IMPROVING CLINICAL education in athletic training is a complex issue. As clinical education evolves, it is critical to implement effective evaluative tools to determine the effectiveness of clinical-instruction practices. Athletic training educators can effectively use educational theory and pedagogical research to improve clinical education. The seven principles for good practice in undergraduate education,¹ originally published in 1987, are widely recognized in educational research as the cornerstone for educational practice. In 1989, the seven principles evolved into two self-assessment inventories—the institutional inventory² and the faculty inventory.³ The institutional inventory assesses whether an educationally powerful environment exists, and the faculty inventory addresses issues directly related to the interaction between students and clinical instructors. These two inventories can be used to provide feedback to clinical instructors and program directors regarding the use of quality indicators and as tools for improving clinical instruction in athletic training education.

**Background**

The development of the seven principles for good practice in undergraduate education¹ has been a collaborative effort of researchers, faculty members, and administrators. Findings from decades of research on the undergraduate experience were condensed into seven basic principles that reflect the way teachers teach and students learn.⁴ Intended to improve teaching and learning, these seven principles (listed in the sidebar) employ six powerful forces in education: activity, cooperation, diversity, expectations, interaction, and responsibility. The principles are not based on content; they are based on process and can be applied to all academic programs to determine whether effective practices are being employed.

The faculty inventory uses the same seven elements. This inventory can be used clinically or didactically as a self-reflective tool regarding
Seven Principles for Good Practice in Undergraduate Education

- Encourage student–faculty contact.
- Encourage cooperation among students.
- Encourage active learning.
- Give prompt feedback.
- Emphasize time on task.
- Communicate high expectations.
- Respect diverse talents and ways of learning.

(Adapted from Chickering and Gamson)1

The educational practices of faculty members or clinical instructors. It serves as a self-analysis of student–faculty contact in and outside of the classroom, use of cooperative and collaborative activities, use of active learning strategies, frequency and promptness of feedback, strategies for time management to ensure time on task, communication of high expectations, and use of a variety of teaching strategies to respect various ways of learning.

The institutional inventory addresses questions about the institution and program as a whole to focus more on policies and procedures that promote student success and educationally powerful environments. This inventory serves to analyze the climate with emphasis on diversity, student representation, and administrative involvement; academic practices related to load and graduation rates; curriculum to ensure active learning, curricular content, and interdisciplinary learning; faculty to determine accessibility and involvement in student-life activities; academic and support services to ensure access to campus resources; and facilities to monitor availability and accessibility. The institutional inventory was devised primarily as a reflective device to provoke thinking at the policy level and to evaluate environments to determine whether they foster the seven principles.1,3

Application

Supported by generations of educational research on learning and pedagogical theory, these principles have direct application to athletic training education programs. Poulsen4 summarized the applications of the faculty and institutional inventories to include faculty/teaching workshops, instructional improvement, departmental research, institutional assessment, strategic planning, and curriculum revision. The inventories can provide a valuable and easily administered self-diagnostic tool for individual and program improvement in athletic training.

Although traditionally applied in didactic settings, the application of these principles in clinical education is appropriate. Curtis et al.7 reported that athletic training students desired mentoring through explanation, demonstration, and constructive feedback in clinical settings. Laurent and Weidner8 contend that clinical-instruction characteristics such as student participation, attitude toward teaching, problem-solving opportunities, instructional strategies, humanistic orientation, and self-perception were all viewed as positive characteristics that facilitate student learning in the athletic training clinical environment. These findings indicate that the interaction between clinical instructors and students can have a significant impact on the development of athletic training students. Careful selection, matching, and training of supervising athletic trainers and clinical instructors are critical to ensure the optimal educational environment. By evaluating clinical-instruction methodologies, students will likely have a more positive learning experience.

Technology can also be used extensively to enhance clinical education through the application of these principles. Using technology to structure and monitor competency and mastery of clinical skills can help clinical instructors implement the seven principles into daily practice. Communication technologies (e-mail, video conferencing, and World Wide Web) can increase student–faculty contact to facilitate scheduling of competencies and to expose students to skills not readily accessible in the clinical setting (e.g., breath sounds, general medical conditions, surgical techniques). Relatedly, technology enables students to actively learn materials for mastery. Students must talk about what they are learning, write reflectively about it, relate it to past experiences, and apply it to their daily lives. Technology complements clinical education through the use of video, audio, and interactive activities. Although often thought of as being used in individual activity, technology facilitates student collaboration and cooperation. When used effectively, it develops a collaborative environment through
projects using computer-based tools and learning. Critical thinking is also developed through the use of computerized simulations and case scenarios. Prompt feedback on performance helps students focus on learning. By understanding what they know and what they do not, students are able to monitor learning and progress sequentially through learning activities over time.

