aspect of your role as a preceptor do you feel least satisfied by? Please explain your answer.
- 7 What advice might you give to an athletic trainer just about to start as a preceptor for the first time? Why?
- 8 How do you continue to grow in your role as a preceptor? What measures do you take to continually improve?
- 9 How has the role of the preceptor evolved since you were a student?
- 10 How has the role of the preceptor evolved since you were a preceptor for the first time?
- 11 In what ways do you provide mentoring for your athletic training students?

*Questions in **bold** were used for the present research

Table 2. Coding Themes			
Final Category	Initial Label	Supporting Data	
Engaging the AT Student	Stimulate	Asking questions	
		Discussions	
		Thinking	
		Talking	
Independence/Autonomy	Freedom/Integration	Hands-On	
		Doing	
		Mentoring	
		Practice	
Approachable	Helpful	Comfortable	
		Laid Back	
		Relaxed	
		Casual	
		Approachable	

(SMM/TGB) discussed the steps to be included in analysis to ensure consistency with coding. Initially, we read the transcripts in their entirety to gain an impression of the data. This holistic evaluation of the data continued multiple times and during the second and third "read-throughs," we assigned categories (labels) to the data. Initially, we kept the categories generic to explain the overall content of the responses. Once we assigned categories to the data, we organized them into more specific dominant themes to reduce the redundancy of the categories. The research purpose guided the data examination. After completion, the researchers discussed the findings as determined by the analysis via phone. The researchers negotiated categories, themes, and final coding until they reached complete agreement (Table 2).

Data Credibility

Data credibility in qualitative research refers to the steps taken by the researchers to ensure data consistency and authenticity, and is often secured by a minimum of two strategies.¹⁸ In this study, we employed a peer review, intercoder agreement, and member checks. Prior to data collection a peer reviewed the interview guide and data collection procedures to ensure methodological rigor. The peer also reviewed and verified the final presentation of data as analyzed by the first two researchers. Initial data analysis involved independent coding by the two lead researchers, who then negotiated over the findings until 100% agreement was reached. Prior to analysis, the researchers discussed the systematic approach to be used for data analysis. Finally, several participants were contacted

after analysis and prior to drafting the manuscript to verify the final findings of related to clinical instructional styles used by preceptors to promote student learning.

Results and Discussion

The preceptor plays an important role in the athletic training student's professional development, as they are charged with fostering student learning in a realtime setting. Although they have multiple roles, without question, their primary job as educators is to provide instruction and feedback as it relates to the NA-TA's Educational Competencies. This cohort of preceptors engaged their athletic training students through discussions and questioning to facilitate learning and critical application, provided them with the independence and autonomy to develop their own clinical style and abilities through an authentic experience, and fostered a learning environment that allowed the students to feel as though their preceptor is approachable. Our findings support the existing literature, which illustrates the use of multiple methods of instruction to foster learning.2,8,10

Engaging the Athletic Training Student

The first theme reflected the preceptors' efforts to stimulate learning and the development of critical thinking. To achieve this, they used a combination of clinical questioning, as well as hands-on learning. The use of questioning has been a popular method used by preceptors to encourage critical thinking,¹² and has been found to improve student learning, as it forces the stu-

dent to recall information as well as apply it to real-life situations.¹¹⁻¹² One preceptor, for example, shared the following while discussing their clinical instructional style, "[I] ask students questions to encourage their own clinical thinking process. Leave things open ended so that they may ponder what is truly applicable." Another preceptor said, "I actively attempt to spark a student's intellectual curiosity by asking them plenty of athletic training oriented questions." Comparable to Barnum's findings,¹² our preceptors used questioning as a means to facilitate student learning and knowledge application. Although we did not uncover the types of questioning used, the data suggests that our participants were concerned with facilitating learning through the questions they asked their students. Regardless of the type of question used, the preceptors demonstrated an interest in clinical instruction, an important characteristic of a helpful¹⁹ and effective²⁰ clinical instructor. Moreover, the decision to use clinical questions to stimulate high-level thinking indicates that our preceptors recognized their importance, a quintessential characteristic of an effective instructor.²¹

