

# Curation of a Simulation Experience by the Clinical Scholar: An Educational Technique in Postprofessional Athletic Training

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**Context:** Postprofessional athletic training programs continue to prepare advanced-practice leaders in the profession. As part of being leaders and clinical scholars within the field, it is important that students pursuing postprofessional graduate education be exposed to curriculum and instructional theory, practice, and strategies.

**Objective:** To describe an education technique focused on the curation of a simulation assignment as part of a postprofessional athletic training course as a means to develop an appreciation of instructional strategies as a clinical scholar.

**Background:** The postprofessional athletic training student (PP-ATS) may be working as a full-time clinician, graduate assistant, or novice educator, or as an intern within an athletic training clinic. Regardless of employment status, PP-ATs engage with several key stakeholders, ranging from parents and legal guardians to coaching staff and professional athletic training students. The PP-ATS may be tasked to provide education to these stakeholders in the form of patient participation status to a coach, describing the pathogenesis of a condition to a patient, and rationale for care to professional athletic training students.

**Description:** The PP-ATs were placed in learning communities of 3 to 5 students. The learning communities were tasked with the development of high- and low-fidelity simulations for learners (the other PP-ATs in the course) to engage in during an intensive and focused learning session, facilitation of the experience, and a debrief encounter.

**Clinical Advantage(s):** A 2-fold benefit exists. First, PP-ATs are engaged in the design and development of a simulation experience as an instructional intervention. Second, simulation learners are gainfully engaged in low-stakes patient encounters that promote professional growth.

**Conclusion(s):** Developing and implementing learner-curated simulation experiences exposes PP-ATs to an innovative instructional strategy in athletic training.

**Key Words:** Advanced practice, health care, medical education

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# Curation of a Simulation Experience by the Clinical Scholar: An Educational Technique in Postprofessional Athletic Training

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## KEY POINTS

- Educators in postprofessional athletic training degree programs should consider creating assignments that allow the learner to curate a simulation experience to better prepare them for future experiences in clinical practice and education.
- The use of learning communities may be beneficial for collaborative experiences to promote peer-to-peer learning from clinicians in various roles and practice settings.
- Learners in the course should actively participate in the simulations curated by the other learners to promote advanced-practice techniques and skill practice.

Simulation-based training is a method that allows learners to engage in skill development in low-stakes situations.<sup>1</sup> This method of training attempts to recreate characteristics of the real world. As a result, simulation experiences typically involve mannequins, standardized patients or patient actors, part-task trainers, and simulators. The use of simulation is not the addition of technology alone,<sup>2</sup> but often incorporates several media, including live-actor portrayal and high-fidelity simulators, that allow interaction of the clinician and the patient, mimicking a real-life scenario. In order for the experience to reproduce a potential real-life scenario, the simulation must encompass the 3 dimensions of fidelity: equipment fidelity, environmental fidelity, and psychological fidelity.<sup>1</sup> Equipment fidelity addresses the need for the simulator to portray the physical dimensions necessary to replicate a real patient.<sup>1</sup> Environmental fidelity incorporates the sensory aspect of the experience, including visual and auditory cues that an individual may experience in a real-life event.<sup>1</sup> Finally, psychological fidelity is concerned with the ability for learners to perceive the simulation experience as a potential real-life encounter, thus the ability to allow themselves to be vulnerable by placing themselves in the current situation as a means for potential skill retention and transfer.<sup>1</sup> As educators, we hope that our learners will adopt a high-psychological-fidelity mindset during simulation experiences. Previous research has expressed that psychological fidelity cannot be prescribed in advance; rather, it must be something that develops naturally during the encounter.<sup>3</sup> It is important to note the level of fidelity should match that of the learner and the objectives of the simulation experience.<sup>4</sup> Interestingly, only 9% (10 of 109) of articles reviewed regarding high-fidelity simulation emphasized the importance of using a controlled environment, whereas 47% (51 of 109) of articles stated that feedback was the most important feature of simulation-based learning.<sup>4</sup> Feedback after a simulation experience is typically delivered through a facilitated debrief encounter. Debrief is an essential component for effective learning to take place.<sup>5</sup> Debrief allows for self- and facilitator-critique of the deliberate practice that occurred during the simulation.<sup>1</sup>