Clinical education and competency mastery are directly related to the appropriately designed environment and educational tasks set forth by the clinical instructor. Nonetheless, each athletic training student must be assertive regarding the learning process. Assuming responsibility for learning fosters the development of self-directed, lifelong learners, which is at the core of the seven principles.

Summary

The seven principles for good practice in undergraduate education are intended to serve as guidelines to improve teaching and learning. The faculty and institutional inventories can be used as vehicles for self-assessment of behaviors, policies, and practices for consistency with the seven principles. Performed on a regular basis, these instruments can help clinical instructors design educationally challenging clinical education.

As clinical education continues to develop, methods to improve clinical instruction must be evaluated. Through the simple use of self-evaluative inventories, clinical instructors and program directors alike can gain valuable knowledge of clinical-instruction methodologies to determine areas of strengths and weaknesses. Based in educational theory, these principles widely apply to the clinical settings in athletic training education and are easily identified in clinical practice.

Clinical education is a daunting task for all athletic training educators. Assuming that simply because we have incorporated the clinical competencies into our programs we are successfully reaching to the best of our abilities is naïve. As educators, it is our responsibility to use tools to assess our own performance. We must maximize what is working clinically and recognize what is not to ensure program improvement. It is our responsibility to use tools to constantly improve our delivery of both educational content and the educational program as a whole. The seven principles for good practice in undergraduate education institutional and faculty inventories have the potential to help both program directors and clinical instructors evaluate the delivery of the clinical components of the program.

References


Kimberly Peer is the athletic training education program coordinator for the CAAHEP-accredited program at Kent State University in Kent, OH. Kimberly is active in the athletic training profession through her involvement in state-, district- and national-level offices, committees, and presentations. Her areas of research are athletic training education and clinical athletic training.
Clinical Instructors’ and Student Athletic Trainers’ Perceptions of Helpful Clinical Instructor Characteristics

Tim Laurent*; Thomas G. Weidner†

*Lynchburg College, Lynchburg, VA; †Ball State University, Muncie, IN

Tim Laurent, EdD, ATC, CSCS, and Thomas G. Weidner, PhD, ATCL contributed to conception and design; acquisition and analysis and interpretation of the data; and drafting, critical revision, and final approval of the article.

Address correspondence to Tim Laurent, EdD, ATC, CSCS, School of Health Sciences and Human Performance, Lynchburg College, 1501 Lakeside Drive, Lynchburg, VA 24501. Address e-mail to laurentt@mail.lynchburg.edu.

Objective: To compare the perceptions of students and clinical instructors regarding helpful clinical instructor characteristics.

Design and Setting: We developed a questionnaire containing helpful clinical instructor characteristics for facilitating student learning from a review of the medical and allied health clinical education literature. Respondents rated clinical instructor characteristics from 1 (among the least helpful) to 10 (among the most helpful). Respondents also identified the overall 10 most helpful and 10 least helpful characteristics.

Subjects: A total of 206 undergraduate students and 46 clinical instructors in the National Athletic Trainers’ Association District 4 athletic training education programs accredited by the Commission on Accreditation of Allied Health Education Programs responded to the survey.

Measurements: We computed individual-item and subgroup mean scores for students, clinical instructors, and combined students and instructors. Pearson product moment correlations were computed to evaluate the level of agreement between students and instructors. Correlations were also computed to evaluate the level of agreement between the open-ended responses and the Likert-scale responses.

Results: Agreement was high between the students’ and the clinical instructors’ ratings of individual items. Agreement was also high between individual-item means and the directed, open-ended 10 most helpful and 10 least helpful clinical instructor characteristics. Modeling professional behavior was considered the most helpful subgroup of clinical instructor characteristics. Integration of knowledge and research into clinical education was considered the least helpful subgroup of clinical instructor characteristics.

Conclusions: Clinical instructors should model professional behavior to best facilitate student learning. Integration of research into clinical education may need more emphasis.

