

A Model for Teaching and Assessing Core Values Development in Doctor of Physical Therapy Students

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Background and Purpose. The American Physical Therapy Association describes 7 core values that underpin the professional skills required for the Doctor of Physical Therapy (DPT) degree. Physical therapist educators are challenged to design innovative pedagogy that facilitates student awareness of the core values, which are crucial for effective patient care. This paper examines the impact of a model designed to teach and assess core values development in DPT students.

Method/Model Description and Evaluation. The model, implemented in the classroom, combines standardized patients (SP), online communities of practice, and reflection. SP cases were developed using input from clinical instructors (CI) who identified desired professional skills for clinical education (CE) students. Eighty-one DPT students participated and outcomes were assessed using the Professionalism Physical Therapy Core Values (PPTCV) instrument, the Work Self Efficacy Inventory (WS-Ei), and reflective papers.

Outcomes. Participation in the model resulted in an increase in post-intervention scores for both the PPTCV and WS-Ei. However, PPTCV scores decreased following CE. Student reflective papers high-

lighted personal awareness of the core values, learning experienced, and need for feedback.

Discussion and Conclusion. The model supports the development of increased awareness of the core values and confidence for assuming the role of practicing PT in students post SP intervention. Reduction in the PPTCV scores post CE could be attributed to a more realistic self-assessment of professionalism upon entering the clinic. Reflection, a critical element of the model, allowed students to articulate their learning and awareness of the core values in action. Students valued the “360 degrees” of feedback afforded by the model as it related to their development as professionals. CI reflective comments did not support increased student confidence for entering the clinic. Additional research is indicated to examine the model’s longitudinal effectiveness for promoting and sustaining core values development.

Key Words: Professionalism in physical therapy, Core values, Standardized patients, Reflection, Communities of practice, Physical therapist education.

Transitioning to a Doctoring Profession, APTA identified 7 core values that underpin the professional skills comprising the DPT: accountability, altruism, compassion and caring, excellence, integrity, professional duty, and social responsibility.⁶ In 2003, the core values were recognized by APTA as a “core document on professionalism.”^{6(p2)} Simultaneously, APTA adopted the Professionalism in Physical Therapy Core Values (PPTCV) instrument. The PPTCV allows an individual to self-assess core values awareness, personal strengths, and/or areas for growth.¹⁴

Debate exists about the effectiveness of current pedagogical strategies for educating students in professional programs, given the current demands for ethical, practical, and cognitive skill development.^{2,4,13} Physical therapist (PT) faculty members are encouraged to use innovative educational approaches to effectively teach student development of professionalism critical for service to patients.^{12,15} In the 2009 Pauline Cerasoli lecture, Bella May challenged PT educators to integrate professional issues into curricula to assist with professional role formation.¹³ Professional issues need to be integrated into the design and evaluation of learning strategies that facilitate students’ development of clinical expertise desired by modern health care organizations.^{11,16-24} Teaching and rewarding student acquisition of core values is integral to curricula as PT educators prepare students to become autonomous practitioners and mature into the role of DPT.^{5,6,25-28}

The purpose of this article is to describe the implementation and assessment of an existing innovative curricular model used by PT educators to teach and assess DPT student professional skill acquisition, the 360-degree Assessment Model (Figure 1), and to interpret its educational outcomes related to changes in DPT student awareness of professional core values, confidence for entering the clinical environment, and overall learning attributed to the process.

BACKGROUND AND PURPOSE

Successful transition from academia to the workplace requires that college graduates acquire technical competence in their field as well as the ability to interact effectively with people.¹⁻⁴ To assure that physical therapists are prepared for clinical practice in the 21st century, the American Physical Therapy Association’s (APTA) has identified the Doctor of Physical Therapy (DPT) degree as the professional (entry-level) degree for the profession.⁵ Successful DPTs require integration of knowledge, clinical skills, and professional skills as today’s health care system is complicated and the expectation for excellence is high.⁵⁻¹³ As part of the *Strategic Plan for*

