

Bridging Theory and Practice in the Athletic Training Classroom
Phill Vardiman
Health, Sport & Exercise Science

Project Summary

An athletic training professor found that his students were struggling to apply the theory they learned during class to patients at their clinical observations. His gradual development of a scenario-based assignment sequence with explicitly outlined expectations led to an increase in student understanding of the principles at work in rehabilitation techniques.

Background

Rehabilitation Techniques in Athletic Training is an undergraduate junior-level course that is preceded by evaluation and modality courses. This course is held in the third semester of the four-semester Athletic Training Education Program and serves a professional function. The students are senior athletic training students who were accepted into the program through a competitive application process. Therapeutic rehabilitation is one of the six domains of athletic training, and the students will be directly involved with this content throughout their careers. The internship/practicum course consists of two components: a weekly seminar with formal instruction, discussion, and practice, and a practicum taught by a lecturer. Part of the practicum involves student participation in a clinical experience held in a setting assigned by Dr. David Carr, the program director, and myself, the clinical coordinator for the Athletic Training Education Program. We are both responsible for the coordination and administration of the program area. The practicum course meets once a week for one hour to go over the assignments for the week and review the practical skills and any theory that is tied to the various competencies. Though the practicum meets for one hour, it is a four-credit class because the clinical experience is tied to this course. This course is directly related to the content delivered in the lecture class but is taught by another instructor.

The major goal of this course is to increase critical thinking and problem solving in the development and prescription of rehabilitation in a variety of clinical settings. It is absolutely necessary that the students are able to identify patient needs, such as range of motion, strength, endurance, balance, and agility. It is also important for the students to understand the differences of these variables for the different populations that athletic trainers serve, such as pediatrics, geriatrics, and athletes. Once students can identify the needs of the different populations, both short-term and long-term goals can be set to achieve measurements that are comparable to the contralateral side of the body or are close to pre-injury measures. Short-term goals are goals that can be achieved in one to two weeks and act as stepping-stones to the long-term goals. Most long-term goals consist of returning to practice, competition, and other pre-injury activities of daily living.

Despite the fact that the students will use the content in this course directly in their professional careers as athletic trainers, they are often interested in getting a “cookbook” version of the material and do not feel comfortable in gray areas that require judgment and quick decision making. Instead, they generally want an ironclad example of what is going to be on the exam and therefore do not ask how the information is going to make them a better athletic trainer. I believe

that I spend a great deal of time getting the students into a mode of memorization and regurgitation of material and information. I then expect, with constant disappointment, that the students will be able to make the jump from memorization to application. I believe that my naiveté comes from the students' participating in lab activities that incorporate the didactic content as well as the clinical skills. However, in previous versions of the course there had been no real bridge there, and I believe that the students have been simply reproducing skills that have been previously shown.

This course redesign, then, focused on the incorporation of tangible situations occurring in the student's clinical experience into the didactic course. My goal was to provide each student examples to draw upon when discussing theory and philosophy of rehabilitation techniques in the lecture and practicum course. Previous incarnations of the course employed examinations, participation, and compilation of rehabilitation protocols and organization of these materials into a hanging file folder as means of assessment. However, none of these assignments allowed students the opportunity to bridge theory and practice, which is one of the key goals of the course. There wasn't one assignment that required application or critical thinking in Fall 2007.

My goal has been to increase students' ability to develop rehabilitation exercises for specific injury scenarios. Through the implementation and development of a scenario writing process, described in detail below, I wanted to improve students' medical documentation and communication writing styles and Subjective Objective Assessment and Plan (SOAP) note writing levels, in order to increase understanding of how to communicate this information in a medical note to other ATC's or MD's. Ultimately, I wanted to help students to be able to apply a theory in the actual clinical setting and show them how to identify when the theory is best applied and when it would not provide such a successful outcome. This course was a logical choice for this portfolio, because it demands a great deal of application of information from the lecture to the practicum course or the clinical setting.

Implementation

In my redesign of the course, the assignments and activities were designed to do three things: provide students the opportunity to learn the theory, observe the theory, and then apply the skills and the theory in their clinical assignments that were associated with the practicum course. In order to ensure this process was followed, I structured the course around three main areas: lecture, practicum, and group work and team debates. The lecture provided the base theory and the tools that the students needed for development of rehabilitation protocols. The practicum activities helped provide the application of the theory, competencies and skills, and the ability to understand intrinsically what the techniques felt like and how they should be properly applied. The group work and team debates helped students investigate and share interpretations of certain content and theory. Student learning was generally measured through in-class exams and practical exams that were conducted in the practicum course associated with this course.