Simulation experiences have been used in professional athletic training preparation for the evaluation of clinical proficiencies.<sup>6</sup> The benefits of simulation are referenced in health care

literature for professions such as nursing,<sup>7,8</sup> medicine,<sup>9,10</sup> and athletic training.<sup>11,12</sup> In the current landscape of athletic training education, simulation-based learning has been used in professional preparation under several pseudonyms, including *mock cases* and *low-stakes practical experiences*. Although athletic training educators and students may use misnomers for these educational experiences, the objectives are synonymous with learner exposure to a low-stakes, instructor-curated experience with the primary goal of improving clinical skill development. In addition to skill acquisition and retention, simulation-based training promotes teamwork, communication, critical thinking, and problem-solving skills.<sup>13,14</sup> As simulation experiences continue to expand within our profession, a potential benefit may be training and deliberate practice for situations involving emergency skills that require medical equipment and techniques such as spine boarding, intravenous therapy, and airway management. Situations requiring educational competencies and medical equipment that learners are less likely to be exposed to may improve patient outcomes from skill retention after the simulation experience.<sup>15–17</sup> In addition, simulation experiences have been used to introduce athletic training students to learning experiences that promote team-based and interprofessional patient care with other health care disciplines or within a team of athletic trainers managing a patient case simultaneously.<sup>18</sup>

As simulation is an instructional strategy, the effective use of the technique requires the instructor to identify who the learners are that will engage in the experience, as well as their needs and preferences.<sup>2</sup> As such, the instructor needs to demonstrate understanding of the instructional design process established by Dick and Carey.<sup>19</sup> The Dick and Carey model of instructional design incorporates the assessment of the needs of the learners to identify their goals, execution of a instructional and learner analysis, creation of performance objectives, development of a criterion-referenced assessment, development of an instructional strategy, instructional materials and assessment, and conducting both a formative and a summative assessment.<sup>19</sup> Along the design process, the instructor or designer should use continual revisions before the summative assessment.<sup>19</sup> The process of designing a simulation experience does not deviate from this systematic approach of Dick and Carey, as the facilitator must be able to select learners, objectives, and simulation experience based on the needs identified through knowledge assessments and professional standards. Performance objectives for simulation experiences for practicing clinicians should seek to allow them for deliberate practice in a controlled environment for situations that may arise such as new patients with unfamiliar diseases, emerging techniques and methods in health care delivery, and continued competence of skills that may decay over time.<sup>20</sup> Additionally, simulation experiences can also serve as a means of assessment to determine the needs of the learners themselves through self- and facilitator-identified

gaps in clinical techniques, communication skills, and collaborative practice.<sup>20</sup>

The current issue that arises with an instructor-curated approach for the design of simulation-based learning experiences is that the learner is passive in the development of the experience and actively engaged in the execution portion. Although this is advantageous for assessment of clinical proficiencies (likely something delivered in professional preparation programs), the current structure is limited in the available opportunities for learners to construct a simulation experience that is rooted in the evidence-based practice of instructional design, educational techniques, and purposeful content delivery. This is a reality both because of the necessary information that needs to be delivered at the professional preparation level and because professional-level students should not necessarily be in a position to instruct other learners without some experience and learning in instructional design. Moreover, there is a need for more preparation on instructional theory for the clinical scholar (or curator). This model of professional continuing education using simulation experiences has been integrated into nursing, in which clinicians were able to design and develop a simulation and engage in safe environment for learning.<sup>21</sup>

Previous research<sup>22,23</sup> has identified that a critical mass of doctoral-level-educated athletic trainers for senior faculty positions has not been reached. This creates a need for continued development of our postprofessional learners through the pursuit of a doctoral degree (in philosophy or education) or other postprofessional degrees in athletic training (doctoral or master's). Presumably, academic doctorates should prepare future educators in instructional theory, but postprofessional programs in athletic training should also consider content, practice, and reinforcement experiences for instructional design and techniques. Postprofessional athletic training programs accredited through the Commission on Accreditation of Athletic Training Education deliver advanced content and skills to currently credentialed clinicians through didactic and clinical coursework.<sup>24</sup> With the Athletic Training Strategic Alliance requiring elevation of the professional degree-granting level, postprofessional programs may eventually require program delivery at the doctoral level. As the clinical doctorate degree emerges in postprofessional athletic training education, there is a need to train doctoral-level-educated athletic trainers in both didactic and clinical instruction, thereby honing performance through directed practice of each.<sup>25</sup> It is also possible and somewhat likely that these clinically trained doctoral athletic trainers may seek<sup>26</sup> and serve as faculty members in athletic training programs.<sup>22,27</sup> Therefore, the purpose of this paper is to present an educational technique whereby learners within a postprofessional athletic training program curate a simulated learning experience as a means of delivering content and feedback through instructional design and techniques for their peer learners.