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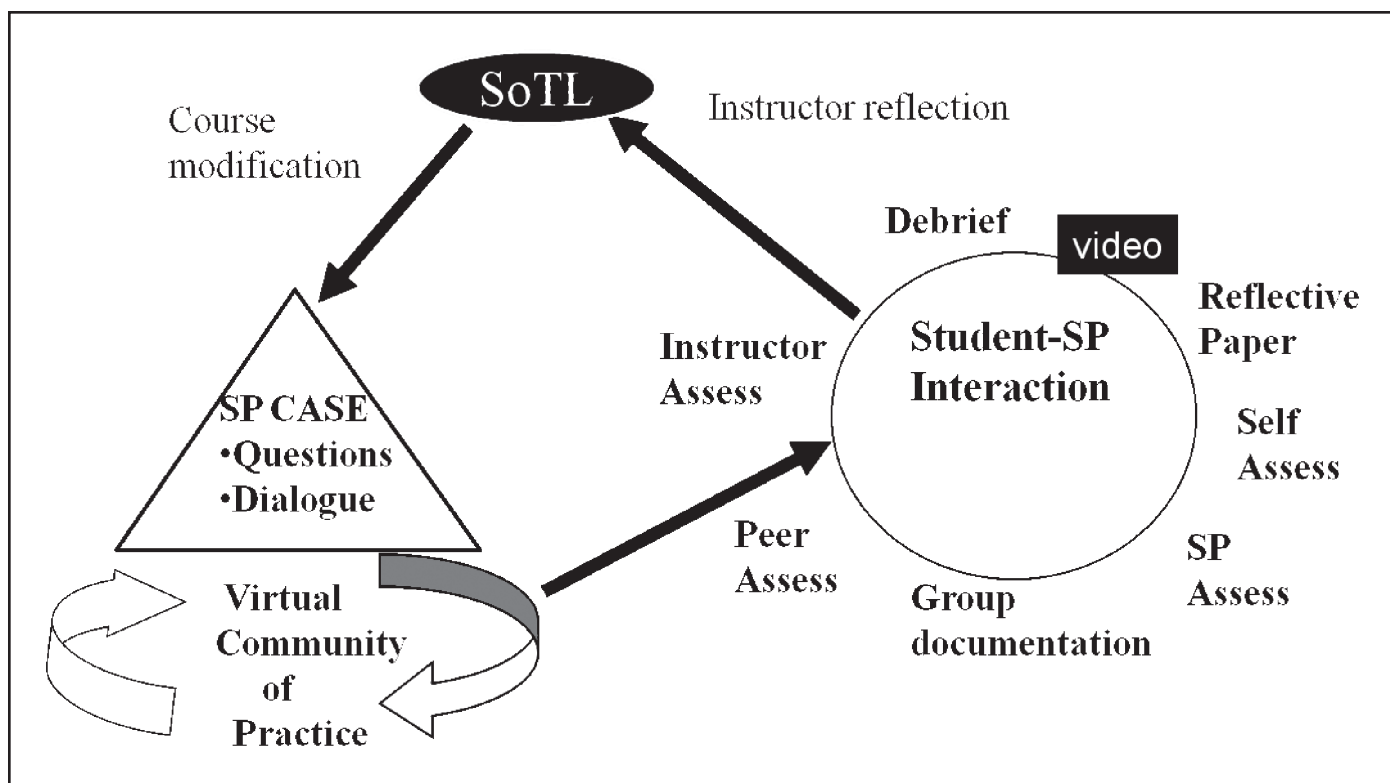
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Figure 1. 360-Degree Assessment Model



MODEL DESCRIPTION AND EVALUATION

The authors have developed a 360-Degree Assessment Model (Figure 1), which is an innovative instructional method that combines the following recognized learning strategies: self assessment, peer assessment, reflection, standardized patients (SP), and Internet-based communities of practice (CoP). The model is designed to support student development of desired professional behaviors and knowledge.^{4,29} The model process begins with faculty-developed written cases that depict a standardized patient. The cases are posted online and students prepare for an interaction with the SP by responding to faculty-posted questions using Blackboard's³⁰ discussion thread technology. Through online dialogue and problem solving, the students become a virtual community of practice. During a student-SP interaction, students are graded on their performance with the SP using customized rubrics completed by the SP, faculty, and peers. Students also self assess their performance and complete a reflective paper. This assessment process forms the 360-Degree assessment loop. At the conclusion of each interaction, students discuss their performance with faculty and peers and document their findings with the patient. Each SP-student interaction is videotaped. The model is iterative in that, based on student performance during an interaction with a SP, a faculty member can use rubric and videotape data to

reflection upon and guide revisions of course content. Using this model, revisions to the case design can be made. The multiple data sources provided by the model enable faculty the opportunity to conduct scholarship on teaching and learning (SoTL).³¹

Each element of the model is grounded in the literature. The 360-Degree feedback loop is a well-described assessment strategy with origins in the business literature.³² The feedback loop is a powerful tool because an individual receives a performance appraisal that explicitly documents strengths and areas for development from multiple perspectives. Benefits of the 360-Degree approach include an increased understanding of performance expectations and an appreciation for how one's actions affect others.³² Furthermore, an individual faced with multiple sources of feedback is more likely to make changes to improve performance.^{32,33}

Standardized patients, with origins in medical education, are a pedagogy used in PT education.^{29,34-39} While many definitions exist regarding simulated learning, for our purposes, SPs are laypersons trained to mimic a patient condition and provide realistic teaching experiences for students and opportunities for faculty to assess skill acquisition.³⁴ A community of practice (CoP), for our purposes, is a group of 3-5 students who are interconnected by a future-oriented and shared-learning goal, such as preparing for the evaluation of an SP.⁴⁰⁻⁴² A CoP occurs at a

designated location or through Internet technology to bridge geographic boundaries. Our model used Blackboard's discussion board to enable our students to communicate, construct thoughtful responses, and reflect on the contributions of others while preparing collaboratively for their interaction with a SP.²⁹ Research supports the use of discussion-thread conversations to foster professional, collective, and reflective discourse.⁴³⁻⁴⁵

Two key elements built into our model are reflection and self assessment. Dewey maintains that reflection is critical for examining and generating meaning from experience.⁴⁶ Schön describes reflective practice as a method used by professionals to deal with unique or unstable problem situations through the application of prior knowledge to new situations.⁴⁷ In our model, the students reflect through CoP dialogue, reflective papers, classroom discussion, and videotaped SP interactions. The physical therapy profession supports the provision of opportunities for students to reflect.⁴⁸⁻⁵² We consider our model to be an experiential pedagogy. Experiential learning is an important element of PT education because students can develop knowledge, skills, and professional behavior in a realistic setting.⁴⁸⁻⁵¹ Research supports the inclusion of reflection within experiential pedagogy as a strategy for promoting self-directed learning and development.^{26,46-53}

The purpose of this article is to describe

the implementation and assessment of an existing innovative curricular model. The model is used by PT educators to teach and assess DPT student professional skill acquisition, is theoretically based, and its development has been previously described.²⁹ The authors will describe educational outcomes related to changes in DPT student awareness of professional core values, confidence for entering the clinical environment, and learning attributed to the process.

