Information Literacy in Athletic Training: A Problem-Based Approach

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ATHLETIC TRAINERS MAKE daily decisions requiring valid, up-to-date information about injury prevention and treatment of conditions suffered by active individuals. Making such decisions requires enormous knowledge, possibly beyond what is reasonable for an individual to recall on demand. It is a challenge for athletic training professionals to know how to find current information on the many topics with which they will be confronted in professional practice. The National Athletic Trainers’ Association has acknowledged the necessity for athletic trainers to provide literature-supported health care by emphasizing evidence-based practice, "the integration of best research evidence with clinical expertise and patient values." In support of evidence-based practice, the Journal of Athletic Training initiated a section dedicated to it in its January/March 2004 edition (as did Athletic Therapy Today in March 2006). In recent JAT issues, Russell discussed how one can effectively appraise research studies to apply evidence-based practice clinically, and Casa stressed the importance of teaching evidence-based practice with his editorial “Question Everything: The Value of Integrating Research Into an Athletic Training Education.” Casa challenges athletic training educators to integrate evidence-based activities throughout the curriculum by saying,

Every course an athletic training student takes should be peppered with honest assessments of the actual evidence to support the topics being covered. This education component should not be left for a current research class, but is vital to the growth of our profession and must be embedded within assessment, rehabilitation, modalities, administration, counseling, etc. 

In order for athletic training graduates to engage in evidence-based practice, athletic training educators must prepare students with such knowledge and skills, particularly information literacy, a fundamental component of evidence-based practice. The purpose of this column is to outline an online, problem-based information-literacy module for athletic training education.
Background

Information literacy is defined as “the ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.” Developing student’s information literacy can take multiple forms.6-9 Spitzer8 advocates integration of information-literacy skills with real-life experiences. Bruce6 found both curriculum integration and extracurricular strategies being used to teach information literacy, although curriculum integration was the preferred approach. Whatever teaching method faculty choose, they must have command of information-literacy components and integrate them into activities that connect with students’ life experiences.

Information-literacy standards put forth by Eisenberg and Berkowitz5 include three main components: information literacy, independent learning, and social responsibility. Table 1 outlines these components with their corresponding subset skills. Martin and Rader7 suggest that information-literate students possess the abilities to determine the extent of information needed, to locate and evaluate information, to incorporate selected information into one’s knowledge base, and to use information ethically, legally, and with an understanding of economic thought.

Across our campus, faculty members were concerned about students’ information sources and were questioning students’ use of scientific literature to support their work. Students substantiated faculty concerns when they anecdotally indicated that unless required to do so they had never searched databases. Students used Google first when searching for information. “Googling” first is a national trend. Walker and Engel10 found students fl ocking to the Internet as their first source of information. In response, they recommended seven basic goals of information literacy: (a) Engage students directly through a need to find specific material, (b) show students both strengths and weaknesses of their current literacy skills, (c) demonstrate the need for them to verify data and critically evaluate their sources of information, (d) create an environment where instruction in information literacy is clearly relevant and helpful, (e) integrate information literacy with course work, (f) highlight research strategies that clearly apply to many disciplines, and (g) provide students with early and direct experiences in following basic academic rules concerning plagiarism. Using a curriculum-integration model as suggested by Bruce6 and Walker and Engel,10 we developed an online, problem-based information-literacy module that integrates current trends and practices in athletic training with students’ classroom and clinical experiences. The athletic training module, one of 21 modules in the INFOWIZARD: Information Literacy in the Disciplines grant project supported by the Ohio Board of Regents, can be accessed at http://infowizard.lms.kent.edu.

Module Development

For students to be prepared for entry-level athletic training practice, they must possess “an intellectual framework for understanding, finding, evaluating, and using information.”11(p87) They must be able to recognize common injuries athletes suffer throughout the lifespan.