Key Words: clinical education, clinical skills, teaching and learning

The National Athletic Trainers’ Association (NATA) Education Council has positioned clinical education as one of the most pressing issues of reform in athletic training education.¹ One approach to this reform is to qualify the clinical education experience with purposeful objectives rather than chance learning experiences. Many health care professions use clinical education to reinforce the theoretical information presented in a didactic (classroom) format. This “hands-on” experience has been shown to be valuable in athletic training²,⁴ and other health care professions such as medicine, nursing, and physical therapy²,⁴,¹⁰-¹⁵ Clinical education, the integration of theoretical and practical educational components into real-life situations with athletes or patients, should promote and help ensure a positive and constructive learning experience, so that appropriate skills, behaviors, and attitudes for future professional practice are learned and applied.⁶ Clinical education helps students to learn skills and to apply theoretical knowledge²,¹⁰-¹²; therefore, improving athletic training professional services depends upon maintaining high-quality clinical education. Clinical instructors serve an important role in the facilitation and integration of athletic training knowledge and skills; thus, it is important to identify and promote helpful clinical instructor qualities.

Certified athletic trainers agree that clinical instruction is an important component of athletic training education.⁸ However, the characteristics that constitute effective clinical instruction in athletic training are not well defined. Therefore, clinical instructors may lack information and direction in instructing students and in improving their own professional development activities.⁹

Previous researchers⁷ have identified and described critical helpful and hindering clinical teaching behaviors of supervising athletic trainers, as perceived by student athletic trainers. Yet no athletic training research has compared the responses of both students and clinical instructors regarding helpful teaching characteristics. The purpose of our study was to compare the perceptions of students and clinical instructors of the instructor characteristics that were regarded as the most and least helpful in facilitating student learning.

METHODS

We developed a 49-item, 8-subgroup questionnaire containing helpful clinical instructor characteristics from a review of the medical and allied health clinical education literature.³,⁴,⁸,¹⁶-²¹ Only items and subgroups that were validated
Table 1. Most Helpful Clinical Instructor Characteristics

<table>
<thead>
<tr>
<th>Rank*</th>
<th>Mean Rating†</th>
<th>Characteristic</th>
<th>Subgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9.25</td>
<td>Displays confidence</td>
<td>Modeling</td>
</tr>
<tr>
<td>2</td>
<td>9.19</td>
<td>Demonstrates respect for the student</td>
<td>Humanistic Orientation</td>
</tr>
<tr>
<td>3</td>
<td>9.04</td>
<td>Manages clinical emergencies well</td>
<td>Modeling</td>
</tr>
<tr>
<td>4-5</td>
<td>9.01</td>
<td>Provides opportunities for students to practice both technical and problem-solving skills</td>
<td>Student Participation</td>
</tr>
<tr>
<td>6-7</td>
<td>9.01</td>
<td>Demonstrates skills for the students</td>
<td>Modeling</td>
</tr>
<tr>
<td>8</td>
<td>9.00</td>
<td>Is willing to admit when he/she does not know</td>
<td>Self-Perception</td>
</tr>
<tr>
<td>9</td>
<td>8.94</td>
<td>Remains accessible to students</td>
<td>Problem Solving</td>
</tr>
<tr>
<td>10</td>
<td>8.92</td>
<td>Communicates what is expected of students</td>
<td>Humanistic Orientation</td>
</tr>
<tr>
<td></td>
<td>8.91</td>
<td>Listens attentively to students and athletes</td>
<td>Instructional Strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clinical Instructor Attitude Toward Teaching</td>
</tr>
</tbody>
</table>

*Indicates rank among 42 characteristics.
†Mean ratings are combined (student and clinical instructor) mean ratings. Mean ratings were calculated from ratings on a scale of 1 to 10.

by the literature to be “helpful” toward student learning were included. The questionnaire was piloted with a convenience sample of 22 students and 7 clinical instructors to gather information about clarity, format, redundancies, and relevance. As a result of the feedback from the pilot study, the 8 subgroups were unchanged; however, 7 individual items were eliminated, leaving a 42-item questionnaire. The subgroups included in the questionnaire were Student Participation (4 items); Clinical Instructor Attitude Toward Teaching (4 items); Problem Solving (5 items); Instructional Strategy (6 items); Humanistic Orientation (6 items); Knowledge and Research (6 items); Modeling (7 items); and Self-Perception (4 items).

