Sociocultural Learning Theory in Practice: Implications for Athletic Training Educators

Kimberly S. Peer*; Ronald C. McClendon†

*Kent State University, Kent, OH; †University of Akron, Akron, OH

Kimberly S. Peer, EdD, ATC/L, contributed to conception and design; acquisition and analysis and interpretation of the data; and drafting, critical revision, and final approval of the article. Ronald C. McClendon, PhD, contributed to conception and design; acquisition and analysis and interpretation of the data; and critical revision and final approval of the article.
Address correspondence to Kimberly S. Peer, EdD, ATC/L, School of Exercise, Leisure and Sport, Kent State University, Kent, OH 44242. Address e-mail to Kpeer@kent.edu.

Objective: To discuss cognitive and sociocultural learning theory literature related to athletic training instructional and evaluation strategies while providing support for the application of these practices in the didactic and clinical components of athletic training education programs.

Data Sources: We searched Educational Resources Information Center (ERIC) and Education Abstracts from 1975–2001 using the key words *social cognitive, sociocultural learning theory, constructivism,* and *athletic training education.* Current literature in the fields of educational psychology and athletic training education provides the foundation for applying theory to practice with specific emphasis on the theoretic framework and application of sociocultural learning theory strategies in athletic training education.

Data Synthesis: Athletic training educators must have a strong fundamental knowledge of learning theory and a commitment to incorporate theory into educational practice. We in-tegrate literature from both fields to generate practical strategies for using sociocultural learning theory in athletic training education.

Conclusions/Recommendations: Social cognitive and sociocultural learning theory advocates a constructive, self-regulated, and goal-oriented environment with the student at the center of the educational process. Although a shift exists in athletic training education toward more active instructional strategies with the implementation of competency-based education, many educational environments are still dominated by traditional didactic instructional methods promoting student passivity. As athletic training education programs strive to increase accountability, educators in the field must critically analyze teaching and evaluation methods and integrate new material to ensure that learning is maximized.

Key Words: athletic training education, constructivism, learning theory, problem solving, scaffolding, social cognitive learning theory

W ith recent paradigm shifts in athletic training education, interest in pedagogic strategies and evaluation techniques for the clinical and classroom settings has increased. The integration and application of learning theory has practical implications in the field of athletic training education; however, theory and practice must have a reciprocal relationship. To educate students successfully, our teaching must reflect the way in which learners organize knowledge and represent it internally. Understanding how these representations change when new information is encountered is important in the educational process.[1] Cognitive psychology provides a strong foundation for understanding how students learn and how educators can structure teaching to maximize student learning.

Cognitive psychology is a family of learning theories that emphasizes the role of the learner in the construction of knowledge. Specifically, the sociocultural theory emphasizes the important role of social interaction in the construction of knowledge. Within sociocultural theory, the concepts of zone of proximal development (ZPD), scaffolding, and self-efficacy are particularly relevant to athletic training education. In the application of sociocultural learning theory, learning precedes development, highlighting the importance of the didactic and clinical experiences to which students are exposed. In this article, we bring together 2 disciplines, athletic training educa-tion and cognitive psychology, to demonstrate the direct application of sociocultural learning theory in athletic training education.

REVIEW OF LITERATURE

Sociocultural Learning Theory Defined and Applied

Cognitivists portray learners as active constructors of knowledge and emphasize that students are not simply blank slates to be filled with information or that thinking is merely a chain of stimulus-response connections.[2] Sociocultural theory and constructivism have broad histories ranging from Piaget's schema-based theories to the postmodern constructivist theories in which the locus of knowledge is based in social interaction.[3] Athletic training education—with didactic and clinical components—provides an optimal environment for the direct application of sociocultural learning theory.