The primary materials for this course are the textbook and rehabilitation protocols that are provided from multiple clinical sites. The rehabilitation protocols, written by physicians, are schedules describing the exercises and expected ranges of motion following a patient's surgery. Though the protocols may differ in content, most have consistent timelines. The different approaches from the various resources provide multiple angled evaluation for the same issue, ensuring that students gain a broad perspective on rehabilitation possibilities. Most surgical cases have a protocol that can be used by therapists to ensure a good outcome, and students use these to compare and contrast the differences in protocols among MD's and also the different surgery techniques employed in the treatment of injuries. Protocols are as close to a "cookbook" as an athletic trainer can get. The students may or may not come into contact with these in their clinical experience but can use them to associate a timeline with the progression and activities that they are seeing at the clinical site. The information provided in both the textbook and protocols is meant to be incorporated into students' rehabilitation and reflection write-ups.

In Fall 2008, in order to assess these goals, I implemented the use of scenario-based rehabilitation protocols and team debates, both of which were intended to encourage students to use their theoretical knowledge in meaningful ways outside of performance on an exam. For the scenario/reflection assignments, students were instructed to identify injury scenarios that they were currently involved with during their clinical assignments. The student described these scenarios on 3 x 5 cards and selected one card at a time to review with the clinical instructor (ACI). When the card was selected, the student was given 24 hours to write up a rehabilitation plan that identified patient needs and set the rehabilitation goals for the scenario. The student then reviewed the plan with the clinical instructor and reflected with the instructor on any considerations that were not addressed in the student's original rehabilitation plan. The student then turned in the scenario card, the original rehabilitation protocol, and a reflection intended to document the changes made to the protocol based on the discussion with the clinical instructor.

The protocols were structured with this three-tier process (scenario, protocol, reflection) in order to require students to interact with the clinical instructors at their clinical sites. This interaction is necessary as it gives students the opportunity to utilize their theoretical knowledge in a "real world" situation and to observe how that knowledge must be adapted to a given injury scenario. The reflection process is especially necessary as it allows students to reflect, learn from mistakes,

and move forward instead of just automatically accepting the “cookbook” instructions from either textbooks or the clinical instructor. The reflection should, when done well, demonstrate the processes undertaken to arrive at the final, polished rehabilitation protocol. This method, then, serves as a sort of practice for the time when students, as practicing athletic trainers, will have to apply their own theoretical knowledge to the development of rehabilitation protocols for patients.

The second major assessment activity I implemented, class debates, was designed to increase students’ ability to apply the theory they learned in lecture. During debates, the students were selected for teams that would have opposing viewpoints for critical rehabilitation content areas. The students were required to work with their groups to build a case for why their assigned viewpoint was more critical, more beneficial, or more effective for treatment of injuries. These topics were based on different philosophies of rehabilitation, such as closed kinetic chain exercise and open kinetic chain exercise. Each student was required to present part of the team’s argument, including research to reinforce main points and to provide rebuttal to the opposing team’s viewpoints. Unfortunately, the debates did not go well, as the students seemed to be more concerned with winning the debate than seeing the benefit of both sides of the philosophy. Practical application of theory will, in the future, be focused primarily on the rehabilitation protocols.

In addition to my major revisions—the scenario assignments and the debates—I reorganized the observation portion of the course to increase involvement in rehabilitation design for those students who are not taking advantage of their clinical assignment. This portion of the course includes rehabilitation observations, surgery observations, rehabilitation clinic observations, and orthopedic surgery observations. These observations provide students with the opportunity to see a different environment for athletic training. For example, surgery observation gives an internal view of the anatomy involved in an orthopedic injury. These observations are designed to help students gain empathy for injured patients and athletes who have had to undergo surgery.

Observations are assessed by three means: the rehabilitation clinic observation check sheet, journal entries for surgery observation, and SOAP note rehabilitation observation write-ups. The rehabilitation check sheet is a list of activities that a student must engage in while observing at the rehabilitation clinic. These activities provide the athletic training student with the opportunity to see how the rehabilitation clinic setting differs from the athletic training rooms. The Surgery Observation journal entry is through Blackboard and allows students to explain the surgery(s) that they observed during the semester. Students can explain the actual procedure and the environment in the operating room, expanding on the communication between them and the other medical professionals in the operating room. The SOAP note rehabilitation observation write-ups are intended to capture what students observed in a rehabilitation setting during each week. They are intended to initiate reflection and thought about what they are seeing and how what they are learning in lecture is being applied in a clinical setting. They also reinforce students’ SOAP note writing skills, which are critical for medical communication and record keeping. The rehabilitation clinic observation and surgery observation were pieces that I had used in prior semesters. The rehabilitation observation SOAP notes were a new piece that I used and were well received by the students. The students felt that they made them pay close attention

when observing and helped them attempt to make the connection between the lecture and the practical application.