Packets with questionnaires, instructions, and postage-paid return envelopes were mailed to all directors of athletic training education programs accredited by the Commission on Accreditation of Allied Health Education Programs in NATA District 4 (n = 20), excluding Ball State University. Program directors were informed that the study was approved by the institutional review board and that participation was voluntary. We asked that the questionnaires be distributed to clinical instructors and undergraduate student athletic trainers. A clinical instructor was defined as a person who provides direct supervision and instruction to students in the clinical aspect of athletic training education. Graduate assistants were considered clinical instructors if they were classified as such by the program director. Student athletic trainers were defined as students who were formally accepted into the undergraduate athletic training education program and who were deemed by the program director to have an opinion on helpful clinical instructor characteristics.

Respondents were asked to rate each characteristic on a 1 to 10 Likert scale, indicating the characteristic’s helpfulness to student learning, with 1 being among the least helpful and 10 being among the most helpful. Each item was scored independently. Respondents were then asked to identify the 10 most helpful and 10 least helpful characteristics overall in a directed, open-ended format. For this section, respondents could choose any of the 42 items from the questionnaire, regardless of their prior rating of helpfulness. This was done to compare the mean ratings of the individual items.

Sixteen (80.0%) of the program directors returned questionnaires. We computed individual-item and subgroup mean scores for students, clinical instructors, and combined students and instructors. Subgroup mean scores were also computed. We computed Pearson product moment correlations to evaluate the level of agreement between the students’ and instructors’ individual-item means and between male and female students’ individual-item means. Pearson product moment correlations were also computed for the individual-item mean responses with the proportion of respondents who identified items in the directed, open-ended listing of the 10 most and 10 least helpful characteristics.

RESULTS

Of the 47 clinical instructor respondents, 25 (53.2%) had 10 or more years of experience, and 42 (89.4%) had a graduate degree. Of the 206 student respondents, 157 (76.2%) had 400 or more hours of clinical education experience, 146 (70.9%) were juniors or seniors, 127 (62%) were women, and 79 (38%) were men. The combined (student and clinical instructor) mean ratings for the 10 most helpful clinical instructor characteristics are presented in Table 1.

The combined mean ratings for the 10 least helpful characteristics are presented in Table 2. The mean score gives an indication of an individual item’s helpfulness toward student learning, with 10 representing among the most helpful. The ranking gives the relative importance of each item in comparison with all other questionnaire items. Agreement was high between the students’ and clinical instructors’ mean ratings (r = .88) and between male and female students’ mean ratings (r = .95). Agreement was also high between the combined mean Likert scores of students and clinical instructors and the items chosen in the directed, open-ended 10 most helpful characteristics (r = .83) and the directed, open-ended 10 least helpful characteristics (r = .95). As seen in Table 3, subgroup mean ratings ranged from 7.31 to 8.86. The Modeling subgroup contained the most helpful clinical instructor characteristics and had a subgroup mean of 8.86. “Displays confidence,” “manages clinical emergencies well,” and “demonstrates skills for the students” were perceived by both students and clinical instructors as the most important characteristics. Other Modeling characteristics, “works effectively with health care members,” “maintains rapport with patients/athletes,” “actively and regularly engages in clinical practice,” and “consults with others when needed,” also received high ratings (more than 8.0) by both the students and clinical instructors. Three of the top 5 individual-item means and 2 of the 10 directed, open-ended most helpful characteristics were from this subgroup. The Knowledge and Research subgroup had the lowest mean rating (7.31). Five of the lowest 7 individual-item means and 5 of the 10 directed, open-ended least
Table 2. Least Helpful Clinical Instructor Characteristics

<table>
<thead>
<tr>
<th>Rank*</th>
<th>Mean Rating†</th>
<th>Characteristic</th>
<th>Subgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>5.95</td>
<td>Is actively involved in research</td>
<td>Knowledge and Research</td>
</tr>
<tr>
<td>41</td>
<td>6.75</td>
<td>Cites important references</td>
<td>Knowledge and Research</td>
</tr>
<tr>
<td>40</td>
<td>7.21</td>
<td>Occasionally challenges points presented in texts and journals</td>
<td>Knowledge and Research</td>
</tr>
<tr>
<td>38</td>
<td>7.61</td>
<td>Has an interesting style of presentation</td>
<td>Instructional Strategy</td>
</tr>
<tr>
<td>38</td>
<td>7.68</td>
<td>Discusses divergent points of view</td>
<td>Knowledge and Research</td>
</tr>
<tr>
<td>37</td>
<td>7.70</td>
<td>Is self-critical</td>
<td>Self-Perception</td>
</tr>
<tr>
<td>36</td>
<td>7.74</td>
<td>Directs students to useful literature in the field</td>
<td>Knowledge and Research</td>
</tr>
<tr>
<td>35</td>
<td>7.98</td>
<td>Stresses physical and psychological aspects of injury</td>
<td>Humanistic Orientation</td>
</tr>
<tr>
<td>34</td>
<td>8.00</td>
<td>Encourages students to share their knowledge and experience</td>
<td>Student Participation</td>
</tr>
<tr>
<td>33</td>
<td>8.04</td>
<td>Is dynamic and energetic</td>
<td>Clinical Instructor Attitude Toward Teaching</td>
</tr>
</tbody>
</table>