Context

The context for the project was a large urban institution whose educational philosophy embraces practical, experience-based learning. Central to the philosophy of this institution is cooperative education (co-op), in which a student alternates periods of classroom study with full-time employment related to career or personal interests. The DPT program at the institution consists of a 6 1/2-year curriculum. Each class within the DPT program contains approximately 80-120 students. DPT students are required to complete 2 co-op terms (6 months each), one in the third year and one in the fourth year. Students on co-op are typically employed full-time as PT aides. DPT students also participate in 1 short-term opportunity for service learning. Sixth-year students partake in a 28-week clinical education component, broken up into 3 phases (8-week, 8-week, and 12-week).

Participants

Participants were 81 fifth-year DPT students (83% female; average age, 22 years old) enrolled in a required course, "Integrative PT Practice." At this point in their education, the students had completed 2 co-op terms of 6 months each. Twenty-four clinical education instructors (CI) from variety of clinical settings also participated. Sixteen CIs provided assistance with the development of the SP cases. Eight separate CIs were the direct supervisors of 11 student participants who completed the third assessment point.

The Office of Institutional Compliance reviewed the project and classified it as exempt because it was conducted in an established educational setting and examined the impact of an instructional technique. All 81 students participated in the project and were provided with informed consent forms that did not require a signature.

Development of Standardized Patient Cases

Educators are challenged to consider critically and explicitly—and based on evidence of student learning—how and why a chosen pedagogy is aligned with instructional objec-

Table 1. Clinical Instructor Demographics

	N	Clinical Experience	Facility
Clinical Instructors	16 (11 women)	3-40 yrs (mean of 13.5yrs)	6 hospital, 2 outpatient 2 rehabilitation hospital 1 skilled nursing facility

tives and anticipated learning outcomes. Boyer,³¹ well known for his work in the area of scholarship within higher education, maintains that scholarship by instructors on the experiences, impact, and outcomes of teaching and learning (SoTL) are inseparable.

The value of requesting and using input from employers to improve the integration of classroom and experiential education has been documented in the literature.⁵⁵⁻⁵⁸ The authors of this study believed it was important to include the perspective of clinical instructors (CIs) because their feedback can target where our curriculum might require adjustment. To assist with the generation of case studies for the SP interaction, the authors conducted 2 focus groups with 16 CIs (Table 1) to determine their perceptions of student professional behaviors, learning traits, and confidence for transitioning to the workplace. For the purposes of this research, entering the workplace refers to the transition from academic or classroom to the clinical education environment. The CIs were selected using a purposive sampling strategy to include individuals working in a variety of clinical settings (Table 1).⁵⁴

Clinical instructors were asked to identify professional behaviors critical for success in the clinic. They provided examples of behaviors observed in students that were both exemplary and non-exemplary and how those behaviors impacted patient care or interprofessional relationships. Finally, the CIs were asked for suggestions regarding how educators might promote student development of professional skills.

These qualitative data were summarized into 3 major areas: basic job skills, learning attitudes, and professional skills. Within each of the major areas, the CIs provided both exemplary and non-exemplary examples.

Basic job skills. Basic skills critical for workplace success included: foundational clinical skills, time management, organization, professional dress, ability to prioritize and multitask, flexibility, adaptability, and understanding the needs of the workplace.

Non-exemplary rudimentary behaviors observed in the clinic included: inappropriate dress, late arrival for work, poor prepara-

tion, cellphone use, non-work-related use of computers on the job, and not doing the best job possible.

Learning attitudes. A second skill set identified by the CIs as critical for workplace success was learning attitudes. Capabilities related to learning included the following: accepting constructive feedback, integrating and applying feedback, seeking out evidence, using resources available in the clinic, being an independent thinker, demonstrating accountability by taking responsibility for self-directed learning, and self-assessment skills.

Poor examples of student learning included the following: not taking responsibility for their learning, limited self-awareness, underdeveloped reflective and self-assessment skills, inability to transfer academic learning to the work setting, and being afraid to make mistakes.

Professional skills. One of the professional behaviors desired by CIs was meeting the needs of the clinician you are working for versus expecting them to meet your needs. CIs also indicated that students should exceed CI expectations, have passion for the profession, demonstrate compassion, possess good communication skills, and demonstrate respect for supervisors, self, patients, and coworkers. Students should respond to patient goals, maintain confidentiality of patient information, and adhere to the ethical and legal aspects of care. Professional skills viewed as non-exemplary clustered in the communication domain. Examples included: use of informal language with clients, lack of respect for supervisors, poor/offensive communication with coworkers, lack of confidence or interpersonal skills, and untamed nervous habits.