Student Performance

The assignments I selected for the course were chosen to provide experience for students and to demonstrate the application of skills. The students got to learn the theory, observe the theory, and then apply the skills and the theory in their clinical assignments that were associated with the practicum course. Assessment of this learning was performed through journal entries, SOAP note/medical writing practice, scenario reflection essays, exams, and quizzes. The SOAP note medical writing practice and essays were graded, edited and returned to the students, who were able to revise them based on instructor comments. The exams specifically used essay questions to evaluate the understanding of progression and ADL's. The questions were scenario based and provided students the opportunity to construct a rehabilitation protocol for a patient based on the current short-term and long-term goals that they have identified.

Over the course of the semester, the students demonstrated an increase in both knowledge and creativity in scenario-based rehabilitation protocols. The major task in these protocols was for the student to write up a rehabilitation program for a specific patient scenario, discuss the program with the clinical instructor and change any problems the instructor may have found, and then to write a reflection that explores how the discussion with the instructor changed the scenario. The reflection portion of this assignment was a vital component, as it gave the students an introduction to how professionals in their field approach and solve particular problems. I was specifically looking for their approach to the different phases of the rehabilitation process. I wanted to see what short term goals they set for each phase and what exercises or activities were chosen to achieve those goals. Phase I is the reduction of inflammation; Phase II is the increase in range of motion; Phase III is the increase in strength; Phase IV is functional activities and return to activity. (See [Grading Rubric](#).)

The protocols at the beginning of the semester were remedial and poorly written. I gave the students multiple opportunities to rewrite the documents prior to starting the activity. This revision opportunity did allow for some increased sophistication. One of the major issues I encountered, however, was that by providing the students few concrete guidelines for composing and structuring the protocols, I often received assignments that were inconsistently formatted. This resulted in some students providing plenty of detail that got lost in a paragraph structure, while others provided so little detail as to make it difficult to assess their learning. Overall, however, the grade distribution for the class was satisfactory and about where I expected it to be. (Students must earn a B in the class to move forward in the program.) Grade distribution was as follows:

- A: 14
- B: 4

The rehabilitation protocols I examine below come from two classes. First are the protocols from the course I've explored above, Rehabilitation Techniques in Athletic Training from Fall 2008. The second set is from my Modalities course in Spring 2009. This course also used rehabilitation protocols as a primary assessment method, and I changed the way I explained and commented on those assignments based on student feedback and work from the Rehabilitation course. One of the major changes in the Modalities course is that, based on student request, I gave the students an outline of the information that needed to be present in the protocols and the

format in which it would be best presented. The results of this change have been promising, as students are generally turning in more detailed, thoughtful work. Grade distribution for the Modalities course was as follows:

- A: 13
- I: 1

Overall, students in the modalities course improved with the adjustments and changes made as outlined above.

Rehabilitation Assignments

Student 1 - Example 1

This student's first attempt at the protocol assignment was not good. You can see a glimmer of understanding of the four phases of the rehabilitation process, but his thoughts are not organized and are incomplete. His list of exercises is really in no particular order, and he doesn't include numbers of sets or repetitions, which makes it difficult to determine what the goals for these exercises were. Since this assignment was turned in at the beginning of the semester, there was enough content and definition for the student to provide a more in-depth approach to the rehabilitation protocol later on.

Student 1 - Example 2

In this second example, turned in at the end of the semester, the student is providing a great deal of justification for the exercises and rehabilitation protocol that he would administer to this scenario, which indicates that he was becoming more conscious of his goals for each exercise. He includes a more methodical approach to his exercise prescription and is much more organized in regards to his selection of exercises. There is still a lack of sets and repetitions to affirm his goals with the protocol. I am satisfied with the improvement with this student; however, I didn't communicate to him the importance of sets and repetitions and how it helps achieve the short-term and long-term goals.

Student 2

This student's goal setting is evident but short. He could have included more short-term goals to each of the phases. He has done a good job of delineating the different phases and provides some examples of sets and repetitions for the chosen exercises. The student doesn't bring all of components together in the end, which prevents him from providing an overview of how he plans to achieve his goals through his chosen protocol.

Due to the lack of hard deadlines, this student wrote all of the protocols at the very end of the semester using the same format. Because of this, I was also not able to provide him any feedback to strengthen the quality of the assignment. As shown, he was able to change each of the protocols to make them different to turn in; however, the same mistakes were made throughout each protocol, and the evidence shows he did not maximize the learning opportunity.