*Indicates rank among 42 characteristics.
†Mean ratings are combined (student and clinical instructor) mean ratings. Mean ratings were calculated from ratings on a scale of 1 to 10.

Table 3. Subgroup Mean Ratings

<table>
<thead>
<tr>
<th>Rank*</th>
<th>Mean Rating†</th>
<th>Subgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.86</td>
<td>Modeling</td>
</tr>
<tr>
<td>2</td>
<td>8.64</td>
<td>Humanistic Orientation</td>
</tr>
<tr>
<td>3</td>
<td>8.60</td>
<td>Clinical Instructor Attitude Toward Teaching</td>
</tr>
<tr>
<td>4</td>
<td>8.51</td>
<td>Student Participation</td>
</tr>
<tr>
<td>5</td>
<td>8.50</td>
<td>Self-Perception</td>
</tr>
<tr>
<td>6</td>
<td>8.46</td>
<td>Problem Solving</td>
</tr>
<tr>
<td>7</td>
<td>8.43</td>
<td>Instructional Strategy</td>
</tr>
<tr>
<td>8</td>
<td>7.31</td>
<td>Knowledge and Research</td>
</tr>
</tbody>
</table>

*Indicates rank among 8 subgroups.
†Mean ratings are combined (student and clinical instructor) mean ratings. Mean ratings were calculated from ratings on a scale of 1 to 10.

Table 4. Teaching Tips for Clinical Instructors

- Display confidence
- Demonstrate respect for students
- Manage clinical emergencies well
- Provide opportunities for students to practice both technical and problem-solving skills
- Demonstrate skills for students
- Be willing to admit when you do not know something
- Discuss practical application of knowledge and skills
- Remain accessible to students
- Communicate what is expected of students
- Listen attentively to students and athletes

helpful characteristics were from this subgroup. There was relatively little discrimination among the other 6 subgroups (means ranged from 8.43 to 8.64), with no particular pattern of individual-item means or directed, open-ended most and least helpful characteristics.

DISCUSSION

Athletic training clinical education is often judged by the quantity of clinical hours completed by a student. This perspective of clinical education places no value on the clinical instructor. The students' and clinical instructors' perceptions identified in this study of helpful clinical teaching characteristics can more meaningfully help direct the clinical instruction process. Table 4 presents teaching tips for athletic trainers serving as clinical instructors, which will also, we hope, serve as a catalyst for athletic trainers to seek professional development activities designed to improve clinical instruction.

The small ratio of students to clinical instructors in athletic training clinical education allows clinical instructors to individualize instruction. Considering individualized instruction, Curtis et al. recommended that sex differences be explored. We found no differences in the perceptions of male and female athletic training students regarding helpful clinical instructor characteristics, and therefore, the teaching tips presented in Table 4 can be used by clinical instructors regardless of the student's sex.

Modeling professional behavior is the most helpful category of clinical instructor characteristics. Clinical instructors need to demonstrate and consistently improve their knowledge and skills. Consistent with these modeling behaviors, good clinical instructors have been identified as being involved with the students, being clear and organized, emphasizing problem solving, mentoring, having sound communication skills, having a positive attitude, and providing good feedback. Quality clinical instructors have been described as being both master teachers and master practitioners. Modeling and its specific characteristics (e.g., displaying confidence, managing clinical emergencies well, and demonstrating skills for students) are appropriately considered qualifications for these designations.

In other research, medical students indicated that involvement of their clinical instructors was an important consideration in learning. Modeling, identified in this research as the overall most important characteristic of clinical instructors, requires such involvement.

