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A Feasibility Study for Utilizing a Peer-teaching Experiential Learning Activity to Alter Student Perceptions of Attributes Present in Effective Clinical Instructors

Abstract

Purpose: Many physical therapists are requested to assume the role of a clinical instructor (CI) after only one year of clinical practice. The purposes of this study are to assess the feasibility of an activity that introduces students to the responsibilities of a CI and to determine if this activity had any impact on student perceptions of attributes that are present in an effective CI. **Methods:** Second year DPT students enrolled in a course that utilizes case-based learning and peer-teaching activities participated in this study. Participants completed the McGill University Clinical Tutor Evaluation survey both pre- and post-learning activity. Survey results were analyzed for mean composite scores, changes in survey items ranking, and statistically significant differences in survey item responses both pre- and post- activity. **Results:** Mean composite scores for the McGill survey as well as mean ranks for each of the 25 survey items were identified both pre and post activity. Statistically significant differences were found by comparing student responses from surveys taken pre- and post-activity. **Conclusion:** The results of this study suggest that a peer-teaching experiential learning activity was feasible for influencing student perceptions of important attributes of an effective CI. These findings indicate that incorporation of similar activities into DPT entry-level curricula may aid in educating students about the responsibilities of a CI.

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ABSTRACT

Purpose: Many physical therapists are requested to assume the role of a clinical instructor (CI) after only one year of clinical practice. The purposes of this study are to assess the feasibility of an activity that introduces students to the responsibilities of a CI and to determine if this activity had any impact on student perceptions of attributes that are present in an effective CI. **Methods:** Second year DPT students enrolled in a course that utilizes case-based learning and peer-teaching activities participated in this study. Participants completed the McGill University Clinical Tutor Evaluation survey both pre- and post-learning activity. Survey results were analyzed for mean composite scores, changes in survey items ranking, and statistically significant differences in survey item responses both pre- and post- activity. **Results:** Mean composite scores for the McGill survey as well as mean ranks for each of the 25 survey items were identified both pre and post activity. Statistically significant differences were found by comparing student responses from surveys taken pre- and post-activity. **Conclusion:** The results of this study suggest that a peer-teaching experiential learning activity was feasible for influencing student perceptions of important attributes of an effective CI. These findings indicate that incorporation of similar activities into DPT entry-level curricula may aid in educating students about the responsibilities of a CI.

Keywords: peer teaching, experiential learning, clinical instructors

INTRODUCTION

Clinical teaching plays a large role in entry-level physical therapy education. There are numerous reports in the literature stating that the clinical instructor (CI) serves as an educator but also as a role model for the developing health care professional.¹⁻⁴ Not surprisingly, published results indicate that an effective clinical experience is strongly connected to a positive relationship between the student and the CI. This relationship is fostered by many different CI attributes that broadly include personality perceptions and pedagogic practices that are essential for optimal student learning.⁵⁻¹⁰ In addition to this, much research has been published on the quality of professionals serving as clinical educators.^{2,11-13}

Even though most licensed physical therapy (PT) professionals participate in the CI role after just one year of clinical practice, few United States Doctor of Physical Therapy (DPT) program entry-level curricula have courses that teach students the roles and responsibilities of a CI.¹⁴⁻¹⁶ This fact suggests that early PT professionals may not have had the training necessary to provide a student with an effective clinical experience.¹⁷ The American Physical Therapy Association hosts Credentialed Clinical Instructor Programs (CCIP) that are voluntary and available to all PTs and PTAs. These programs are intended to improve the teaching ability of the clinical professional and aid them in creating an environment conducive to student learning. However, published studies have examined the qualifications of current CIs and determined that greater than 75% have never taken a CCIP. Furthermore, there is currently no consensus about what constitutes quality in a physical therapy clinical educator.¹⁸

Development of entry-level courses that train students to become future CIs have been previously reported.¹⁴⁻¹⁶ One example was formatted as part of an administration course that required students to develop a physical therapy clinic and incorporate a clinical education component in this business.¹⁵ As part of this course component, students were exposed to multiple facets of effective clinical education via discussion forums and written assignments. Two other examples of courses that have been reported to help train DPT students to be future CIs used a student run pro-bono clinic as their model.^{14,16} In each of these examples, the students experienced the roles and responsibilities of a CI.