Discourse, which is facilitated through effective questioning, was also utilized to promote learning in the clinical education setting, as it provided an interactive learning environment and a means for skill improvement. This result was illustrated by the comments of this preceptor who indicated that his instructional style was inclusive of, "high levels of discussion on what has happened, why things were done, and how to improve and sustain." Discourse between a student and instructor, as pointed out in the previous quote, is helpful when trying to understand and apply complex, highorder knowledge,²¹ the primary objective of clinical education in athletic training. Classroom discussions, very similar to discourse questioning, is a common method used to promote and stimulate higher-level thinking. Negotiation models23 which are a type of classroom discussion consisting of a believable but divergent argument, are a particularly viable method for instruction in the clinical setting.¹⁰ Athletic training educators and preceptors are encouraged to promote independent, critical thinking through the use of questioning and discourse.10,22

Previous research has indicated that a significant amount of clinical education time is spent with students unengaged,²⁴ highlighting the importance of interaction and daily learning objectives. Preceptors in the present study encouraged their students to be active learners throughout their clinical education. One preceptor shared, "I try to find opportunities for the students to get involved at the clinical site [other than waiting for injuries to occur]." Students were often encouraged to practice evaluation or treatment skills prior to performing them on live patients, as a means to reduce down time and prepare for such instances. Actively engaging in the clinical education experience via such practices are linked to enhancing overall learning.²⁴ Another preceptor saw the benefit in allowing students the opportunity to connect academic and clinical learning experiences stating, "I want the students to be engaged in the clinical setting and I want them to bring in the material they learn in the academic setting to the clinic every day." Facilitating such a connection reduces the theory-practice gap that can be detrimental to development of the athletic training student.²⁵

Providing Independence and Autonomy

Opportunities to be engaged in an authentic learning environment are invaluable for athletic training students since they facilitate learning.¹¹ Furthermore, the main objective of clinical education is to allow students to develop into competent clinicians through a supervised, safe, real, and hands-on learning environment.²⁴ The second theme generated from our data illustrates the preceptors' encouragement of skill application and hands-on learning by allowing the athletic training student to be engaged and make clinical decisions in their role as a healthcare provider. An experienced preceptor said, "I am a hands on kind of instructor. I like to get them as much evaluation and hands on experience as possible." A novice preceptor shared a similar instructional style simply saying, "[I encourage] learning by doing." Our participants preferred using the practical learning experiences of a personal model of instruction found in the literature,8,23 as well as a delegator model, which encouraged independent work by the student to allow them to develop competence.²⁶

The preceptors facilitated student learning by providing opportunities to implement their clinical skills, particularly during patient care. One preceptor said, "[I focus on] giving them as much hands-on experience, making them do it and see what it is, when opportunity provides itself. They can't always do it, but trying to give them as much real-life experience as they can get." Authenticity during learning is both important to athletic training students⁹ and invaluable during clinical education experiences, as it allows students to function in their future role. This boosts collaboration between the student and instructor, whereby the instructor leads by example and provides hands-on learning. Hands-on learning in real-time is necessary for the development of critical thinking and competence.

Autonomy, in our participants' perceptions, was gained by hands-on learning, as well as with freedom to engage in clinical practice beyond implementation of individual clinical skills. For instance, one of the preceptors shared, "I provide students with opportunities to become autonomous in their clinical practice." Direct supervision, while engaged in patient care, was discussed as a means to support, guide, and shape clinical practice. Another preceptor discussed providing authentic experience by engaging in patient care, but only when the student felt confident or comfortable with the skills. They wrote,

> I let the ATS be very hands on as long as they're comfortable. If they are comfortable handling a situation then I let them deal with it. I am always there if they need help, but I believe the only way to truly learn in this profession is to be hands on and experience it for yourself.

Another preceptor illustrated the importance of direct mentoring²⁷ related to the CAATE's current definition of direct supervision.⁴ He shared,

I would describe my clinical instruction style as [pushing] independence. I try to let the athletic training student do as much as they can on their own and let them learn while still being close enough to correct them if they are doing something incorrectly.