Implementation

The 360-Degree Assessment Model was embedded into Integrative PT Practice, a required 16-week course offered in the spring semester of the fifth year of the curriculum immediately prior to Clinical Education 1, an 8-week clinical education assignment. In the course, students are expected to integrate and apply professional knowledge and the core

values. The model serves as a final practical in which students are expected to demonstrate integration and application of course material. Of the final course grade, 35% is attributed to CoP participation and SP interaction. Students spend 2 weeks preparing for the SP interaction in their online CoPs and 1 week participating in the student-SP interactions.

Incorporating CI input from the focus groups, course faculty members created 4 written case studies that depicted patients who, as the result of a medical or surgical condition, required PT intervention. The cases were designed to challenge students at an appropriate academic level for emerging patient evaluation and care skills. The cases were complicated by a realistic ethical dilemma, cultural concern, or communication challenge. For our project, 4 separate cases with 7 study questions (related to professional practice) each were generated and posted on the Integrative PT Practice Blackboard™ Web site.

Sixteen online CoPs were created, each containing 4-5 PT students. The purpose of the CoPs was to facilitate student preparation for their SP interaction. For students, online assignments can increase active participation through the use of interactive instructional features such as chat rooms and discussion boards.^{45,59,60} Integrating online assignments into courses provides students who possess an internal or introverted learning preference with a method for participating more effectively.⁵⁹ Online communication features can promote dialogue between a student and instructor and foster collaboration between student groups or among an entire class.⁴⁴

Student CoP groups were assigned to 1 of the 4 written cases. The 7 study questions posted specifically related to: patient diagnosis and medical or surgical procedures, medications, social history, cultural background, potential ethical concerns, potential referrals for other services necessary, physical therapy examination and intervention parameters, and sequence of the PT evaluation during the 30 minute SP interaction.

Each CoP and course instructor communicated about the case electronically for 2 weeks prior to the group's scheduled SP interaction using Blackboard's™ discussion board feature. Students also met in person for additional discussion and practice for the SP interaction. All students in the CoPs prepared with the expectation that they would interact with the SP. Due to the large number of students in the course, only 1 student per CoP was selected by lottery to interact with the SP. Peers not selected served as observers.

SPs were recruited and trained by faculty

Figure 2. Model Assessment Points

Point	Time Frame	Assessment	From Whom and Response Rate
1: Pre test	Prior to SP intervention: week 1	<ul style="list-style-type: none"> • PPTCV • WS-Ei 	PPTCV & WS-Ei: 47 DPT students (58%)
2. Post test	After SP intervention: week 15	<ul style="list-style-type: none"> • PPTCV • WS-Ei • Reflective papers (Appendix 2) 	PPTCV & WS-Ei: 47 DPT students (58%) Reflective papers: 43 (53%)
3. After CE	After 8-week clinical education experience: week 24	<ul style="list-style-type: none"> • PPTCV • Reflective papers (Appendix 3) (Appendix 4) 	PPTCV: 12 DPT students (15%) Reflective papers: 11 DPT students (15%) 8 clinical instructors (100%)
Abbreviations: SP, standardized patient; PPTCV, Professional Physical Therapy Core Values; WS-Ei, Work Self-Efficacy Instrument; DPT, Doctor of Physical Therapy; CE, clinical education.			

to simulate the patient diagnosis and to complicate the case by including communication, psychosocial, cultural, or ethical dilemmas. For example, an ethical dilemma could involve instructing the patient to inform the student about a recent fall but requesting that the student not inform their daughter or physician. An example of a cultural dilemma might involve a female patient who, due to religious beliefs, would not be comfortable allowing a male student to touch her physically during an exam. Training of each SP took approximately 1 hour. Each SP received \$25 per hour as compensation for training and portraying an SP for 2 or more student interactions. Each SP interaction lasted 30 minutes and was videotaped. Videotaped interactions were provided to the student PT for self-reflection and to aid in identification of strengths or weakness.⁵³

Following the SP-student interaction, written feedback was provided to the student using 2 customized rubrics. The first rubric, "Practical Examination," was designed for faculty to assess student acquisition of the technical skills required for clinical practice. The second rubric, "Assessment of Professional Behaviors," enabled the SP and faculty to provide written feedback to the student PT about their professional skills (Appendix 1). An "SP-Student Reflection Paper" allowed all of the students, whether they interacted with the SP or observed the interaction, to reflect on their learning after the interaction. Immediately following an SP interaction, students wrote up their clinical findings and participated in a face-to-face discussion with 1 faculty member to verbally reflect on the SP experience.^{29,58} The discussion served as a coaching session during which the faculty member provided his or her expert perspec-

tive on the interaction, feedback from the SP, and a summary of observations regarding student treatment approaches, safety concerns, and professional behaviors.²⁹

Instruments/Methods Used to Assess the Model

Information was collected at 3 points to examine the impact of the model on student learning, professionalism, and confidence for entering the workplace (Figure 2).