## INSTRUCTIONAL TECHNIQUE DESCRIPTION

Learners at Indiana State University are enrolled as postprofessional athletic training students (PP-ATs) in a doctor of athletic training degree program. The Indiana State University doctor of athletic training program is a Commission on Accreditation of Athletic Training Education–

accredited, distance-hybrid postprofessional athletic training program that is a 24-month, continuous enrollment, semester-based, cohort-style program. One of the points of distinction of this program is a course addressing pedagogy in athletic training education. During the second semester of the program, the instructor of this course facilitated learning opportunities through online, distance-based didactic educational modules focused on key aspects of curriculum and instruction. These included instructional strategies, instructional theories, lesson plan development, innovative and creative teaching methods, and the use of technology for meaningful learning. As a culminating experience each semester, PP-ATs engaged in an intensive and focused learning session. The session was a period of 4 days at the end of each semester in which the students from the cohort reported to the institution for face-to-face instruction, assessment, and collaborative activities.

As part of this athletic training education course, the PP-ATs were grouped into learning communities of 3 to 5 students. Learning communities are defined as classroom groups that work together to prepare, plan, and reflect on course content.<sup>28</sup> The learning community allowed PP-ATs from different clinical experience levels to work together. This allowed for peer-to-peer dialogue from PP-ATs with clinical experience ranging from 1 to 20 years. The group of PP-ATs in a specific learning community served as facilitators for the other PP-ATs participating in the simulation experience as learners.

During the traditional 16-week semester, the PP-ATs in their assigned learning community, who will be referred to as facilitators, engaged in dialogue and developed a 30-minute simulation experience followed by a 30-minute debrief, coupled as an instructional activity delivered during the intensive and focused learning session. The simulation experience involved several individuals with differing titles, roles, and responsibilities (Table 1). The learning community facilitators were tasked with the development of a simulation experience using patient actors presenting with standardized conditions and high-fidelity simulators. The facilitators were also responsible for delivering a debrief session for the learners. The learning community met through a combination of synchronous and asynchronous meetings over the course of 6 weeks during a traditional semester to design and develop a simulation experience using a modular-based approach.

## Module 1—The White Paper

The first module of the assignment was a white paper, which was a proposal document to the instructor regarding a potential idea rooted in emotional and reflective experiences of the PP-ATs as a means of quality improvement and clinical education. The objective of this module was to allow the learning community members to critically reflect upon their own clinical practice and current issues within the profession to develop an idea for a simulation experience.

Each learning community developed its white paper summarizing the key aspects and considerations for the simulation. The areas of interest for the white paper included topic and content, personnel requirements, potential venue and environment, and potential large-scale equipment needed. This required the facilitators to develop a scenario requiring



**Table 1. Titles and Roles**

Title	Role
PP-ATS	Postprofessional athletic training student; any member of the cohort/class.
Learning community	Group of 3 to 5 PP-ATSS who developed the simulation together.
Facilitator	Member of the learning community who led the simulation experience.
Learners	PP-ATSS who were involved in the simulation experience as the health care provider or other role as assigned by the learning community and/or facilitators.
Patient actors	Individuals who portrayed an injury, illness, or disease in a standardized manner during the simulation experience. These individuals may have been PP-ATSS not serving as facilitators or trained community members.
Simulation technician	Employee of the simulation center that controlled the high-fidelity simulators during the simulation experience.
Clinical simulation specialist	Individual not affiliated as an instructor whom PP-ATSS could use as a resource in the simulation experience development.
Instructor	Postprofessional athletic training program faculty member.

teamwork for a medical response, calculate the necessary number and type of patients and health care providers to be portrayed during the simulation experience, and determine the setting (indoor versus outdoor) and the equipment necessary for medical services, all ensuring an authentic environment. The learning community was provided a broad assignment description to allow for team-based creativity in the concept and design of the simulation experience. The goal of the assignment was to teach the necessary components to a targeted learner population, yet in this case the learners were certified and licensed (where appropriate) clinicians (classmates within the postprofessional athletic training program) and as such the simulation matched the knowledge and skill level of the learners in the course. This required the learning community to conduct a learner analysis for content knowledge before the scenario development. As a requirement of the activity, the facilitators were instructed to provide the learning objectives for the simulation. The learning community could require the learner to portray a student, parent, peer, administrator and coach, or health care provider. After a feasibility assessment by the instructor, the learning community was provided feedback for continual revision and thoughtful development of their proposal.

