

Authentic Learning and Student Choice: Is There a Place to Allow Athletic Training Students to Set Their Own Learning Destiny?

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INTRODUCTION

Experiential learning, direct instruction, social learning, problem-based learning, authentic learning, self-directed learning— which of these theories and strategies do you prescribe too? Are your course learning activities developed around one or more of these learning theories and teaching strategies? Are your assessment tools developed around one or more of these learning theories and teaching strategies? Do your athletic training students (ATS) respond to these strategies and take collective responsibility for their own learning as self-directed learners? How have you, as an athletic training educator (ATE) evolved over time in regards to how you approach student learning? Finally, does it really matter which of these learning theories and/or teaching strategies educators integrate into the curriculum?

If you are scratching your head and asking “what is the purpose of asking all of these random questions?” or “how will these questions prove to be worthwhile, significant, and meaningful?” then good— you now understand how ATS feel when educators devise educational programming that lacks what they perceive to have significance or meaningfulness in their educational and professional preparation. So to answer the earlier question of, “*does it matter what learning theories and teaching strategies are integrated into an athletic training curriculum*”— the answer is, of course,

“yes.” More importantly, however, is the ability to recognize, adapt, and cultivate an environment that will foster the construction of knowledge and values for use beyond higher education while providing students with a choice and voice in how and what they learn and even how they are assessed. Therefore, the purpose of this column is to discuss the concept of authentic learning and examine how student choice improves learning and motivation through personal experience.

HOW DID WE GET HERE

How did we get to this point? Reflections of my student course evaluations, of course! Contrary to popular belief, they actually can serve a purpose and can be an invaluable tool if one takes the time to read and self-reflect on the positive and negative recommendations and commendations. Students in my courses, specifically my basic and advanced therapeutic modalities courses, offered an interesting observation: we wish we could pick and choose what we completed based on how it will impact our career goals and allow us to learn and apply skills needed in the real world. An interesting finding for me was that these students knew what they wanted to learn and actually appeared to be taking responsibility for their education.^{1,2} This was an interesting and novel concept. My struggle focused, though, on how I was going to abandon what I have always done in the past. What I

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realized after some contemplation was that to stretch my students' minds, I needed to stretch my own modes of teaching and learning. My students helped me understand the importance of meaningful learning and real world transferable knowledge and skills. That is what they wanted (and needed) and I felt compelled to facilitate this goal. I found that in order to accomplish this challenge, I needed to find a pedagogical strategy that addressed this concept and address their need to be given a choice.

AUTHENTIC LEARNING AND STUDENT CHOICE

Authentic Learning

Authentic learning normally focuses on a "real-world" or complex problem and solution activities that emphasize the cultivating of 'transferable skills' entry-level practitioners in any discipline require or have difficulty acquiring on their own (Table 1).³ The learning environments created are often multidisciplinary and allow for intellectual accomplishments that are viewed by students as being worthwhile, significant, and meaningful for preparing to enter the future work force; but that also forces students to exercise higher levels of thinking (using Bloom's taxonomy) as they learn.^{4,5} Authentic learning instructional practices can utilize a variety of pedagogical strategies (Figure 1), assuming those tasks that help students integrate needed knowledge, skills (simple and complex), and attitudes transfer their learning to the entry-level work settings and life.⁵

Renzulli, Gentry, and Reis⁴ identified four specific criteria to facilitate authentic learning through investigation of real-world problems. First, students need to explore a real-life/world problem that requires an emotional commitment within the students that requires experience to be both personally meaningful and conceptually coherent. Second, the problem needs to be open-ended without any prescribed strategies

Figure 1. Authentic Learning Instructional Strategies

Role-playing exercises
Case studies or simulated patients
Problem-based learning
Goal-based scenarios
Inquiry-based learning
Working with research data
Collaborative problem solving

for its solution. They should however match the real-world tasks of professionals in practice as close as possible. Third, students should be encouraged to seek solutions that result in altering a person's actions, beliefs, or attitudes. Finally, the targeted problem should employ an actual audience outside of the confines of the classroom. In essence, the learning situation should encourage students to function as an active member of the interdisciplinary team, rather than as a receiver of knowledge while the instructor functions as a mentor rather than the instructor or conveyer of knowledge; something that many educators have difficulty with.