Multiple studies have been performed to examine student perceptions of quality clinical education.^{5,19,20} Physical therapy students' perceptions of attributes that are present in a quality CI are essential for understanding how to instruct a CI to be effective. Surveying students' perceptions of quality CI attributes may also be beneficial for educating future CIs to be competent and effective. There are multiple surveys available that have been used to evaluate the performance of a clinical instructor for different health professions.^{1,9,10,22} The McGill Clinical Tutor Evaluation (CTE) instrument is a 25 item survey that was originally designed for the evaluation of medical student clinical instructors (Table 1A).¹⁰ This survey is concise, has reported psychometric properties, and has been validated for and used in the evaluation of physical therapy CIs.¹⁹⁻²¹ Several studies have used the McGill clinical tutor evaluation (CTE) survey to identify attributes perceived to be important for an effective CI in physical therapy education.^{19,20} Additionally, another study used the McGill instrument to query CIs about what they perceived to be the attributes most important for effective clinical instruction.²¹

No research has been done to assess if peer-teaching simulations during a DPT program can influence DPT student's perceptions of attributes of a quality CI. Our hypothesis is that student's perceptions of attributes that are important in a quality CI will change once they actually experience the role of a CI. The purposes of this study are access the feasibility of a course module that introduces students to the CI role and to determine if this activity had an impact on the students' perceptions of attributes that are present in an effective CI.

METHODS

The Institutional Review Board of University of Lynchburg approved this pre-post quantitative design research project.

Subjects

Students enrolled in the second year of the DPT Program were asked to participate in this study. Informed consent was obtained from all survey participants.

Peer-teaching Experiential Learning Activities

First and second year students are enrolled in companion courses that utilize case-based learning and peer teaching learning activity modules. Prior to the course, second year students were engaged in a clinical experience in either the home health, skilled nursing facility or acute care settings the previous summer. First year students are paired with second year students based on having their future clinical experience assignment at the same type of clinical setting. All learning activities are held in the University laboratory classroom setting and meet once per week for 3-hours over a 10-week period. Attendance to these courses was mandatory and monitored by the course instructors.

First Year Course Learning Activities

Students enrolled in the first-year cohort have not had a previous physical therapy clinical experience and are mentored by a second year student. The main focus of the first-year course module is to allow students to perform a patient examination on a licensed PT role playing a patient and provide appropriate physical therapy intervention to this mock patient based on the examination findings.

Second Year Course Learning Activities

During this course, second year students serve as "CIs" for the first-year students. They participated in the first year ICAL course the previous year. Prior to this CI role, they receive instruction on "How to be a Mentor" provided by a faculty member who is an APTA certified CI credentialing course instructor. This instruction is primarily targeted on how the second-year students can provide effective feedback to their first-year mentees. Course objectives for this learning activity can be found in Appendix A.

First and Second Year Course Integration

Both groups of students are provided with a series of three paper cases (Appendix B). Prior to performing the first case, the first-year student is presented with a series of leading "stimulus questions" to help them prepare for the examination (Appendix B). They discuss their answers to these questions with their second year CI prior to the first case. During the first case, the second year student performs a physical therapy examination on a licensed PT role-playing a mock patient. The first year student assists in tasks they are comfortable performing and is responsible for documentation of the encounter. The clinician role-playing the patient debriefs both the first and second year students after the examination. This debrief is focused primarily on competence and safety infractions. Following submission of the documentation, the second year student is responsible for reviewing the document for accuracy.

The next case in the series begins by assigning the first year students a series of "stimulus questions" specific for this case (Appendix B). Similar to the process discussed above, the first year students are required to discuss their answers to these questions with their second year CIs. This second case is different from the first in that the first year student performs the entire examination on the mock patient while the second year student role-plays a CI by monitoring the first year student's performance and intervening as necessary. Again, the mock patient debriefs the pair after the examination performance and the first year student documents the session while the second year student provides feedback on documentation accuracy.

For the last case, the second year student creates a case based on a patient that they encountered in the clinical setting they were in the previous summer (Appendix B). The second year student then role-plays that patient and the first year student is responsible for a physical therapy examination. Following the examination, the first year student is also responsible for providing an intervention based on identified impairments and functional limitations. After the intervention has been delivered, the second-year student debriefs the first year student performance for both the examination and the intervention. Again, the first year student documents the encounter and the second year students provides feedback on documentation accuracy.