## Module 2—Planning

The objective of the second module of this assignment was to engage in the planning portion of the simulation experience that was being curated by the learning communities. This module tasked the PP-ATSS to take a holistic approach to instruction. The instructor served as a resource, rather than a facilitator, during this module to encourage the appreciation of the planning experience from multiple lenses.

The learning community was required to meet 2 additional times with the clinical simulation specialist at the simulation center in the local hospital to prepare their materials for the culminating activity. The purpose of the 2 required meetings was to provide the PP-ATS with the preparatory materials before the simulation experience during the intensive and focused learning session. The simulation center provided the learning communities with access to high- and low-fidelity simulators, part-task trainers, patient actors, an ambulance, and necessary supplies for the simulation experience to be of highest quality to enhance psychological fidelity. The clinical

simulation specialist and staff from the simulation center also provided the learning community with the expertise in moulage to prepare mock injuries for the purpose of proper treatment during the simulation experience. In addition to the planning meetings with the clinical simulation specialist, the learning community was encouraged to meet weekly or biweekly to ensure all team members maintained a consistent view of the developing simulation experience.

In preparation for the simulation, the learning communities were tasked with identifying the roles of their learners (or PP-ATSS). The learning communities each assigned all PP-ATSS within their cohort a role as a learner or observer for their simulation. The learning communities assigned roles as they saw fit, and each learner maintained his or her role throughout the specific simulation. For example, a learner might serve as a coach in one simulation experience and also serve as an athletic trainer in a subsequent simulation. The learning community assigned each role and provided information about the expectations of that role during the simulation experience. This educational technique describes the execution of a course, rather than a single simulation. As such, during the intensive learning session, each learning community executed the simulation once, yet each learner experienced multiple simulation experiences, as there were multiple learning communities with each having a unique, student-curated simulation with various roles and experiences throughout the day. Learning community members could not serve as the learners or patient actors in their own community's curated simulation. Depending on the objectives of the simulation, learners could serve as patient actors or stakeholders.

The learning communities were required to prepare the script(s) for any and all of the patient actors or simulator technicians. The scripts included personal health history information, present case presentation, and verbal cues for a variety of topics that may potentially arise during the simulation experience. As script production is an essential component of ensuring the simulation experience develops as the learning community envisioned,<sup>29</sup> the facilitators worked directly with the clinical simulation specialist in one-on-one meetings as necessary to create the pathology and presentation of the patient actors and simulators. After production of the script, the learning community was required to train these

**Figure 1. A simulation learner engages in patient consultation with a simulator.**



individuals to ensure they understood the script and would accurately represent their simulation. The training of the patient actors and technicians was facilitated through face-to-face meetings, preparing a video, open dialogue e-mail communication, or any other medium and means necessary. The learning community was also encouraged to document and detail their training and instruction for instructor review. The individual learning communities of facilitators were prohibited from prompting the patient actors with last-minute information or reminders during the simulation; thus, a thorough script and proper, extensive training were necessary for the simulation to mirror a reality-based experience (Figure 1). Training patient actors can range from 30 minutes to several hours, depending on the complexity of the disease portrayed.

The learning community also developed an equipment list. This required the facilitators to consider the supplies and necessary environmental components for the simulation. The

supply list for most of the simulation experiences required a basic athletic training inventory, like personal protective equipment such as gloves, emergency management equipment such as an automated external defibrillator, and wound care supplies such as gauze and bandages. In addition to health care supplies, the learning community needed to prepare a supply list for the environment. Table 2 identifies the environmental supplies necessary for simulation experiences that the learning communities curated. These supplies included audiovisual equipment, props such as athletic equipment, and bystanders or fans.

Finally, the learning community was required to prepare a 30-minute debrief within the 60-minute simulation experience. The debrief experience had to be facilitated by the PP-ATs in the learning community, with an emphasis placed on the learning objectives for the student-curated simulation experience that the learners should have accomplished. The instructor also encouraged the learning communities to emphasize the emotional stress and attitudes before, during, and after the simulation in the debrief experience. The debrief could include a reflection of the skills necessary during the simulation, group dynamics during the simulation, or professionalism. Ultimately, the debrief should have aligned with the planned and stated learning objectives.