The Works of Lev Vygotsky. The work of the Russian psychologist Lev Vygotsky provided the foundation for the application of sociocultural learning theory. This important theorist underscored the dynamic interdependence between the social and individual processes in learning.[4,5] Vygotsky's work emphasized 3 major themes. First, he contended that cognitive

development, including higher-order learning, is rooted in social interactions and mediated by abstract symbols, which he referred to as tools. Second, Vygotsky asserted that these tools are not created in isolation but rather are products of the sociocultural evolution of an actively involved individual.[4,5] Third, Vygotsky viewed learning as a developmental or genetic process. This general genetic law of cultural development emphasized the importance of concentrating on the process by which higher functioning is established.[4,5]

The ZPD is a major concept in Vygotsky's work. This zone is defined as the distance between what one can achieve alone and what one can achieve with help.[5] This idea emphasized that humans develop higher cognitive levels when the gaps in their thinking and problem solving are supported by adults, peers, or more capable others. This support was called scaffolding. The social environment supports development in such a way that what can be done collaboratively now will be accomplished independently at a later date. However, it is critical for the individual to actively participate in the learning process for this development to occur. In the active learning environment, students are constantly analyzing, puzzling over significance, searching for explanations, and speculating about relations between the new experience and what they already know.[6]

In relation to the ZPD, Vygotsky also stressed that instruction be directed more toward the higher level of the ZPD than the lower level of the zone.[5] This implied that a learning experience should make the student stretch to meet high expectations. However, without an optimal mix of challenge and support, student growth and development are unlikely to reach full potential.[7] Educators must provide appropriate support through structured activities in which students can interact with other students and faculty members to reach the highest level of development.

Research related to traditional and clinical components of athletic training education reflects the basic tenets of Vygotsky's work. Mentoring, nurturing, modeling,[8,9] student participation, and a humanistic orientation[9]—all of which occur in a social environment—were found to be important factors in student development and learning. Further, Mensch and Ennis[10] found that pedagogic strategies establishing positive relationships among faculty and students were important in facilitating learning. These authors supported the basic principles related to the ZPD by directly advocating the use of high expectations in athletic training education.

Scaffolding: The Connection-Making Process. Scaffolding is critical to student development and learning. It consists of creating supported situations in which students extend their current skills and knowledge. Through the use of scaffolding strategies, students make connections between old and new information in a social, active environment. When used liberally, scaffolding stimulates student interest, simplifies tasks so they are meaningful, and motivates students to pursue goals.[11] In the constructivist models, peers and instructors provide the scaffolding upon which new knowledge is developed. Relating concepts and principles to real situations also contributes to learning new material. Participation in structured activities that emphasize elaboration, analysis, and inferencing helps students make connections to real-life situations.[12]

Athletic training educational research has found similar positive effects for scaffolding strategies in the classroom and clinical settings. Breaking skills down into digestible parts and integrating knowledge from previous tasks promotes mastery

Table 1. Traditional Classroom Versus Constructivist Classroom

Traditional Classroom	Constructivist Classroom
Emphasis on basic skills	Big concepts
Fixed curriculum	Questions encouraged
Textbook/workbook	Manipulative materials
Didactic teaching	Students are thinkers
Correct answers rewarded	Teachers mediate and interact
Written assessment	Authentic assessment
Students work alone	Group work and projects

in athletic training.[13] When skills build upon existing knowledge, students begin to make sense of the new information. Student motivation is enhanced in experiential learning environments that foster autonomy, responsibility, and confidence.[10] Many strategies encourage the use of scaffolding in both the didactic and clinical settings. Case studies, simulations, and demonstrations all promote clinical scaffolding, whereas rewriting papers, reciprocal questioning, and cooperative learning encourage scaffolding from a didactic perspective.[13]

Self-Efficacy Theory. Self-efficacy theory provides valuable insights regarding student learning in the social environment. Bandura's[14] social cognitive theory postulates that perceived self-efficacy affects an individual in all aspects of life, including educational experiences. Beliefs about one's competence to successfully perform a task can affect motivation, interest, and achievement.[15] The higher the perceived efficacy, the higher the goal aspirations people adopt and the firmer their commitment to achieving those goals. Educational activities should foster self-efficacy through the use of social interaction. By doing so, the learning environment is structured to de-emphasize competition and highlight self-comparison of progress to build a sense of self-efficacy and promote academic achievement.[14]