It is important to note that all of the clinical instructor characteristics framed in this study were considered helpful by students and clinical instructors and may improve student learning. The top 7 characteristics received mean scores of 9.00 or above on a 10-point Likert scale. The middle mean scores ranged between 8.00 and 9.00. Only the lower 8 items received mean scores below 8.00, with only the last 2 scores below 7.00. This pattern suggests that all of the characteristics identified in this study should be considered helpful or very helpful for facilitating student learning. No other subgroup of clinical instructor characteristics can be identified as the second most important for student learning. Student Participation, Clinical Instructor Attitude Toward Teaching, Problem Solving, Instructional Strategy, Humanistic Orientation, and Self-Perception all received very high ratings (8.43 to 8.64).
is little perceived difference overall among these other subgroups of helpful clinical instructor characteristics. From other research, however, there is evidence regarding the influence of negative clinical instructor characteristics on student learning. Clinical instructors should not treat students with disrespect, provide negative feedback, or be unavailable.\textsuperscript{7,16,20} These behaviors are perceived to hinder student learning.

The Knowledge and Research subgroup was consistently identified by both students and clinical instructors as the set of least helpful clinical instructor characteristics in student learning. It appears that both students and clinical instructors involved in undergraduate athletic training education likely focus more on learning subject matter and clinical skills than on conducting research to support clinical practices. Ultimately, for the athletic training profession to develop and mature, it must establish its own body of knowledge.\textsuperscript{22} The transmission of this knowledge to entry-level professionals through effective and proven instructional methods is also critically important. The actual practice or clinical application of athletic training should have shared importance with research and education. Perhaps a more balanced approach to entry-level athletic training clinical education would include avenues for infusing research into clinical practice. For example, emphasis on critical-thinking skills during clinical education may develop an appreciation of the need for athletic training research. Other avenues for infusing research into student athletic trainers' education may include undergraduate didactic education and graduate education.

CONCLUSIONS

Modeling professional behavior is perceived by students and clinical instructors to be the most helpful category of clinical instructor characteristics in student learning. Student Participation, Clinical Instructor Attitude Toward Teaching, Problem Solving, Instructional Strategy, Humanistic Orientation, and Self-Perception were all viewed as positive categories of characteristics that are helpful toward student learning; however, no clear discrimination (i.e., differences in ratings) can be discerned between the items in these categories. Infusing research into clinical instruction is perceived to be the least helpful clinical instructor characteristic.

Although we focused this research on the clinical instructor characteristics perceived to be the most helpful toward student learning, we did not measure the impact of these characteristics on student skills and knowledge. Further research should compare clinical instructor characteristics with student success in mastering entry-level skills and competencies. Further research is also needed to determine the characteristics of students completing clinical education. What specific characteristics are necessary for a student to maximize the clinical education experience? Research should also focus on the clinical setting to determine the influence of environmental, administrative, and personnel factors on clinical instruction and student learning.

Although the more experienced sample of students in this study may have ensured that our responses were from a group familiar with clinical education, it may not have revealed differences in the perceptions between experienced and inexperienced students. Perhaps students with different levels of experiences, including entry-level undergraduate students and entry-level graduate students, have unique perceptions of helpful clinical instructor characteristics. Further research should also focus on the influence of student and clinical instructor learning styles on the perceptions of helpful clinical instructor characteristics.

ACKNOWLEDGMENTS

This research was supported through a grant from the Great Lakes Athletic Trainers’ Association Research Assistance Fund (Thomas G. Weidner).

REFERENCES

Instructional Strategy for Clinical Education: The 3-2-1 Technique

Scott Heinerichs, MAT, ATC, and Neil Curtis, EdD, ATC • West Chester University

LIKE MOST health-care educational programs, athletic training education programs (ATEPS) require clinical education in addition to the cognitive and psychomotor competencies presented in a classroom or laboratory setting. Clinical education allows athletic training students to discover whether they understand a concept and are able to take it and apply it in a real-life environment. Clinical instructors (CIs) play a key role in the educational process. It is important for an ATEP to provide CIs with various clinical teaching strategies, thereby creating a productive learning environment. The objective of this column is to introduce a reflective model of clinical instruction and a teaching strategy that we have adapted for use in our ATEP.