### **Module 3—Intensive and Focused Learning Session**

The final module of the student-curated simulation assignment was carrying out the experience. The learning communities prepared and planned over 6 weeks for the execution of the simulation. As this postprofessional program is delivered using a distance-hybrid model, the PP-ATs met at the institution for an intensive and focused learning session at the end of the traditional semester. During the learning session, the PP-ATs in the learning communities were able to meet and make final preparations for the simulation experience.

The learning communities were instructed not to discuss the topic of the simulation experience with other learners before the day to ensure the fidelity of the experience. The simulation experiences for all of the learning communities, including the simulation and debrief, were scheduled to occur during 1 day of the intensive and focused learning session over a duration of 8 hours. The first 2-hour block of the simulation experience allowed for the learning communities to meet with their fellow learning community members, the clinical simulation specialist, and the patient actors or simulation technicians who participated in the simulation. The learning communities were encouraged to provide the vital signs and details of their case on patient case cards, which they would pass out to the patient actors during the 2-hour planning session. During this period, the patient actors and simulators were prepared for the simulation experiences, which included moulage and review of their vital signs and health history training from their preparatory meetings. Additionally, the venue and environment were prepared with the necessary supplies to replicate the authentic environment and ensure the health care supplies to provide care were accessible.

For the remaining 6 hours of this day, each learning community facilitated its 30-minute simulation experience and 30-minute debrief. The learners for each simulation were classmates in the other learning communities. Throughout the



**Table 2. Supply List from Sample Simulation Experiences**

Simulation Experience	Supplies for the Environment
Active shooter situation during an athletic event at a secondary school	Bleachers, bystanders, safe zone away, athletic venue
Bus accident during team travel to an away game	Automobile/bus, cones and traffic equipment, moulage for mock injuries
Mass-casualty athletic event	Audiovisual equipment for bomb and siren noises, triage area, broken barriers and debris
Solider fallen from a climbing tower during basic training	Climbing equipment, mats, bystanders
Motocross accident	Barriers, ambulance, bicycles, helmets, flags
Sudden cardiac death at halftime in the locker room	Benches, teammates, coaching staff

course of the day, each learning community executed its 1 simulation experience and the learners participated in 3 other simulations. This challenged the learning community to consider how to begin the experience. The learning communities were allowed to engage the learners in a prebrief to state the objectives and set the scene. The learners might enter a scene where something had already occurred, or they might be prepared with basic details and placed into the scene, whereupon the scenario would begin. For example, the members of the learning community who developed a bus crash simulation had to strategically plan how to get their learners on a bus without seeing the patient actors and simulators around the scene and then simulate a bus crash without an actual accident occurring (Figure 2). This learning community provided the learners with noise-cancelling earbuds and asked them to walk as a chain to the bus with their eyes closed. This allowed the patient actors and simulators to be in place at the start of the simulation and the learners to be in the situation as it began.

Additionally, the mass-casualty triage simulation that one learning community curated presented innovative methods to begin the simulation to ensure an authentic experience. The learners were sequestered in a nearby room while the mass-casualty environment was prepared outside of the room. The learning community used audiovisual equipment to mimic the

sounds of a bomb detonating, as well as sirens and screaming during the entire experience, to increase the psychological and environmental fidelity. The learners were allowed to enter and begin the simulation after the sound of the bomb exploding. It is important to note that at this point simulation experiences can trigger emotional responses due to previous exposures. As a result, the instructor and the learning community should ask in advance if any triggers may exist. Additionally, the instructor asked the institution to share information with the campus community that the simulation experiences were occurring on campus to ensure the public understood this was a training demonstration.

The learning community would either end the experience or transition the session to the debrief based on the actions of the learners. The specific case details and facilitator planning dictated the course of events; regardless of learner actions, the learning community planned for subsequent events or termination. For example, if the learners triaged and prepared the patients for advanced medical services (eg, packaging of a patient for transport), they might have met the objectives of the experience, thus ending the simulation. Or, in contrast, the learner or learners might have failed to manage the situation by not providing the necessary patient care, and the facilitators would then discontinue or terminate the simulation and move on to the debrief.

**Figure 2. The simulation learner provides triage to actors and simulators after a staged bus accident while the instructor and clinical simulation specialist assess the experience.**



**Table 3. Instructor Evaluation of the Simulation**

The learning community provided multiple learning strategies (ie, cognitivist, behaviorist, constructivist, etc).  
The learning community created a safe learning environment that advocated active learning.  
The learning community clearly communicated objectives and learning outcomes.  
Learners were able to have a standardized educational experience where they served as active participants, not passive bystanders.  
The simulation duplicated motion cues, visual cues, and other sensory information from the task environment.  
The simulation created an environment that is a believable surrogate to the trained task.  
Learners were able to make, detect, and correct errors without adverse consequences.  
The learning community provided constructive feedback and discussion during the debriefing session.  
The learning community was well organized and prepared.

