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COMMENTARY

The Impact of Instructor Expertise and Competency on Student Learning and Strategies for Improvement

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Context: Paradoxes exist in athletic training education. Practicing athletic trainers must be able to demonstrate competency in the knowledge, skills, and abilities that span the scope of practice. To supervise students preparing to be athletic trainers, preceptors must be credentialed to practice and meet continuing education requirements across the scope of practice. However, to teach students in the classroom/lab settings, athletic training faculty must be "qualified through professional preparation and experienced in their respective academic areas as determined by the institution," "be recognized by the institution as having instructional responsibilities," and must "incorporate the most current athletic training knowledge, skills, and abilities as they pertain to their respective teaching areas." These requirements then help to prompt the question of how to transition athletic training educators from competent professionals who are clinical generalist to experts in both the content and clinical skills they are required to teach.

Objective: To describe the differences between expert and novice teachers, as well as the impact of content expertise on athletic training student learning. Suggestions for improving content expertise and teaching expertise also will be discussed.

Background: Distinct differences exist in not only the methods used but also the learning outcomes of novice versus expert faculty. Faculty who have both content and clinical expertise in the areas that they teach are able to maximize student learning by making connections within and across content areas, as well as understand and adapt to their learners. Lacking this foundational background, novice teachers spend much of their limited planning time learning required content or trying to create appropriate ways to teach that content. While students are able to recognize differences between expert and novice teachers and learn despite the effectiveness of the teacher, learning is better and at greater depths when the teachers are more expert.

Key Words: Teaching expertise, content expert, pedagogical expert, novice teacher, developing teaching expertise

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The Impact of Instructor Expertise and Competency on Student Learning and Strategies for Improvement

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Paradoxes exist in athletic training education. To practice as athletic trainers, clinicians must be able to demonstrate competency in the knowledge, skills, and abilities that span athletic training's broad scope of practice, and supervise students preparing to be athletic trainers. Preceptors must be credentialed to practice and meet continuing education requirements across our broad scope of practice. However, to teach students in the classroom/lab settings, the Commission on Accreditation of Athletic Training Education Standards require that athletic training faculty must be "qualified through professional preparation and experienced in their respective academic areas as determined by the institution," must "be recognized by the institution as having instructional responsibilities," and must "incorporate the most current athletic training knowledge, skills, and abilities as they pertain to their respective teaching areas."[1] These requirements then prompt the question of how to best transition competent clinicians who are trained as clinical generalists into athletic training educators who must be content and clinical skill experts and who have advanced skills in instruction and learning.

There are many possible limitations to developing this expertise, the least of which include limited staffing, which can result in teaching overloads; misallocation of teaching assignments based upon convenience or currency rather than expertise; other academic and/or clinical responsibilities that detract from the time and focus of the teacher; lack of formal training as a teacher; and a lack of depth of learning. Although competence in all domains of practice is expected of all credentialed athletic trainers, it is impossible to become an expert in all of the areas of practice, and expertise in one area does not necessarily predict expertise in another. A *content expert* understands the breadth and depth of a specific content area, as well as that content's interrelationship with other content. That content expert may or may not be able to present his or her understanding of that content to others, because ability to transfer knowledge or skill masterfully requires a different set of skills typically attributed to an *expert teacher*. An individual who has teaching expertise understands how students learn, recognizes learning differences, is able to use multiple instructional methods, and is able to adjust curriculum and instruction accordingly. Although it is possible for an expert teacher to be a content expert, and a content expert may possess expert teaching skills, in my humble opinion, it is not likely that new or less-experienced athletic trainers would possess both abilities at an expert level.

Research shows that it takes approximately 2 to 5 years for a teacher to transition from novice to expert.[2] During this transitional period, students generally are able to learn the required course material, while at the same time, student learning improves as the teacher's expertise increases. However, students' critical thinking and reasoning skills take longer to adjust when they are educated by novice teachers. It is reported that this delay occurs because expert skills and behaviors are not modeled by the novice teacher, and the novice has less ability to explain interrelationships or integration of new and old learning.[2,3]

Expert teachers excel mainly in their content expertise areas and within particular contexts of the populations or sports in which they have their expertise. They are able to develop systems for repetitive operations that allow them to accomplish their teaching responsibilities more efficiently and effectively. They also are more opportunistic and flexible in their teaching because they are less afraid of making a mistake or being asked questions that they are less able to answer. Expert teachers also are more sensitive to task demands and social situations surrounding them when solving problems, allowing them to minimize extraneous thoughts and actions while still addressing the "real issue" or content learning expectations.[3] Expert teachers have deep foundations of factual and theoretical knowledge, understand the facts and ideas in the context of a conceptual framework, and organize knowledge in ways that facilitate retrieval and action. They can present content in qualitatively different ways by applying their perceptions of meaningful patterns in ways experienced, or in other words, they can relate the content of one content area with another in more seamless ways. An example of this application would be applying the basic principles of biochemistry and physiology for the creation of energy (adenosine triphosphate) directly to the rationale to support specific dietary or exercise practices or training. When asked more complex questions, expert teachers may be slower to solve problems and respond, but their responses generally are richer and are influenced more by personal sources of information.[3]