CIs are responsible for creating an effective learning experience, which includes providing constructive feedback. Feedback is a formal or informal evaluation process that provides students additional knowledge and helps them refine their skills and behaviors. Mandy proposed a model of clinical instruction in speech-language pathology that centers on informal (reflection), as well as formal, feedback for students during clinical placements. This model encourages students to connect theory to practice and to engage in consistent and intentional self-evaluation and professional growth. In addition, this model benefits CIs in their ability to provide appropriate feedback to enhance student learning in the clinical setting.

Mandy’s Reflective Model

There are five phases of Mandy’s model that we have adapted for athletic training clinical education (Table 1). In Phase 1 a CI–student conference is held that allows the student to identify his or her strengths and weaknesses, as well as expectations for the placement. The CI can also establish patient-management procedures and the importance of mutual respect between the CI and student, which can recur throughout the clinical experience. Phase 2 is the observation of student–patient interactions. During this phase, the CI collects descriptive data of which the main objective is to “accurately reflect the whole content” of the student–patient session in order to provide appropriate timely feedback on the session. Phase 3, analysis and strategy, is when both the student and the CI independently take notes immediately after the student–patient session so that issues can be discussed at

<table>
<thead>
<tr>
<th>Table 1. Phases of the 3-2-1 Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

Note. CI = clinical instructor.
3-2-1 Technique

3 things the student has learned from this evaluation
2 things that were reinforced for the student from class or previous experiences because of this evaluation
1 thing the student still does not understand about this evaluation

the conclusion of the session or day. These notes can be taken mentally or in writing. Phase 4, the supervision conference, is where the reflective process is applied. Mandy states that the most difficult part of the application of this model occurs in this phase, in the ability of the CI to “construct questions to help the student reflect.”

We use the 3-2-1 technique described in the sidebar to facilitate this phase. At this conference the student recalls what took place during the student-patient interaction, including emotions and feelings related to the particular events. With the aid of the CI’s feedback, the student reevaluates the experience in terms of existing knowledge and establishing tasks for problem solving. The fifth and final phase, postconference analysis, requires the student and CI to reflect on the learning opportunity and determine whether the clinical instruction and supervision are working productively.

Strategy for Implementing Mandy’s Model

Throughout athletic training education, most CIs incorporate strategies similar to Mandy’s model. The 3-2-1 technique has been used throughout K-12 education as a pedagogical strategy to enhance learning through reflection and to serve as a type of informal assessment. A review of the literature did not reveal a source for the development of the 3-2-1 technique. A graduate-school mentor introduced it to the lead author (J. McDowell, health-education teacher, oral communication, February 2001). In athletic training clinical education, one of the most common clinical proficiencies demonstrated by students is conducting an injury evaluation. We will use this example to demonstrate the implementation of the 3-2-1 technique. The CI observes and takes notes while the student evaluates the patient (Phase 2). After he session, the CI and student review the student’s performance (Phase 3). Next, the CI has the student complete a short activity called 3-2-1 (Phase 4). This

requires students to write down 3 things they have learned from the patient evaluation, 2 things that they already knew but were reinforced, and 1 thing they still do not understand. The student and supervisor then reconvene to review the experience, and all events are revisited and analyzed in terms of their impact on the entire injury evaluation (Phase 5).

A portion of an athletic trainer’s day is typically spent attending practice and/or games in the event that an injury occurs. This is one time when a CI and student can reflect on the injury-evaluation experience and use the 3-2-1 technique to facilitate discussion. This technique also emphasizes the reflective process that Mandy thinks is the hardest part of the supervision conference. Employing this technique with students will help them (a) associate new knowledge and feelings with previously acquired knowledge and observations, (b) integrate relationships between old and new knowledge to form hypotheses, (c) attempt to validate hypotheses by anticipating their practical application, and (d) incorporate this new information into their working knowledge base.

Conclusion

The 3-2-1 technique is a strategy we have found helpful in facilitating student reflection and assessment during the clinical-education experience. It challenges the student to use higher order learning domains when recalling an experience (i.e., synthesis, evaluation) through the points in Mandy’s model. As clinical instructors, we should employ instructional strategies to challenge our students. The 3-2-1 technique is easy to administer and will help CIs generate meaningful discussion through reflection and feedback for students during their clinical-education experience.

References


Scott Heinerichs is an instructor and athletic trainer at West Chester University of Pennsylvania. He is currently completing his doctorate at Widener University in higher education academic leadership.

Neil Curtis is an associate professor and athletic trainer at West Chester University. He is also the program director of the undergraduate athletic training education program.