**Table 4. Learner Evaluation of Simulation**

The knowledge I gained from the simulation experience can be transferred to clinical practice.  
The learning community created a safe learning environment that advocated active learning.  
The learning community clearly communicated objectives and learning outcomes.  
The learning community provided constructive feedback and discussion during the debriefing session.  
I was able to provide rationale for my actions during the debrief session.  
The simulation allowed me to demonstrate my ability to communicate with other members of the health care team.  
The simulation allowed me to obtain pertinent subjective and objective data and report my findings to the instructor (in either individual or group format).  
The simulation allowed me to use my critical thinking skills.  
The learning community was well organized and prepared.

After the simulation experience, the learning community used a facilitator-led debrief session to promote self-reflective practice and quality improvement. The debrief was focused on the learning objectives planned by the learning community. For instance, if the objective as “to recognize and intervene in any conflict of interest that could adversely affect the patient’s health,” the central theme of the debrief should have focused around the principles of recognizing the conflict, how the learners acted to intervene, and the implications for the patient if (and when) interventions were not applied. The intent of the debrief was not to discuss educational theory, but for the learning community to engage in professional discourse and growth through developed questions that aligned with the simulation. Typically, students engaged in a diamond structure<sup>30</sup> for debriefing that included addressing what happened, clarifying any technical and clinical issues that occurred, deconstructing behaviors, analyzing and

interpreting the activity through a nontechnical lens, reflection, and application of learning.

The instructor for the course assessed the learning community throughout the continuum of the simulation modules, including the white paper, planning, and the simulation/debrief session. The assessment included topics related to the preparation, clear and aligned learning outcomes, script/preparation/training, authenticity (psychological and environmental fidelity), debriefing, and overall learner experience. The instructor of the course assessed authenticity and debriefing performance using the criteria in Table 3 after the simulation and debrief experience. The PP-ATS learners who experienced the simulation assessed their overall learner experience using the criteria in Table 4 after the experience (including the debrief). Criteria were rated with a 5-point Likert scale (*strongly agree, agree, neither agree nor disagree, disagree, strongly disagree*). The rubric topics for both

**Figure 3. The simulation learner engages in acute and emergency care simulation during the experience.**

the learners and the faculty member are provided as exemplars of types of assessment questions used during this specific educational technique.

## CLINICAL ADVANTAGES

Much like other forms of simulation, this education technique requires time and resources.<sup>31,32</sup> This may create a barrier for implementation for some educators and practicing clinicians. That said, clinical scholars should be trained and given an opportunity to practice and reinforce instructional design strategies. To ensure development of competent athletic trainers, especially in educational settings, an understanding of learning theories, instructional strategies, and assessment tools should be delivered in postprofessional athletic training programs. The student-curated simulation model is a technique that could significantly contribute to that goal. This experience allows PP-ATSS to take a step back from the clinical presentation and decision-making skills that typically guide simulation experiences. As a result, the learning objectives of this assignment are intended to assist PP-ATS learners in the creation, facilitation, and debriefing of the simulation experience for others. As demonstrated by the evaluative criteria expressed through the rubrics, the outcomes of the experience are not measured on whether the participants of the simulation correctly apply acute and emergency care, identify the correct diagnosis, or manage the situation correctly. Rather, the outcomes are based on the pedagogical concerns addressed in the creation and execution of the simulation, and the sense of professional efficacy within the learner as promoted by the simulation.

A secondary outcome of the experience is that the learners (the other PP-ATSS not serving as the facilitators) in the cohort not facilitating the simulation have the ability to engage in a high-fidelity, low-stakes simulation. This allows for continual improvement of foundational skills, ensures competence of emerging advanced-practice techniques, and ensures preparedness for immediate and emergent situations that an athletic trainer may experience (Figure 3). These advantages promote continuing professional education and prepare advanced-practice-degree students for the planning and execution of simulations. The indirect goal would be for PP-ATSS to bring the simulation experiences to the workplace as athletic trainers (colleague to colleague) and preceptors (athletic trainer to athletic training student). Additionally, a potential barrier to implementation of a simulation experience may be the resources for live patient actors. As we believe this educational technique is rooted in the experience for the practicing clinician, we suggest that collaboration within and across disciplines occur. For example, institutions with both a postprofessional and a professional athletic training program could collaborate, having professional athletic training students serve as live patient actors during simulations curated by PP-ATSS. The clinical advantage of this collaboration would be service of congruent goals of each program, allowing the professional athletic training student to appreciate the clinical presentation of a condition or experience while reflecting upon the clinical decision making of the PP-ATSS engaged in the simulation. For institutions lacking a professional athletic training program, the integration of undergraduate students from pre-health discipline programs or nursing as live patient actors may complement this experience through an interprofessional education experience.