When it comes to teaching skills of planning, interactive instruction, and postlesson reflections, there are some distinct differences between novice and expert teachers. Both novice and expert teachers develop mental plans for sequencing lesson components and contents; however, the majority of the novice teacher's preparation involves how to represent content to the students. In response to student performances (outcomes), the expert teacher adjusts more readily and appropriately as compared to the novice. The novice works out solutions to problems by constructing detailed mental plans of representation, which often are time consuming and inefficient.[4] Expert teachers are more able to skillfully keep lessons on track, accomplish objectives, and use student comments and questions as springboards to deeper learning. Novice teachers generally provide clean, neat, and easy-to-follow explanations, yet, when faced with student comments or questions, their often unrehearsed answers have been found not to be completely correct.[4] Expert teachers are able to illustrate or reinforce concepts and skills spontaneously or locate information quickly in the text, balancing content and student-centered instruction with minimal planning. On the other hand, novice teachers are rarely able to link related concepts within a lesson or across a curriculum without planning.[4]

When examining the outcome of their teaching, expert teachers focus primarily on student understanding of material and the accomplishment of instructional goals, and novice teachers focus more on student participation, active involvement, and behavior, with little analysis of achievement of instructional goals.[4]

There are many methods, workshops, and educational programs designed to help improve teaching abilities and transition teachers from novice to expert. Soliciting and getting feedback on all aspects of teaching is one of the more personal approaches to addressing teaching deficiencies; however, this method requires there to be expert teachers who can review and assist the novice teacher in identifying possible solutions or methods to remediate teaching. It also requires the novice teacher to be open to constructive criticism and feedback and use that information for improvement rather than having it negatively impact self-esteem or confidence.

Novice teachers can seek teaching mentors and attempt to model expert teaching behaviors.[5] This can be achieved by identifying experienced teachers who perhaps earn good peer or student teaching evaluation scores or have been recognized for their teaching abilities. At many institutions, there are on-campus centers for teaching excellence that may provide services or resources for novice teachers. The novice teacher can investigate how the content that she or he teaches fits into the curricular plan and sequence, and work to reinforce previous student learning by integrating the new information or skills required in the novice teacher's course with the content or skills already presented and learned in previous coursework. Other methods that can be used to improve teaching include using teaching evaluation feedback to identify deficiencies and gain pearls of insight into areas for improvement.[6] The novice teacher also should recognize the limitations of relying on the textbook to guide the teaching, and rather select a text that matches the desired curricular and instruction outcomes rather than using it to dictate the content.

In many institutions, administrators can impact improved teaching within an educational unit by hiring new instructors as early as possible before the school year begins. The earlier new faculty are hired in relation to the previous academic year, the greater the amount of time they have to prepare and acclimate to the curricular expectations of an athletic training program. That administrator could temporarily suspend extraneous administrative assignments and service responsibilities until the novice teacher becomes more acclimated to the teaching responsibilities, or assign lighter teaching loads initially, increasing loads gradually as teaching expertise increases. Sharing teaching responsibilities for a course in a team-teaching format also could allow the novice teacher to deliver content that is more familiar first while at the same time allowing the novice teacher to build on his or her level of expertise in the less familiar content. In all cases, the administrator should encourage and ensure that more experienced faculty share resources, ideas, and expertise whenever possible with novice teachers.

In addition to helping novice teachers improve their pedagogical skills, it is important for those teachers who are not content experts to develop a deeper understanding of the content and recognize where it intersects with other content presented in the curriculum. There is evidence to suggest that teacher knowledge of content is associated with higher-quality instruction, which has a positive effect on student learning.[2] When a teacher is able to break down difficult course material into components that students can easily understand and link together, and is able to provide multiple explanations and utilize several different teaching strategies to present that content, that teacher has become a pedagogical content expert.[7,8] Research shows that teachers who are pedagogical content experts have higher levels of cognitive activation and are better able to support student learning. These teachers are enthusiastic about teaching, and their students demonstrate increased enjoyment of learning.[7,8]

The most basic ways that teachers can become more knowledgeable in the content areas they are required to teach include identifying and processing the information provided by a good, current textbook. By utilizing a textbook, teachers should be able to develop the foundational knowledge expected of the students. Teachers also can delve into current literature and the available evidence surrounding the theories and concepts of the foundational content, and become regular consumers of new knowledge in those content areas. To facilitate this process, novice teachers can transition into content novice teachers by accessing information published by professional organizations that champion the content area and by utilizing other information sources such as MedBridge, Google Scholar, PubMed, organizational position statements, and relevant newsletters to be notified when new and emerging content becomes available. Content novice teachers can make it their jobs to learn more content, seeking new learning opportunities at conferences, specifically those that address the content area that they teach, and take opportunities to live the experiences they promote in their teaching. These activities will allow the content novice teachers to be able to have more examples or personal experiences to share with their students.

Administrators also can impact the development of content expertise in their faculty. Within many institutions, administrators can encourage deeper learning and advocate that the faculty become career learners in their teaching areas. They can facilitate these practices by supporting other memberships, activities, and opportunities for the faculty to practice new skills or techniques emerging in the content areas. They also can reward and recognize those faculty who work to develop and maintain content expertise, and encourage the faculty to tie their research expectations to the content of their teaching responsibilities. Finally, administrators can share information and content they discover with the appropriate faculty, and ensure that the faculty have access to electronic and other resources they need to remain current in their content areas.

In conclusion, as the expectations for athletic training education continues to develop and evolve, it will be very important to develop the faculty who will teach that content and skills as both content and teaching experts. It will also be the responsibility of both the athletic training and teaching faculty and the administrators of those programs to ensure that novice teachers are provided with every opportunity possible to allow them to become more knowledgeable of

content and skilled as teachers to ensure that students are able to learn maximally and become competent clinicians.

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