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<th>Table 1. Components and Skills of Information Literacy</th>
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<td>Information-Literacy Component</td>
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<td>Information literacy</td>
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<td>Independent learning</td>
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and know what information they need concerning an athlete’s care, including injury prevention, mechanism of injury, current treatment techniques, prevalence of an injury in specific populations, athletes’ psychological responses to injury, and effective communication with people of diverse cultural backgrounds. Because returning an athlete to play in a timely manner is essential in athletic training, students must effectively and efficiently identify and locate needed information, and information literacy must be an integral part of an athletic trainer’s lifetime, professional practice skills.

As we evaluated our athletic training curriculum and methods of evidence-based practice, while being mindful of terminal learning outcomes for our program and the Joint Review Committee on Educational Programs in Athletic Training (JRC-AT), we pondered how best to foster students’ evidence-based-practice skills. Initially focusing on four of the six athletic training practice domains: recognition, evaluation, and assessment; immediate care; treatment, rehabilitation, and reconditioning; and professional development and responsibility, the faculty sought to connect these with students’ past or present exposure to athletic injuries. We required students to choose a specific athletic injury and outline its course of treatment from injury through return to play. We began with the injury rather than prevention because we thought students needed to understand the anatomy, physiology, rehabilitation, and reconditioning of an athletic injury before they could develop prevention strategies.

To develop students’ evidence-based-practice skills, we created a problem-based module integrating information-literacy activities with athletic training practice. The case-study and module activities were integrated within five courses (orthopedic assessment, therapeutic exercise, therapeutic modalities, and two clinical courses) throughout students’ second year in the program. Students used the module to learn about athletic injuries; then they chose an injury topic. Once students determined a topic, they completed module assignments to retrieve information about appropriate methods of injury evaluation, rehabilitation, reconditioning, and return to play. Athletic training professional development was embedded in the module assignments through semester assignments that included a written paper using the JAT Guide to Contributors format, a poster, and oral presentations of the topic.

Students were required to use peer-reviewed publications to support the information in their final projects and justify their decision-making process. Instructions and assessment rubrics for each final assignment were posted on the module site (http://infowizard.lms.kent.edu) to familiarize students with evaluation criteria before they began each project.

Our information-literacy module uses a stair-step approach that increases students’ depth and breadth of knowledge and skills required to identify, manage, and rehabilitate athletic injuries. First-year students are introduced to various types of athletic injuries, and in the second year students are introduced to the module when they engage in class content on evaluation and treatment of common athletic injuries, therapeutic modalities, and therapeutic exercise. Students work independently and collaboratively to find the most current, reputable, relevant literature in the field and then apply it to evidence-based practice. The module requires students to outline their literature-search process, describe their research findings, determine relevant aspects to their injury case, and integrate the information to develop an effective evaluation and treatment program that would return the athlete to play.

Assignments in the module guide students to select an athletic injury, then explore its anatomical, biomechanical, and etiological background. Students’ searches lead them to multiple sources of information including Web sites, the college library catalog, and scientific databases. The module activities teach students about relevant scientific databases such as Academic Search Premier, Medline, CINAHL, and SPORTDiscus. Because young college students often perceive information from authorities as “absolute truth,” the module learning activities show them how to find multiple information sources, evaluate their credibility, and synthesize the information. With guidance from course faculty, students apply their findings to their injury case and develop an effective evaluation method and treatment program.

The final course assignments require students to present their injury-case information in various professional formats. They begin with written abstracts and are required to progressively demonstrate professional skills through a poster presentation, an oral presentation using PowerPoint, and a final written paper.
Conclusion

We embedded our information-literacy module in our athletic training education program because curricular integration appears to be the best approach to developing information literacy. Using a heuristic approach in which students become explorers of knowledge, discovering new information and solving problems, we developed a problem-based module for students to gain an in-depth perspective of athletic injury management. Applying a constructivist approach, students become creators of knowledge, finding information and applying it in context to a defined problem. This approach follows Bruce’s alternative paradigm of information literacy, a paradigm consistent with educational theories of constructivism and valuing the student as learner. Through such efforts students find, evaluate, and synthesize information that they apply in an appropriate athletic-training-related context.

References


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