The learners enrolled in this course were required to select and translate educational theory into a simulation experience. For example, the learners were completing readings and activities on Kolb and Dewey's theories of experiential learning.<sup>13,33</sup> The simulation exercise itself, as well as the development of the simulation experience, was an experiential learning activity.<sup>1</sup> One advantage of this experience is that it provided the learners with an opportunity for skill training and assessment through the integration and application of learning theories and previous didactic knowledge during the intensive and focused learning session. Interestingly, this educational technique has a secondary benefit in that it provides advanced-practice skill development through peer engagement in the student-curated simulations. As the learning community instructs and facilitates their peers on the simulation activity, the PP-ATSS not involved in that learning community take on several roles. This allows the students to think about the interprofessional practice of athletic training in the management of patients in both high- and low-stakes situations. The students engaged as health care professionals (eg, athletic trainer, emergency medical technician, physician) must provide patient care. This allows for the PP-ATSS serving as learners to be vulnerable through failure of essential skills, emotional responses to catastrophic incidents, and continual improvement of advanced-practice skills and Institute of Medicine core competencies such as patient-centered care. The addition of teaching educational techniques to PP-ATSS encourages the use of proper skills and methods to deliver patient education, staff development, and learner experiences. In order to teach instructional strategies to practicing clinicians rather than educators, it is important to encourage the use of reality-based scenarios that may arise in clinical practice.

## CONCLUSIONS

The use of learner-curated simulation experiences allows the PP-ATSS an experiential learning opportunity to design and implement an innovative teaching strategy in athletic training. The simulation experience as an active participant also promotes the practice of foundational skills and advanced-practice techniques for unusual yet plausible situations. In addition, the use of learning communities may benefit the outcomes of the learner through promotion of professional experience collaboration from clinicians in various roles. The instructional technique of this experience incorporates the necessary knowledge and skills to execute a similar simulation in the workplace using curriculum and instructional theory as the basis to train others as advanced-practice leaders.

## REFERENCES

1. Beaubien J, Baker D. The use of simulation for training teamwork skills in health care: how low can you go? *Qual Saf Health Care*. 2004;13(suppl 1):i51-i56.
2. Anderson JM, Aylor ME, Leonard DT. Instructional design dogma: creating planned learning experiences in simulation. *J Crit Care*. 2008;23(4):595-602.
3. Barab SA, Squire K, Dueber B. Supporting authenticity through participatory learning. *Educ Technol Res Dev*. 2000;48(2):37-62.
4. Munshi F, Lababidi H, Alyousef S. Low- versus high-fidelity simulations in teaching and assessing clinical skills. *J Taibah Univ Med Sci*. 2015;10(1):12-15.