At Point 1 (pre-test and prior to the SP interaction), the 81 fifth-year DPT students self-assessed their professionalism and confidence for entering the workplace. To assess self-awareness of professional skills we used APTA's Professionalism in Physical Therapy: Core Values (PPTCV) survey.¹⁴ For each core value, sample indicators are provided that describe PT practice, education, and research. The PPTCV contains 68 questions and uses a 5-point Likert scale: 1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Frequently, 5 = Always.¹⁴

Confidence for entering the workplace was examined using the Work Self-Efficacy Inventory (WS-Ei).⁶¹ The WS-Ei is a 30-question instrument that relies on a 5-point Likert scale for self-assessment of the behaviors and practices related to the non-technical and social skills required for workplace success. Seven subscales comprise the WS-Ei: problem solving, sensitivity, communication, teamwork, learning, pressure, and politics. Reliability as measured by Cronbach's alpha coefficient of internal consistency for the WS-Ei is .95.⁶¹

At Point 2, after the SP intervention, the students retook the PPTVC and the WS-Ei. In addition, they completed 3 open-ended reflective questions to record their experi-

Table 2. PPTCV Scores

Core Value	Pre Intervention Mean (SD)	Post Intervention Mean (SD)	P	d	Observed Power ^a
Aggregate	3.87 (0.43)	4.23 (0.41)	< .001	0.79	1.00
Accountability	3.89 (0.52)	4.21 (0.44)	< .001	0.62	0.98
Altruism	3.51 (0.58)	3.96 (0.65)	< .001	0.65	0.99
Compassion	4.23 (0.49)	4.57 (0.39)	< .001	0.69	0.99
Excellence	3.90 (0.57)	4.23 (0.51)	.002	0.5	0.90
Integrity	4.28 (0.47)	4.54 (0.41)	.002	0.51	0.90
Professional Duty	4.08 (0.60)	4.46 (0.43)	< .001	0.62	0.98
Social Responsibility	3.13 (0.90)	3.62 (0.83)	< .001	0.71	1.00

^aPost-hoc power analysis performed using G*Power 3.⁶³

Table 3. PPTCV: Pre- Versus Post-intervention Scores

PPTCV time 2 (post) versus time 3 (post)	P	Mean (time 2)	Mean (time 3)
	.010 ^a	4.49	4.14
Core Value		Mean (time 2)	Mean (time 3)
Accountability	.320	4.35	4.25
Altruism	.04 ^a	4.21	3.9
Compassion	.214	4.77	4.87
Excellence	.184	4.37	4.17
Integrity	.113	4.88	4.63
Professional Duty	.236	4.48	4.36
Social Responsibility	.003 ^a	4.43	2.83

^aSignificant at $P = .05$.

ences with the SP-CoP process (Appendix 2).

At Point 3, after completion of an 8-week CE experience, all 81 students were requested to retake the PPTCV survey and they recorded their perceptions about transitioning from the academic setting to the clinical education environment by answering 2 written reflective questions (Appendix 3). The CIs answered 4 open-ended questions (Appendix 4) to express their perceptions on student confidence for entering the workplace and the students' demonstration of professionalism.

Data were examined using inferential statistics and qualitative methodologies. Demographics on the students and CIs were

summarized using descriptive statistics. The PPTCV and WS-Ei data were analyzed inferentially using paired 1-tailed t tests, .05.⁶² Student responses to reflective questions were examined using a process of content analysis to categorize and identify principle patterns.⁶³

OUTCOMES

All 81 students in the class participated in the model intervention either directly with the SP or as a peer observer. Of the 81 students, 58% (47) completed both the pre- and post-SP intervention surveys. Educational outcomes concerning the assessment of the model will be discussed as they relate to core

values awareness, confidence for entering the workplace, and student learning and feedback—both pre- and post-clinical education experience.

Core Values Awareness

To examine change in core values awareness due to use of the 360-Degree model, pre- versus post-intervention comparisons using paired 1-tailed t tests were run for aggregate data and for each of the 7 sections of the PPTCV. All comparisons revealed a statistically significant higher posttest score between the Point 1 and Point 2 (Table 2).⁶⁴ These results reveal a significant change in a positive direction for students' core values awareness (Table 2).

When comparing Point 2 of the PPTCV (post intervention) to Point 3 (conclusion of CE) a significant decline was observed, $P = .01$. However, a nonsignificant decline was observed in 5 of 7 values. Two values, altruism and social responsibility, decreased significantly $P = .048$ and $.003$, respectively (Table 3).

Confidence for Entering the Workplace

A paired 1-tailed t -test analysis revealed that the aggregate postintervention score on the Work Self-Efficacy Inventory (WS-Ei) was significantly higher than the preintervention score at $P = .000$. Mean value for aggregate score preintervention was 3.47, SD = 0.57, compared to a postintervention score of 4.09, SD = 0.43. For the WS-Ei analysis, a power of .8 and an effect size of $d = .5$ was used. No subscale analysis was performed to focus more acutely on the main outcome of PPTCV. Students' confidence for entering the clinical environment increased positively after their experience with the model.

Student Learning: Pre Clinical Education

All student participants were asked to provide 2 reflective papers during the project. The first was post intervention. Forty-three (53%) students completed the first assignment and responded to 3 open-ended questions (Appendix 2). Two major themes emerged from the student papers: learning process and feedback.