Our participants supported the need for critical-thinking skills through direct supervision.4,27 Previous research has stressed importance of developing critical thinking skills during the process of the students' professional socialization.²⁸ We believe students can develop the necessary skills to solve difficult problems when they enter the professional phase of their career if they are challenged during their clinical education experiences while being provided the autonomy to work through different situations. It is important to note that preceptors must be available to intervene for the patient and guide the student's thought process through various scenarios.⁴ Allowing students the opportunity to provide patient care independently with the safety net of direct supervision can foster critical thinking skills and confidence.

Modeling appropriate behaviors and/or skills before allowing the student to engage in the clinical education experience was also an important aspect of autonomy and clinical independence during the clinical education experience. Again, this demonstrates a preference for the use of a personal model for instruction,²⁶ which supports previous research.⁸ One preceptor, who shared this statement, highlighted this model, "I like to demonstrate then allow the student to practice. This is a good way to reinforce what I want them to do." Similarly, another preceptor discussed using an interactive learning method that allowed for modeling of a skill followed by student implementation. They said, "I describe an evaluation technique or treatment procedure while performing the process, and then have the student follow up by practicing the procedure." Our participants used a lead-by-example method to promote learning, which is the epitome of the demonstrator/personal model for instruction. They encouraged learning by demonstrating appropriate behaviors and skills, and then allowed the student to take responsibility for their learning by carrying out those same behaviors and skills.²⁶

Our preceptors also cited feedback as critical to the students' clinical independence and professional development, as it helped provide confirmation, affirmation, and constructive direction for improvement.^{11-12,29} One of our preceptors highlighted the use of feedback as a learning tool and a means to improve the student's performance. She stated, "Learn by doing. I try to give my students opportunities to get their feet wet and give them feedback on what could have been done better." Feedback to assist learning and skill application should be focused, constructive, and supportive of the student's learning objective.^{11,30} This is illustrated by one preceptor's statement regarding his teaching style,

I like the sandwich analogy to describe my [instructional] style. I place negatives in-between two positives. I start by telling students what they did well, then something they might not have done so well, then find another well-done skill. That way, they know I'm not just concen trating on the thing they did poorly. This improves their confidence and they are more like ly to try it again, and hopefully improve.

Feedback provided to students can help develop clinical competence and critical thinking skills,¹¹ and must be utilized by the preceptor on a regular basis. This group of preceptors used authentic learning opportunities to foster student learning and included chances for follow-up, confirmation of findings, and feedback for skill improvement. They firmly believed that student learning, in the clinical setting, was facilitated when they provided autonomy that was anchored by constructive, directive feedback.¹¹ The use of handson learning,⁹ as well as feedback,¹¹ supports the existing literature regarding student development and clinical instruction.

Approachable

A strong preceptor-student relationship is important to student learning. Fundamental to the development of this relationship are strong communication and interpersonal skills, two characteristics previously identified by Weidner and Henning⁵ as essential. Weidner and Henning^{5,7,20} also suggest that a preceptor should be open and approachable, qualities many of our preceptors discussed as helpful in promoting student learning. The preceptors wanted to ensure the athletic training student felt at ease during their clinical education experiences. They wanted to promote comfort and confidence by allowing the students to practice their clinical skills and ask questions to promote learning. One preceptor simply shared, "I want the athletic training students to want to be there and to learn. I want to be as approachable as possible." Another discussed the importance of being amenable to help the student feel comfortable to ask questions without fears in the hopes of promoting ownership over learning. They wrote, "I feel that I am laid back and very approachable. I explain what I am doing often, but I do not hand the students all the information. I think it is important for them to learn how to ask questions and be inquisitive." Another preceptor discussed the importance of all 3 categories of clinical instruction, including being supportive, engaging, and proving realism in learning. She shared,

> One of my main goals is to facilitate an outgoing athletic training setting. I want my athletic training students to feel comfortable asking "why" questions. I want the students to be engaged in the clinic setting and I want them to bring in the material they learn in the academic setting to the clinic every day.