Survey

The McGill Clinical Tutor Evaluation (CTE) instrument is a 25-item survey that was originally designed for the evaluation of medical student clinical instructors was used for the present study (Table 1A).¹⁰ All second year students enrolled in the DPT program were asked to take the survey. Completion of the survey was both voluntary and anonymous and had no impact on the grade for the class. Students were instructed to report their impression of desired attributes they feel are needed to be an effective CI ranking the importance of each of the 25 items using a 6-point Likert Scale. The ratings were weighted as: 6 = very strongly agree, 5 = strongly agree, 4 = agree, 3 = disagree, 2 = strongly disagree and 1 = very strongly disagree. Students (N=48) took the survey prior to the start of the learning activity. Unfortunately, only a subset of students in the second year cohort (N=24) agreed to complete the survey again at the end of the learning activity since they were not coerced or compensated for their participation.

Data Analysis

Mean and standard deviation for each of the 25 survey question responses were calculated and used to derive a mean rank order for the items. Statistically significant changes in responses to each of the items on the McGill University Clinical Tutor Evaluation survey questions were analyzed by Mann-Whitney U tests comparing student responses pre-learning activity to post-learning activity. Mean total combined scores were calculated for the McGill survey questionnaire both pre and post-learning activity. The maximum total combined survey score is 150 point for the 25-item 6 possible response points per question survey. The scores recorded therefore represent the mean of each participant response for the total survey out of the 150 possible points and the observed standard deviations. Statistics were performed using SPSS v26.

RESULTS

Table 1. McGill Clinical Teacher Evaluation Survey

A				B		C		
Factor	Domain	#	Question	#	Mean (SD)	#	Mean (SD)	
Personality Perceptions	Attitude to Teaching	1	Is enthusiastic and stimulating	17	5.75 (0.44)	17	5.92 (0.41)	
		11	Conveys enjoyment of associating with me and my colleagues	12	5.73 (0.54)	19	5.79 (0.51)	
		17	Is interested in helping students to learn	19	5.69 (0.51)	12	5.79 (0.59)	
		22	Dependability of attendance is good	13	5.69 (0.51)	22	5.75 (0.53)	
		25	Is usually readily available for discussion	3	5.69 (0.66)	25	5.75 (0.53)	
	Humanistic Orientation	2	Seems interested in social and psychological aspects of illness	7	5.67 (0.60)	7	5.75 (0.61)	
		8	Attitudes to patients fit my concept of professional behavior	22	5.65 (0.48)	20	5.71 (0.55)	
		14	Deals with colleagues and staff in a friendly manner	20	5.60 (0.57)	13	5.71 (0.62)	
	Subject Matter Expertise	3	Inspires confidence in his/her knowledge of subject	25	5.56 (0.54)	14	5.71 (0.75)	
		9	Occasionally challenges points presented in texts and journals	14	5.54 (0.62)	21	5.67 (0.56)	
		13	Displays good judgement in decision making	6	5.52 (0.68)	16	5.63 (0.58)	
	Pedagogic Practices	Teaching Skills	4	Emphasizes concepts rather than factual recall	8	5.38 (0.79)	3	5.63 (0.65)
			10	Is usually well prepared for teaching sessions	16	5.33 (0.63)	2	5.58 (0.65)
12			Provides feedback and direction	24	5.27 (0.76)	6	5.58 (0.65)	
18			Presents divergent viewpoints for contrast and comparison	21	5.27 (0.79)	11	5.58 (0.93)	
19			Is clear and understandable in explanations	2	5.25 (0.79)	8	5.54 (0.66)	
Problem Solving Emphasis		5	Poses problems for me to solve	10	5.23 (0.72)	24	5.54 (0.78)	
		21	Emphasizes problem-solving approach rather than solutions per se	4	5.21 (0.82)	18	5.50 (0.66)	
		24	Emphasizes clinical skills, not lab tests for patients management	11	5.15 (0.85)	15	5.50 (0.83)	
Student Centered Teaching Strategy		7	Encourages me to think	1	5.13 (0.82)	1	5.50 (0.66)	
		15	Teaching is suited to my level of sophistication	5	5.02 (0.81)	10	5.42 (0.72)	
		23	Encourages me to take responsibility for my own learning	23	5.02 (0.91)	5	5.38 (0.82)	
Active Student Participation		6	Provides opportunity for discussion	18	4.96 (0.82)	4	5.33 (0.70)	
		16	Invites comments rather than providing all the answers	15	4.90 (0.88)	23	5.25 (1.07)	
		20	Encourages me to ask questions	9	4.44 (0.94)	9	4.92 (0.97)	