Learning process. One major benefit of the 360-Degree Assessment Model cited was that by participating in the model, students realized what they knew and didn't know with respect to clinical material presented in the case. The process enabled them to integrate material and apply it to a real patient. Working as a team allowed the students to vali-

date their thinking with their peers. Another benefit was that the SP experience improved student confidence and decreased anxiety for clinical education. One student documented that:

Talking about the case with my team allowed me to incorporate others' thinking process with my thinking process. This gave me a more comprehensive understanding of the case and our intervention, which ultimately increased my confidence.

During an SP evaluation, students articulated the need to plan, be efficient, and prioritize questions, assessment, and treatment approaches. Students examined the whole patient and integrated previous learning. An interesting benefit articulated was learning to expect the unexpected:

I think the SP interaction really helped me to prioritize treatment...it was challenging to narrow the evaluation down to the most critical components. As a student, I sometimes forget about time constraints and part of being a good PT is having good time management skills.

I learned that it's important to have self-confidence, think on your feet, and be able to adapt your treatments because the patient may portray something that wasn't expected.

Students also highlighted the need for good interpersonal and communication skills for interacting with a variety of patient personalities and family members. They recognized that physical therapy is more than the therapeutic aspects:

I learned that being a PT is much more than just the therapeutic aspects. Being open and chatting with the patient builds a sense of trust, care, and friendship, which can improve patient compliance and reaching patient and PT goals.

Feedback. Feedback was another major theme culled from the student reflective papers. The students indicated that the 360-degree model provoked critical thinking and learning from others, broadening their thought processes. They experienced being self-directed, learned what they missed, pulled it all together, and saw different perspectives:

The 360-degree feedback really helped to enhance the group's learning...As a student my thinking is that I need to gather info from the patient that I think I need. When

faced with a patient with a personality like our SPs, this experience will come to mind and when a patient does not agree with the main problem that I am trying to focus on, I will be able to step back and think, okay, I will address this issue, then gather the info I wanted originally.

I think the feedback from a variety of sources with different backgrounds (ie, the teachers from an academic/professional view, the patient with a typical patient view of professionalism and competency, and from peers from what we know thus far) is very helpful to give us as students a very well-rounded view of what we do well and what we need to improve on.

Student Learning: Post Clinical Education

The second reflective data point occurred following completion of the students' 8-week CE experience. Students responded to 2 open-ended questions (Appendix 3). Of the total sample of 81 students, 12 (10 females, 2 males) responded.

The first question asked them to describe the impact of the model on their confidence for transitioning from student to clinical. Ten of 12 students indicated that the SP experience increased their confidence for conducting patient evaluations. The experience helped them realize what they knew and prepared them to begin the thought process for a patient evaluation, which includes sequencing and organization:

This experience aided in the preparation for our first clinical affiliation in that it forced me to truly think in the therapist's shoes, think about the sequence of what I was going to say, do, examine, test....

Question 2 asked students to describe the impact of the model on their professionalism. Seven of the 12 students indicated that the process helped them realize that professionalism is part of every patient interaction. They articulated that the SP experience made them realize the need to provide the best quality care and put a patient's needs first. The experience illuminated the professional obligation to be well read, up to date, ethical, and self-reliant. One student commented:

The experience opened my eyes to autonomy...I felt an increased awareness of my professional obligation and responsibility to be well-read in the literature as well as up to date with all realms of PT practice...made me more aware of the importance of professional ethics and behavior in all settings....

Clinical Instructor Reflection

Data on 11 students from 8 CIs were returned post clinical education (CE). We only collected data from the CIs whose students also returned data post CE. Our goal was to match CI and student perceptions of the same environment and experiences. The CIs answered 4 questions related to student confidence for transitioning from the classroom to the workplace, professional behaviors, and communication skills (Appendix 4).

Generally, the CIs indicated that the students were like most students on their first CE experience, initially nervous with growing confidence over time. One CI noted:

...she performed as I would expect on a first clinical...timid at first but with time and experience through the clinical she became much more confident...she did not seem much different from other students I have supervised in the past.

Regarding display of professional behaviors and communication, the CIs indicated that the students worked hard at interacting with patients, especially those who were socially diverse:

Communication was something that [she] worked very hard at throughout the affiliation. She did very well working in a socially diverse patient population.

The CIs indicated a belief that continued attention is needed in academia with respect to educating students on effective communication:

...continued role play in classes, especially with regards to patients who have communication deficits, difficult family members...exercises on approaching other team members [doctors, nurses etc] to present with most relevant information in a succinct manner.

DISCUSSION

This project examined the effectiveness of a model for teaching and evaluating DPT student professional skill awareness and confidence for entering the workplace. The data revealed an increased student awareness of the core values as supported by a statistically significant change in both aggregate and individual sections of the PPTCV post intervention. Foord-May and May²⁶ assert that an initial step in promoting behavioral change is sharing expectations clearly, explicitly, and publicly. We believe that using the PPTCV survey twice during the model highlighted

for students the characteristics that explicitly define the DPT professional in theory and action.²⁵

Student reflective data exemplified awareness of the core values. In particular, students articulated that physical therapy is more than clinical skills, it involves communication and a building of rapport, which are elements of the core value Compassion and Caring. During an SP interaction, students witnessed that rapport was critical for establishing patient trust and that it impacts treatment outcomes.¹³ In addition, students articulated awareness for placing the patient's needs first, which is an indicator of the core value of Altruism. Reflective data also demonstrated student value of Excellence and Professional Duty, which were displayed through statement of the duty to be "well read, up to date, and committed to providing the best quality care." Finally, the students recognized the value of professional behavior and ethics during patient interactions, an example of the core value of Integrity.