Other preceptors descried their style as "approachable," "relaxed," or "causal" as a means to promote a positive learning environment. These characteristics are associated with a humanistic approach to learning, and have been previously identified as helpful to student learning, especially in the clinical setting.^{6,19,32} Another preceptor said, "I try to create a comfortable situation for the students to try without fear of ridicule, but [provide] tactful feedback." Essentially, this preceptor creates a positive learning environment that allows for skill integration, but provides constructive feedback for skill improvement. A positive clinical education experience has been identified as a great place to learn,¹⁰ because the student can feel at ease and comfortable to apply their skills and knowledge.

Preceptors also solicited additional feedback from students to augment their formal end-of-semester evaluations to ensure they remained approachable and continued to foster the student/instructor relationship. One preceptor truly recognized the benefit of constant interaction and feedback from the student stating, "I try to get as much feedback from the students as possible. They are the best ones to find out from as far as where this site can improve." Another preceptor indicated that she prefers to set aside time daily to have discussions with students, stating, "I try to make sure I have at least one teaching period with the athletic training students per day and try to talk to the student to see what I could do better." It is this willingness to discuss their own actions and potential areas for improvement with students that helps preceptors be approachable and improve their own performance.³⁵ Identifying a specific period of the day to focus on teaching/learning also shows a willingness on the part of the preceptor to foster the student/preceptor relationship.

Recommendations

Clinical education experiences are vital to athletic training students' professional development, as it allows them to integrate their knowledge and skills into a realtime situation and gain the professional socialization necessary to transition from student to entry-level practitioner. The preceptor, therefore, is an important stakeholder in the student's experiences, as they provide opportunities for learning and must use effective clinical instruction strategies. Our results suggest that the preceptors capitalized on a combination of clinical questioning and hands-on experiences to engage students in learning opportunities. As demonstrated by earlier literature, utilizing questioning is an effective instructional technique that can help stimulate critical thinking.¹¹ Therefore, we encourage preceptors to use this technique during clinical education. Specifically, questions should be purposeful, force memory recall, and stimulate discovery.¹¹ While often overlooked as an effective teaching tool, preceptors should also provide constructive and timely feedback regarding performance to improve learning.

At the program level, the results of our study help illustrate that preceptors are knowledgeable in some instructional techniques that align with prominent, proven strategies for instruction. Programs should continue to use preceptor training and re-training sessions to educate their preceptors and clinical instructors on the methods discussed in this paper, which include the use of clinical questioning, feedback for skill improvement, and the freedom to engage in patient care. Providing the preceptor with knowledge regarding successful instructional methods can only enhance their abilities to facilitate a strong learning experience for the student.

Limitations

A limitation of the present investigation was the use of on-line interviewing, as it restricted the researcher's ability to follow-up with participants regarding their responses. Although a very common method in data collection that in previous studies has yielded rich, valuable data, more information or insights may have been revealed with one-on-one interviews. Moreover, the data presented only presents the perceptions of the participants as they responded to the open-ended questions. No observations were conducted, nor did we follow-up with the preceptor's students to confirm the use of those instructional methods perceived to be effective and utilized. Upcoming research should capitalize on multiple mediums of collection, including surveys and phone interviews as well as data source triangulation.

Another limitation of the investigation was the use of a convenience sample for participant recruitment. Despite the recruitment of preceptors at various clinical employment settings and Carnegie classifications, many represented the more traditional settings such as secondary schools and colleges. Future studies should include preceptors employed at all employment settings, as well as those who have both a background

in education (teaching certifications) and those who do not (graduate degrees in exercise science, athletic training, etc.).

Conclusion

Time spent in the clinical education setting is critical for athletic training students' professional development, as it gives them authentic experiences to socialized them into their future role. As adult learners, athletic training students value the chance to apply their knowledge and skills, and are motivated to learn when allowed to engage in professional discussions and problem solving.³⁰ Preceptors, like the group who volunteered for this study, are aware that they must engage their students, foster a positive learning environment by being approachable, and allow student autonomy to build confidence and clinical competency.

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