Student Choice

In athletic training education, research has demonstrated that there is not a dominant learning style among students.⁶⁻⁸ As educators, how can we guarantee that our "big" project or assignment will actually help students connect learning to professional practice in a meaningful way? Will the assignment actually develop an appreciation for the content beyond the classroom experience or cultivate the kinds of 'transferable skills' entry-level practitioners need and that we as ATE are trying to foster? Better yet, will the students even care about the project/assignment or the final outcome, especially if they do not have any ownership in the process or product?

Table 1. Difficult to Acquire Authentic Learning Transferable Skills

Concept	Example
Judgment	Ability to distinguish reliable from unreliable information/data and make appropriate interpretations relative to the available question(s).
Patience	Ability to endure under difficult circumstances and over a sustained period of time as problems cannot always be solved in a matter of minutes or hours.
Synthetic ability	Ability to recognize relevant patterns in unfamiliar contexts or experience(s).
Flexibility	Learning to work across disciplinary and cultural boundaries with different personal/professional/ societal views to generate innovative solutions.

Enter the concept of student choice. Student choice is the ideology where students are provided with educational opportunities that more closely match individual learning styles, abilities, and intrinsic motivational factors.⁹ Choice allows students the ability to select from a range of topics, processes, products and structured learning for one's own purposes. Choice allows for ownership and offers students the freedom to decide their own fate.¹⁰ Student ownership provides a sense of empowerment over the learning environment and helps keep students motivated and engaged.^{5,11} This improves student effort, task performance^{12,13} and perceived competence.^{9,14-16} In fact, engaged students have a greater perception related to the value of the course. This in turn results in a deeper understanding of the course content, a higher level of thinking, enhanced experience of the learning encounter^{5,17} and finally it allows students to learn how to perform more efficiently¹⁰ with peers and with the task.

There exists a strong link between providing students choices and their intrinsic motivation for completing a task, overall performance on that task, and willingness to accept challenging tasks.⁹ Patall, Cooper and Robinson⁹ suggests that the types of choices (choice between activities, choice between versions of an activity, choice between instructionally irrelevant aspects of an activity, choice between instructionally relevant aspects, choice between rewards for the task) that are "highly meaningful, either personally or instructionally, may be more effortful to the extent that they tap into an individual's values, goals, and interests."^(p.294) However, too many choices can have diminishing returns on intrinsic motivation. Choice has the greatest effect when students are provided with three to five options to choose from as compared to when presented with only two options or more than five. Similarly, Patall, Cooper and Robinson⁹ found a "positive effect of choice on intrinsic motivation was found when participants made two to four choices in a single experimental manipulation compared to when only a single choice or five or more choices were made."^(p. 272)

Authentic Learning and Choice

While only a cursory overview of authentic learning and student choice have been provided thus far, it provides a fundamental foundation for framing the benefits of both strategies and the importance of adding these strategies to an educator's educational toolbox.

Authentic learning and choice are intimately intertwined. Under the concept of authentic learning the problem(s) defined by the student must have a personal frame of reference and be open-ended.⁴ But this cannot occur without student choice.⁵ Whether choice of assignment or choice in defining the problem and selecting the path of its solution by identifying the tasks and subtasks needed to complete the problem must be facilitated by the student.⁵ The more instruction can be personalized the more empowered students will be to make decisions, self-asses, and reflect¹⁸ in order to help facilitate meaningful and transferable learning.

Integrating Student Choice into A Course

Using my previous example related to my *Basic Therapeutic Modalities* course as a catalyst for change, I decided to modify my *Advanced Therapeutic Modalities* courses. Remember the students wanted an assignment that was "meaningful" and would impact their career goals. As the instructor I wanted to be sensitive to individual learning styles and multiple intelligences and insure the quantity and quality of work would be consistent between groups. And of course there was the infamous issue of trying to give up control of the tempo and flow of the course information. What resulted is an excerpt (slightly modified from the original) from my course syllabus (Appendix). Please note that for each assignment students were provided with an example of the final product and rubrics for grading. The rubrics included points for both the assignment and for student interaction and cooperative group learning.

CONCLUSION

This column offers the educator with a general overview of the concepts of authentic learning and student choice and one example of how I have integrated the two concepts into my courses. These examples are by no means perfect. However, they do provide students with the opportunity to take ownership in their learning by defining the real-world problem, selecting the path to its solution and develop 'transferable skills' entry-level practitioners and graduate students are going to need as they develop professionally. The more instruction that can be personalized the more empowered students will become and the more motivated they will be to

complete the assignment with enthusiasm thereby making the learning experience more meaningful.