At completion of CE, an overall significant decline was observed in aggregate PPTCV scores between post intervention and post CE. While a non-statistically significant decline was observed in 5 of 7 PPTVC scores, the values Altruism and Social Responsibility exhibited a statistically significant decline. One possible explanation for the decline in the 7 scores may be that the students became more realistic in their self-assessment of professionalism once they entered the clinic. The demonstrated significant declines in the scores of Altruism and Social Responsibility may be attributed to the students' heightened awareness of these 2 core values based on personal experience. Gleeson²⁸ describes generational differences with respect to core value development. She maintains that Millennial students, born between 1982 and 1999, have had both the values of Altruism and Social Responsibility ingrained during their early years of development.²⁸ The Millennial generation represents the age group of our student participants. While these data represent a trend, the return rate for the survey was small and, therefore, the results must be viewed with caution.

Student reflective data, collected from 43 students post intervention, supported the model as a learning process. Students indicated that the 360-Degree Model Assessment approach allowed them to integrate academic and experiential learning and to think like a professional. The model assisted students in prioritizing an evaluation and treatment approach, efficiency, and expecting the unexpected.

In addition, the students also benefited from discussion within the CoPs, which allowed for concurrent reflection with peers. Research supports the use of online conversations using discussion threads to foster professional, collaborative, and reflective discourse.^{43-45,59,60} CoPs are common, informal, and exist in everyday life and practice. CoPs enabled the students to collaborate to solve a case-based problem.^{40,41}

Experiential learning is an important element of PT education because students can develop knowledge, skills, and professional behaviors in a realistic setting.⁴⁴⁻⁴⁶ Foord-May and May²⁶ maintain that the best-designed pedagogy provides assessment and feedback that directs behavior change, is delivered in a supportive environment, has consequences, and is integrated within a learning experience.²⁶ They also suggest that learning experiences be authentic and representative of the workplace. CIs indicated that the learning attitudes required for the clinic include the ability to integrate and apply feedback, self-assess, and be self-directed. In the 360-degree model, feedback on student performance is part of an authentic learning activity that is experientially based, provided in a safe setting, and graded using 2 customized rubrics. Assessment is preferred when it is focused on student performance and relies on multiple assessors for triangulation.^{26,29,39} Gleeson²⁸ suggests that the preferred learning styles of many of the Millennials include role playing, group activities, active learning, a desire for immediate feedback, and being taught how to manage large tasks.²⁸ The 360-Degree model incorporated many of the learning preferences of the Millennial generation.

The WS-Ei results demonstrated a statistically significant improvement post intervention, indicating an increase in student confidence. The WS-Ei measures the non-technical and social skills required for confidence and success on the job.⁶¹ Furthermore, 10 of 12 students reported, post CE, that the SP experience increased their confidence for conducting patient evaluations. While the experience helped them realize what they knew and prepared them to begin the thought process for thinking like a clinician, the results must be interpreted carefully due to the low reflective-paper return rate post CE. Desired learning experiences are those that prepare students for their professional role.⁶⁵ Although the students reported increased confidence for entering the clinical environment, CI post-CE data did not support this finding.

Finally, we examined the impact of the model on CI perception of student professionalism and confidence in the clinic. Including the perspectives of colleagues can

inform the education of students.⁶⁵ Data from the 2 CI focus groups identified the need to increase student awareness of professionalism and demonstrate positive learning attitudes and rudimentary job skills. Gleeson²⁸ maintains that generational differences in professional behaviors can impact the academic and clinical environment. While all generations have similar values, how they are displayed may vary by age as well as context. For example, Millennials, which represent the age group of the student sample, prefer an informal communication style, instant information, expect immediate feedback and have trouble seeing the big picture.²⁸ The majority of our CIs represented either the Generation X or Baby Boomer generations. Boomers prefer a more formal communication style that may include a paper trail and use of small talk to build rapport.²⁸

There are several limitations to the 360-Degree model. First of all, due to the size of the DPT program, not all students could be afforded the opportunity to interact with the SP. One student in a group of 4-5 acted as the student PT while the peers observed the interaction. Future research studies could be geared to separate and compare the learning experienced by the student PTs and peer observers. Another limitation was the reduced return rate on the PPTCV, WS-Ei, and reflective papers post SP intervention and post CE. Future research studies could be designed to address the concern of subject attrition that plagues longitudinal work.

CONCLUSION

The 360-Degree model combines SPs, online CoPs, and reflection to teach and evaluate student professionalism and confidence for entering the clinical environment. Feedback from clinicians guided the development SP cases and assessment of the innovative, experientially based pedagogy. Assessment of student learning, professionalism development, and confidence for entering the workplace was performed at 3 different points in time.