Grusec[16] also found that people contribute to their own life course by selecting, influencing, and constructing their own circumstances based on perceived self-efficacy and self-regulatory capacity. Students and teachers select activities based on their self-efficacy beliefs. Strong self-efficacy by students and strong teacher efficacy enables students to control their learning, persist at tasks, and increase goal attainment by choosing tasks that challenge their existing knowledge. Teacher efficacy is as important as student efficacy in the design and implementation of learning activities.

Self-efficacy studies in athletic training education have supported learning theory literature. Jurges et al[17] found that athletic training students who had the knowledge of a select skill and the belief that they had the ability to perform that particular skill were more effective in the clinical environment. Vela[18] further supported the development of self-efficacy by promoting the use of learner-centered practices to enhance self-efficacy in the clinical experience. From an educational perspective, the implementation of constructivist strategies in both the clinical and didactic settings can help students relate prior knowledge to new knowledge while promoting a strong sense of self-efficacy. Table 1 provides characteristics of a traditional classroom and a constructivist classroom for comparison.

Practical Applications of Learning Theory in Athletic Training Education

Social learning theories provide valuable information directly related to student learning. However, this knowledge is

wasted unless it is applied in the learning environment. In applying theory to practice, it is critical to facilitate the learning process by using methods that will allow students to incorporate everyday life into their learning tasks. Clinical education, assessment, technology, and research are several examples in which sociocultural learning theories directly apply to athletic training education.

Clinical Education and Internships

The clinical component of athletic training education is critical to student learning, whether it is in the form of carefully structured clinical education or internships. As students actively participate in clinical experiences, they are learning more than cognitive knowledge and psychomotor skills. Students observe professional behaviors and learn through mentoring relationships about the demands of the athletic training profession. Laurent and Weidner[9] found that modeling professional behaviors gained through clinical education is one of the most helpful components in student learning. In an earlier study, the importance of structure and direction in the clinical experience was fully supported.[8] These authors contended that student mastery is enhanced through careful selection of the clinical instructors who provide mentoring, professional acceptance, and nurturing for the athletic training student.

Exposing students to an actual work environment as part of the learning process is a necessary and fundamental component in knowledge construction. Being submerged in the culture of the profession enhances professional competency and facilitates self-efficacy beliefs for success in one's chosen profession. In this environment, students become active learners capable of solving complex problems and constructing meaning that is grounded in real-world experience.[19] Educators can foster student motivation by providing structure in the clinical setting, autonomous support through learning activities, and active involvement with other students and teachers.[20]

Clinical experiences and internships also provide students the opportunity to actually see how athletic training professionals work as a team. It is important for the student to learn how to interact with a variety of individuals. Students need to be exposed to the emotional aspects associated with providing health care services as they prepare for a career in the athletic training field. Internships provide that real-world experience for the learner in addition to providing the opportunity to learn from the master through acculturation.[21]

In the social environment, students learn personal skills related to professional development, such as communication. Shapiro[21,22] addressed the role of the acculturation process—commonly experienced through clinical experiences and internships—in the development of interpersonal and communication skills in athletic training students. This critical process of acculturation facilitates professional growth as students prepare to enter the workforce. The social environments in which these interactions occur build the scaffolding upon which the student frames new knowledge. Clinical experiences and internships, among other connection-making strategies, foster the development of technical and interpersonal skills. Table 2 identifies specific connection-making strategies that can be directly applied to athletic training education.

Student Assessment

Sociocultural learning theory can be applied directly to student assessment. Educational institutions are changing to teach students how to integrate their knowledge into the real world, and changes must be made in the evaluation and assessment of the students. If elaboration and analysis are encouraged in the learning process, it is critical to test the student in this fashion. As part of the assessment process, educators should provide systematic and corrective feedback on a regular basis to allow for the construction of knowledge and the application of that knowledge.