Student 3

This student was the most thorough of all students during this semester. Her focus improves from the first example, but she is comparatively the most organized from the examples provided. She has followed the template of the different phases of the rehabilitation process presented in the

course, has gone beyond the surface level of just identifying the phases, and has provided much better examples. Her protocols reflect a deeper understanding of the material presented in lecture and lab, as well as her knowledge of the hands-on experience she has sought out in her clinical assignment. Similar to the other students, she also lacked the number of repetitions, number of sets, and how she would progress each exercise with these components. This is another example how the lack of specific direction affected the assignment and my grading.

Modalities Assignments

Student 4

In her scenario about an athlete with a hamstring strain, this student provides both her goals for rehabilitation and the modalities chosen to achieve those goals. She is very specific on the parameters of the treatments and how she will set up the treatment at the beginning and other time points that have been designated.

Student 5

In her fourth scenario, this student provides very little detail to her protocol, but provides more organization to her treatment choices as well as more justification.

Student 6

This student provides good choices of modalities but doesn't provide the detailed parameters for the modalities that she has chosen. Her reflection statements demonstrate mature insight with the help of her clinical instructor.

Reflections

Looking at the Athletic Training student evaluations from the approved clinical instructors and the feedback from the student course evaluations, the students liked the scenarios and the corresponding required interaction with the clinical instructors. The students and clinical instructors indicated that there were too many protocols and write-ups, but they felt the interaction developed better understanding that translated into a great foundational skill set of rehabilitation techniques. The students' information told me that they were in the clinical sites and put the theories "hands on." They observed the invasiveness of orthopedic surgery and became more familiar and with the application of rehabilitation progression.

The Rehabilitations course combined with student feedback in the Modalities course has convinced me that giving students an outline of the expected format and content of the protocols is the right way to go. Providing students with this format helped them to organize their thoughts and writing, which allowed for easier and more effective grading and evaluation. If you look at the difference in formats for the Rehabilitation course students 1, 2, 3, and 4, each of the students had his or her own take on how to write for the assignments. If you compare these varied formats to the three modalities assignments, you can see the difference in organization for the assignments. The outline provides a structure that allows the student to investigate and write about each specific section. Without identifying each section, it is difficult for beginning level students to choose what content they should provide as well as organize it to meet the goals they have set for the patient in each section.

There are already several revisions to these assignments that I know I need to make in future offerings of these two courses. These revisions should help students to more effectively use the rehabilitation protocols as ways to bridge the theory and practice of athletic training, which has been my goal all along.

1. I need to make the protocols worth points. Since they were not worth any this past year, I actually have one student who still has not completed them at all. This motivation seems necessary.
2. As I've outlined already, I need to provide specific requirements for the protocols. Doing this will give students the opportunity to practice what they've been learning and then reflect on it in a way that will increase their understanding of their profession.
3. In order to give students the chance to revise as a way to learn, I need to provide feedback on the protocols as quickly as possible.
4. I plan to tie the assignments together more effectively by incorporating the surgery observations, rehabilitation scenarios, and reflections write-ups together.

There were two key challenges in this course. First, having a separate instructor for the practicum course seemed to create a disconnect between the didactic course and the practicum course. It was difficult to collaborate with another instructor for the practicum course and continue to reinforce the bridging of information from the clinical experiences. The lack of corresponding schedules between the lecture course and the practicum course seemed to cause a problem with the students being able to reinforce the didactic information with the clinical competencies. It will take more coordination of schedules to ensure that students get the appropriate sequence of instruction and allow for reinforcement and practice of skills. I am going

to work more diligently at communicating with the instructor hired to teach the practicum course to keep the sequence of the course and the information disseminated in the course matched in both the lecture and practicum course.

Second, the Approved Clinical Instructors did not always have time to meet with students to help with reflection and provide them feedback on the scenarios, which limited students' exposure to points of view and allowed fewer opportunities for questions and answers about the experience of other professionals. To circumvent this, I need to establish alternate outlets for the students to seek out information.

In future offerings of this course, the projects need to explicitly promote or reflect "real world situations." The students desire a cookbook, while I am dedicated to giving them some of the ingredients and letting them create their own recipes specific to the situation at hand. I need to require less and evaluate more. The workload has been too high for me to be able to effectively evaluate and correct the essay components of the assignments, which prevents sufficient feedback for the students. I've already solved part of this problem by requiring fewer protocols in my Modalities course in Spring 2009, which allowed me to provide more feedback to the students, allowing them to rewrite and to practice modality selection and implementation through the scenarios.