This model is a pedagogy that uses technology, group interaction, experiential activity, and multiple sources of feedback.²⁸ Inclusion of explicit expectations and opportunities for self-assessment is beneficial for student learning.^{26,65} Clinicians strengthened the methodology and provided feedback useful for curriculum design and continued research. The CIs were eager to participate and contribute to faculty knowledge of the behaviors and skills necessary for the clinic. Faculty members used CI knowledge to customize SP cases and visualize student learning in action. The model also provided faculty with

a framework for conducting scholarship on teaching and learning.

While this project was conducted at a single institution, the model has potential applicability to other PT or professional programs whose graduates need strong professional skills. Additional research is indicated to examine the longitudinal effectiveness of the model for promoting student confidence, professional skills, and the learning attitudes desired by PT employers.

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Appendix 1. Rubric 2: Assessment of Professional Behavior (Patient Interview)

Directions: Please circle the appropriate column for each criterion. Enter comments as needed.

Patient Interview S = 5, N = 3, U = 0

Measurable Criteria	Satisfactory	Needs work	Unsatisfactory	Comments
1. Professional Appearance (clothing, hair, name tag)	Professionally dressed.	One element of professional dress is inappropriate.	Unprofessionally dressed.	
2. Obtains Key Information	Appears knowledgeable & organized.	Knowledgeable & disorganized.	Without knowledge & disorganized.	
3. Explains Why Key Finding is Critical to Patient Condition	Excellent & complete explanation.	Good & partial explanation.	Unclear & incomplete explanation.	
4. Communicates Effectively	Avoids use of medical jargon.	Inconsistent use of medical jargon.	Uses medical jargon.	
5. Incorporates Patient Goals Into Treatment	Asks and addresses patient goals.	Asks but doesn't address patient goals.	Doesn't ask or address patient goals.	
6. Responds to Patient Questions	Answers completely & checks for understanding.	Answers, doesn't check for understanding	Doesn't answer questions or check for understanding.	
7. Confidence Level	Presents self in a confident manner.	Presents self in a moderately confident manner.	Does not present in a confident manner.	
8. Salutations	Introduces self and brings session to a close.	Does not introduce self or bring session to a close.	Does not introduce self & abruptly ends session.	

Appendix 1. Rubric 2: Assessment of Professional Behavior (Patient Interview) *Continued*

Directions: Please circle the appropriate column for each criterion. Enter comments as needed.

Respectful Communication S = 5, N = 3, U = 0

Measurable Criteria	Satisfactory	Needs work	Unsatisfactory	Comments
1. Body Language	Positions self to facilitate conversation.	Inconsistently positions self to facilitate conversation.	Posture conveys aggression, dominance, avoidance.	
2. Eye Contact	Maintains eye contact.	Minimal eye contact.	No eye contact.	
3. Informed Consent	Tactfully requests permission to touch patient & initiate treatment.	Requests permission to touch patient & initiate treatment.	Does not request permission to touch patient & initiate treatment.	
4. Explains Procedure Using Language Appropriate for Patient	Complete & clearly understood.	Fair, somewhat understood.	Incomplete/ confusing.	
5. Appropriate Language (tone, humor, language)	Expresses self clearly & appropriately.	Inconsistent adaptation of self/style/tone.	Inappropriate adaptation of self/ style/tone.	
6. Patient Dignity	Attentive to patient comfort & modesty.	Inconsistent attention to comfort & modesty.	Ignores patient comfort & modesty.	
7. Elicits Patient Trust	Talks directly to patient/ establishes rapport.	Inconsistent rapport.	Does not establish rapport.	
8. Patience	Demonstrates patience with patient/others.	Inconsistently demonstrates patience.	Impatient or arrogant.	
9. Active Listening	Listens actively— acknowledges patient input.	Detached, asks few questions	Demonstrates distracting nonverbal behaviors.	
10. Demonstrates Insight Into Patients' Sociocultural, Psychological, & Economic Perspective	Acknowledges patient's perspective.	Limited insight regarding patient perspective.	Lack of insight regarding patient perspective.	
11. Decision Making	Involves patient in decision-making process.	Inconsistently involves patient in decision-making process.	Does not involve patient in decision-making process.	
12. Ethical Dilemma	Recognizes and addresses an ethical dilemma.	Recognizes but does not address an ethical dilemma.	Ignores presence of ethical dilemma.	

Appendix 2. Student Post-SP Intervention Reflective Questions

1. What did you learn as a result of your experience with the SP interaction?
2. How did the 360-degree feedback process impact the learning for you and your team?
3. What did you learn about your development as a clinician through the SP experience?

Appendix 3. Student Post-CE Reflective Questions

1. Did participation in the model as part of "Integrative PT Practice" impact your confidence for transitioning from the classroom to Clinical Education 1? Please describe.
2. Did participation in the model impact your awareness of professionalism? Please describe.

Appendix 4. Clinical Instructor Reflective Questions

1. Please describe the student confidence level for transitioning from the classroom to Clinical Education 1.
2. Did the student's confidence differ from other students (or students from other PT schools) that you have supervised in the recent past? Please describe.
3. Did the student demonstrate the professional behaviors and communication skills that you believe are important to possess at your facility? Please provide an example of exemplary and/or inappropriate behavior exhibited and its implications.
4. Based on your recent experience, do you have suggestions for promoting professionalism and effective communication for PT students transitioning into clinical education?

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