Athletic training education programs should involve a variety of assessment techniques, particularly when critical thinking is the expected outcome. Fuller[23] encouraged the integration of critical thinking (application, analysis, synthesis, and evaluation) into testing procedures and in the design of learning objectives and written examinations to prepare students for the real-life problem solving that occurs in athletic training. Educators need to break the habit of constructing examinations that require little higher-order thinking. A gradual transition toward a more comprehensive approach to assessment can occur through careful analysis of the learning objectives and the implementation of more active strategies, such as case studies, peer questioning, and cooperative learning.

Although learner-centered approaches to teaching and assessment are promoted in sociocultural learning theory, these approaches must be carefully structured for each developmental level. One athletic training study found that teacher-centered instruction improved written performance but not practical test performance in pre-athletic training students when compared with student-centered instruction.[24] Based on the depth of literature encouraging learner-centered instruction and assessment, this information should be viewed as part of the evolving body of literature in athletic training education that emphasizes the use of varied strategies in athletic training education.

Competency-based assessment is another strategy used in athletic training education that reflects sociocultural learning theory. According to this theory, students should be required throughout their educational program to perform in situations, formal and informal, that simulate the testing environment. Shapiro[21] supported the use of role playing, case studies, and narratives in the didactic and clinical components of athletic training education. The educational development of the student must be consistent with the final assessment procedure in securing certification to practice in the profession. When students are exposed throughout the educational process to the actual skills needed to practice in the athletic training profession, they acquire a sense of self-efficacy. Students who do not feel that they can exercise control over stressors and highly valued outcomes foster feelings of futility and desperation.[15] Varied pedagogic and assessment strategies and structure in the educational process encourage critical thinking, reflective practice, and student empowerment.[25]

Learning objectives also play a critical role in the learner's acquisition of knowledge and typically guide assessment. Cov-

Table 2. Connection-Making Strategies

Peer- and reciprocal-questioning strategies
Reciprocal teaching
Cooperative learning
Team activities
Generative learning
Service learning
Internships and apprenticeships

Table 3. Assessment in Constructivism

Encourage higher-order thinking: cases, short answer, application
Do not reward unaltered information
Incorporate learning-based objectives
Assessment portfolios for variety in techniques
Self- and peer-assessment strategies
Authentic assessment
Construction of knowledge
Disciplined inquiry
Value beyond school

ington and Roberts[26] differentiated between performance-based and learning-based objectives in which the student desires to learn for the sake of the grade or for the sake of learning, respectively. A curriculum that emphasizes learning-based objectives may rely heavily on the student portfolio concept, in which success is measured individually as opposed to competitively, as traditionally seen. Learning-objective development is a potential area of growth for athletic training educators.[23]

Constructivism strongly supports the use of the assessment portfolio, which encourages self- and peer-assessment strategies.[27] Portfolios encourage personal responsibility for success that is fundamental to constructing knowledge. Athletic training educational research reflects the importance of the portfolio as an assessment element. Portfolios document learning over time,[28,29] promote critical thinking, and reinforce mastery of learning objectives. The use of portfolios can link clinical to classroom practice through reflections and projects.[30] Table 3 outlines specific characteristics and alternative options, including portfolios, for assessment under the constructivist model.

Technology

Recent technologic advances have affected the application of constructivist theory in practice. Innovative interactive computer software programs allow students to synthesize the course material through active learning. Despite some minor disadvantages, this use of technology allows interaction with others that would normally be inaccessible through distance-education and Web-based courses.

Using technology to the fullest extent is commendable when it is consistent with the ways that people learn. In athletic training education, Wiksten et al[31] found that students preferred traditional educational strategies over computer-based instruction because of the latter's lack of feedback and lack of contact between faculty and students. In their study, athletic training students preferred a more social environment for learning. However, new technology is being developed to promote active learning and higher-order learning. Careful selection and use of educational technology will help to ensure that student learning is occurring.