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APPENDIX

SYLLABUS EXAMPLE

In groups of 4-5 (organized by the students), students will pick from one of four assignments. Consider using Wikispaces (<http://www.wikispaces.com>) or the Goggle Docs (docs.google.com) to collaborate on the project and facilitate an exchange of ideas and documents.

Instructional Digital Video (DVD)

Groups will create a professional quality grade instructional digital video disc (DVD) examining a therapeutic modality/physical agent under investigation this semester. To insure an adequate job on the assignment, groups will need to create a storyboard or mini paper prior to shooting the video segment as part of the rough draft. When it comes to the video segments I cannot stress the importance of remembering items such as lighting, spacing, background, sound, professionalism, as well as the accuracy of the application set-up and information delivered.

Once the rough video is shot it needs to be edited and spliced together, if necessary. Consider using Windows Movie Maker (PC) or iMovie (MAC) for this task, as both programs are relatively easy to work with and

Figure 2. Instructional Digital Video Requirements

Introduction

Physiological and therapeutic effects (include appropriate theories)

Indications and contraindications

Dangers, precautions, and recommendations

Considerations for applications

Current methods of application, including a demonstration of actual patient set-ups based upon current evidence

Bibliography - 15 sources minimum - AMA referenced

free. Be sure to keep all working files in one space, you cannot use multiple workstations to complete this task. The first draft should address every point outlined in figure 2 and should include a minimum of 9 references. The second draft will include a completed storyboard with all the voice-overs and application demonstrations content. Once completed, the video will be presented to the instructor on a disc and will be shown in class.

Miniature Research Project

Groups will develop a research question and conduct a miniature research study to examine the effects of a therapeutic modality/physical agent under investigation this semester. Students can either replicate a current study in the literature or I do have some labs that we can put into a study format. Groups will need to have a minimum of 6-8 subjects per treatment group, so choose your study wisely. And while the lab is stocked

fairly well, select the equipment carefully. Group members need to complete National Institutes of Health (NIH) Human Subjects training and an IRB application prior to conducting the study. The final project will be in a paper format and should include an abstract, introduction, methods, discussion, conclusion, and reference section following the *Journal of Athletic Training* author guidelines. I will need to be present at all data collection session depending on the nature of the project and the application being used. So again, choose the question wisely. Two rough drafts will need to be submitted. The first rough draft should provide an adequate description of the research question and methods so I can provide insight and help guide the study. The second rough draft will include a copy of the near final version of the paper following the *Journal of Athletic Training* author guidelines (<http://www.nata.org/journal-of-athletic-training/for-authors>).

Figure 3. Evidence-Based Practice Presentation.

Identification of a clinical problem

Creation of a clinical question using PICO

Identification of research strategies and databases examined

Data extraction and interpretation of the therapeutic modality/physical agent based upon the current evidence

Considerations for appropriate application

Conclusion

Bibliography - 15 sources minimum - AMA referenced

Groups will examine a therapeutic modality/physical agent under investigation this semester to investigate the current literature and determine the success and/or failure of the therapeutic modality/physical agent according to the evidence-based outcome research. Using the following guidelines students will prepare a professional oral presentation (yes for this one dress appropriately). Grading will be based upon the content, the presentation, and cooperation within the group. How the material is presented will be left to the groups' discretion. However, the presentation will need to be prepared using PowerPoint and be prepared to explain the articles in depth without any presentation materials. A summary and bibliography page of your evidence-based must be distributed to the class. Two rough drafts will need to be submitted. The first draft should address every point outlined in figure 3 and should include a minimum of 9 references. The second draft will include a completed copy of the presentation and a minimum of 15 references.

Case Based Scenarios

Groups will develop a series of clinical case reports investigating the current evidence regarding the management of 8 different musculoskeletal conditions using the therapeutic modality/physical agents under investigation this semester. Each clinical case report will include: (1) 1-2 paragraphs of background information relative to the mechanism of injury, physical examination (including diagnostic testing and physician referral) and treatment goal using therapeutic modality/physical agent(s), (2) 1-2 paragraphs examining the selected therapeutic modality/physical agent(s) application parameters based on the evidence, (3) 2-3 paragraphs providing a rational summary (referenced) why the therapeutic modality/physical agent(s) and parameters were used. Students will need to analysis the literature looking for the effective and practical application of the therapeutic modality/physical agent(s) for the population in question. Each clinical case reports must utilize a minimum of 4 references (only empirical research, systematic and meta-analysis reviews are allowed) and referenced using the guidelines established in the *Journal of Athletic Training*.

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