5. Levett-Jones T, Lapkin S. A systematic review of the effectiveness of simulation debriefing in health professional education. *Nurse Educ Today*. 2014;34(6):e58–e63.
6. Armstrong KJ, Weidner TG, Walker SE. Athletic training approved clinical instructors' reports of real-time opportunities for evaluating clinical proficiencies. *J Athl Train*. 2009;44(6):630–638.
7. Richardson KJ, Claman F. High-fidelity simulation in nursing education: a change in clinical practice. *Nurs Educ Perspect*. 2014;35(2):125–127.
8. Kunkel C, Kopp W, Hanson M. A matter of life and death: end-of-life simulation to develop confidence in nursing students. *Nurs Educ Perspect*. 2016;37(5):285–286.
9. Amin A, Anderson C, Canales C, et al. High fidelity simulation enhances advanced cardiac life support training in medical students. *J Emerg Med*. 2014;46(2):286–287.
10. Tofil NM, Morris JL, Peterson DT, et al. Interprofessional simulation training improves knowledge and teamwork in nursing and medical students during internal medicine clerkship. *J Hosp Med*. 2014;9(3):189–192.
11. Doherty-Restrepo JL, Tivener K. Current literature summary: review of high-fidelity simulation in professional education. *Athl Train Educ J*. 2014;9(4):190–192.
12. Walker S, Weidner T, Armstrong KJ. Standardized patient encounters and individual case-based simulations improve students' confidence and promote reflection: a preliminary study. *Athl Train Educ J*. 2015;10(2):130–137.
13. Kayes AB, Kayes DC, Kolb DA. Developing teams using the Kolb team learning experience. *Simul Games*. 2005;36(3):355–363.
14. Anderson JM, Murphy AA, Boyle KB, Yaeger KA, Halamek LP. Simulating extracorporeal membrane oxygenation emergencies to improve human performance. Part II: assessment of technical and behavioral skills. *Simul Healthc*. 2006;1(4):228–232.
15. Scherer YK, Bruce SA, Graves BT, Erdley WS. Acute care nurse practitioner education: enhancing performance through the use of clinical simulation. *AACN Adv Crit Care*. 2003;14(3):331–341.
16. Tan DK, Sedory EJ. Emergency airway adjuncts and the athletic trainer. *Athl Train Sports Health Care*. 2016;8(6):267–272.
17. Popp JK, Berry DC. Athletic training students demonstrate airway management skill decay, but retain knowledge over 6 months. *Athl Train Educ J*. 2016;11(4):173–180.
18. Eberman LE, Jaeger JE, Landis M, Williams DJ, Livingston LB, Kahanov L. Emergency medicine collaborative: interprofessional practice in emergency care. Paper presented at: Athletic Training Educators' Conference; February 27–March 1, 2015; Dallas, TX.
19. Dick W, Carey L, Carey JO. *The Systematic Design of Instruction*. Upper Saddle River, NJ: Merrill; 2009.
20. Motola I, Devine LA, Chung HS, Sullivan JE, Issenberg SB. Simulation in healthcare education: a best evidence practical guide. AMEE guide No. 82. *Med Teach*. 2013;35(10):e1511–e1530.
21. Zubairi MS, Lindsay S, Parker K, Kawamura A. Building and participating in a simulation: exploring a continuing education intervention designed to foster reflective practice among experienced clinicians. *J Contin Educ Health Prof*. 2016;36(2):127–132.
22. Clines SH, Reems TD, Welch Bacon CE, Eberman LE, Hankemeier DA, Van Lunen BL. Roles and responsibilities of individuals within the academic setting who hold the doctor of athletic training degree. *J Athl Train*. 2017;52(6 suppl):S-294.
23. Sauers EL. A framework for the future: communicating and enhancing the future of athletic training education. *NATA News*. 2015;24(4):18–19.
24. Standards for the accreditation of post-professional athletic training degree programs. Commission on Accreditation of Athletic Training Education Web site. <http://caate.net/wp-content/uploads/2017/01/2014-Standards-for-Accreditation-of-Post-Professional-Degree-Programs.pdf>. Accessed March 10, 2017.
25. Hertel J, West TF, Buckley W, Denegar CR. Educational history, employment characteristics, and desired competencies of doctoral-educated athletic trainers. *J Athl Train*. 2001;36(1):49–56.
26. Mulder E, Welch Bacon CE, Edler JR, et al. Motivators, anticipated challenges, and supportive factors for athletic trainers pursuing the doctor of athletic training degree. *Athl Train Educ J*. In press.
27. Van Lunen BL, Clines SH, Welch Bacon CE, Eberman LE, Hankemeier DA, Reems TD. Employability of individuals in academe who hold the doctor of athletic training degree. *J Athl Train*. 2017;52(6 suppl):S-295.
28. Lenning OT, Ebberts LH. *The Powerful Potential of Learning Communities: Improving Education for the Future*. Washington, DC: ERIC; 1999. ASHE-ERIC Higher Education Report 26(6).
29. Alinier G. Developing high-fidelity health care simulation scenarios: a guide for educators and professionals. *Simul Games*. 2011;42(1):9–26.
30. Jaye P, Thomas L, Reedy G. "The diamond": a structure for simulation debrief. *Clin Teach*. 2015;12(3):171–175.
31. Tuoriniemi P, Schott-Baer D. Implementing a high-fidelity simulation program in a community college setting. *Nurs Educ Perspect*. 2008;29(2):105–109.
32. Jeffries PR. A framework for designing, implementing, and evaluating: simulations used as teaching strategies in nursing. *Nurs Educ Perspect*. 2005;26(2):96–103.
33. Schellhase KC. Kolb's experiential learning theory in athletic training education: a literature review. *Athl Train Educ J*. 2006;1(2):18–27.