Problem-Solving Strategies and Research

Teaching students how to problem solve is critical in the construction of knowledge. If students are taught how to search actively and continuously for meaning, the passion of the student is aroused, facilitating retention. The educator should provide feedback to control student frustration and to mark critical areas of discrepancy in the resolution of the problem. McLoda and Andersen[32] found problem-based learning a useful tool for late-stage undergraduate and graduate students. Problem-based learning promotes learner responsibility, group communication, and individual contemplation to solve problems, all of which are critical in athletic training.

Problem solving should also be incorporated into competency-based skills assessment. Students should be required to work in groups or pairs in the problem-solving processes associated with athletic training domains, such as recognition, evaluation, and immediate care of athletic injuries; rehabilitation and reconditioning of athletic injuries; and prevention of athletic injuries. Progressing from basic to advanced skill acquisition, the student can interact with other students and instructors to solve problems. By actually putting into practice what they have learned in the formal classroom setting, students maintain high motivation levels. By applying the knowledge, students are better able to understand and retain the information for later use. They are highly motivated to achieve because they know that these skills are critical to success in the field.

Limitations to Sociocultural Learning Theory

Although sociocultural theories strongly support current trends in education, limitations exist. According to Gredler,[33] the functions of a learning theory are to provide guidelines for planning instruction, to evaluate current products for classroom practice, and to diagnose problems in the classroom. The application of learning theory in athletic training education can provide insights into how we teach and how students learn.

One limitation to sociocultural learning theory stems from the definition of critical thinking, which is central to student learning. The meaning of critical thinking may differ across academic disciplines.[7] If critical-thinking skills involve elaboration, analysis, and synthesis of information, differences in definition must be reconciled across the disciplines. Fuller[23] believed that all students are capable of critical thinking, regardless of their level in the athletic training program. Educators should allow for versatility in defining critical thinking to encourage development of these skills across the curriculum. This is likely to occur with the integration of the clinical and academic staffs and the implementation of clinical-instructor workshops. These formal exposures to educational theory and the application of educational theory in clinical and didactic settings may broaden the scope of critical-thinking activities in athletic training education programs.

Additionally, sociocultural theory promotes the use of nontraditional methods of instructing and evaluating student learning, which involves a significant time commitment on the part of the faculty member. Most educators are unwilling or unable to make the sacrifice of time and effort to implement this type of learning into the curriculum, particularly if they have low teacher efficacy regarding the instructional methods[16] or are restricted by institutional constraints such as retention, promotion, and tenure requirements. Through further investigation of the role of the athletic training program director, faculty, and clinical instructors, implementation may be less of an issue as roles are further defined.[34–39] With appropriate internal and external support, the transition to active learning environments, both in didactic and clinical settings, can occur.

CONCLUSIONS

Athletic training is an ideal profession for the application of sociocultural learning theory. The interactive nature of our

profession implicates the use of social-learning strategies in both the clinical and didactic settings. Learning over time will allow students to relate past information to the development and integration of new ideas that can be applied for a lifetime. Active classroom and clinical instructional strategies encourage the educator to take on the role of the ''guide on the side'' rather than the ''sage on the stage.''[40] As the athletic training educational literature continues to evolve, much can be learned from the existing literature in educational psychology.

As a profession, athletic training encourages cooperation and teamwork. Interaction with other allied health care providers, physicians, coaches, administrators, and students is at the core of the profession. This is consistent with the basic philosophy of cooperative learning and interactive classrooms that are essential to the application of sociocultural learning theory.

What we do as educators in the classroom and in the clinical setting has a profound effect on the lives of all students. There is much to learn from the application of sociocultural learning theory to athletic training education. We must build upon what we know about athletic training education and borrow from other disciplines the wealth of theories related to student learning. Further, we must make a commitment to the process of developing self-directed learners who can succeed in the world they are about to face. Our passion and commitment for this tremendously important process must prevail so that all students are provided the opportunity to succeed.

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