Summary of the survey content (Panel A). Order of agreement of student ratings for each question on the survey before the course module (Panel B) and after the course module (Panel C). Each domain of the survey is assigned a unique color in Panel A. This allows easy identification of associated domains in the order of agreements detailed in Panels B and C

The mean total combined score for the student surveys (N=48) taken before the start of the learning activity was 133.6 +/- 9.7 out of a possible total score of 150. This high score indicates that students perceived the attributes listed in the survey to be important for being an effective CI. The attributes that students rated highest as important for effective CIs included both the personality perceptions and pedagogic practices factors and the attitude to teaching, teaching skills, and subject matter expertise domains (Table 1B). The top 5 specific attributes ranked highest at this time were associated with an interest in helping students learn (5.75 +/- 0.44), providing feedback and directions (5.73 +/- 0.54), explanations are clear and understandable (5.69 +/- 0.51), displaying good judgement in decision making (5.69 +/- 0.51) and inspiring confidence in their knowledge of the subject (5.69 +/- 0.66). The majority of the attributes that students ranked lowest were in the pedagogic practices category. These included all domains except for active student participation. The specific attributes ranked lowest were related to posing problems for students to solve (5.02 +/- 0.81), encouraging students to take responsibility for their own learning (5.02 +/- 0.91), presenting different viewpoints for contrast and comparison (4.96 +/- 0.82) and teaching to the student's level of sophistication (4.90 +/- 0.88). The only personality perceptions factor included in the lowest ranking attributes was in the subject matter expertise domain and was related to challenging points presented in texts and journals (4.44 +/- 0.94).

Interestingly, the mean of the total combined score for the McGill CTE student responses (N=24) after the learning activity was higher than the score previously determined before the activity 139.4 +/- 11.6. The attributes that students rated highest at this time were again in both factors but there was an increase in the number of attributes present in the attitude to teaching domain and an absence of attributes in the subject matter expertise domain (Table 1C). The top 3 specific CI characteristics ranked the highest were again related to having an interest in helping students learn (5.92 +/- 0.41), explanations are clear and understandable (5.79 +/- 0.51) and providing feedback and directions (5.79 +/- 0.59). The last two attributes were now associated with a good

dependability of attendance (5.75 +/- 0.53) and being readily available for discussion (5.75 +/- 0.53). Of the 5 lowest ranking attributes recorded after the learning activity, the majority were in the pedagogic practices factor with the one exception again being related to challenging points presented in texts and journals (4.92 +/- 0.97). The main differences in the other 4 attributes compared to those ranked before the activity were the addition of 2 in the teaching skills domain. These included being well prepared for teaching sessions (5.42 +/- 0.72) and emphasizing concepts rather than factual recall (5.33 +/- 0.70).

McGill CTE survey responses reported by the students were also analyzed for differences between surveys completed at the start of the learning activity compared with responses recorded at the end of the activity. Seven survey questions were determined to be statistically significantly higher in second year student's responses at the end of the course compared with the beginning of the course (Table 2). The personality perceptions factor housed three of the questions that were in the attitude to teaching and subject matter expertise domains. These specific attributes were associated with conveying enjoyment when working with me and my colleagues ($p = .008$), being interested in helping students learn ($p = .041$) and occasionally challenging points presented in journals and texts ($p = .049$). Additionally, four questions belonged in the pedagogic practices factor and included teaching skill, problem-solving emphasis, student centered teaching strategy and active student participation domains. These 4 attributes were related to presenting different viewpoints for contrast and comparison, emphasizing problem solving rather than solutions, teaching to the student's level of sophistication and inviting comments rather than providing all the answers.

Table 2: Statistically Significant Differences in Student Survey Item Results Before and After Course Module

Factor	Domain	#	Question	Mean Rank Before/After Course	p-value
Personality Perceptions	Attitude to Teaching	11	Conveys enjoyment of associating with me and my colleagues	32.3/44.9	.008
		17	Is interested in helping students to learn	34.1/42.3	.041
	Subject Matter Expertise	9	Occasionally challenges points presented in texts and journals	33.2/43.1	.049
Pedagogic Practices	Teaching Skills	18	Presents divergent viewpoints for contrast and comparison	32.1/42.3	.007
	Problem Solving Emphasis	21	Emphasizes problem-solving approach rather than solutions per se	32.9/43.7	.022
	Student Centered Teaching	15	Teaching is suited to my level of sophistication	31.8/45.9	.004
	Active Student Participation	16	Invites comments rather than providing all the answers	33.5/42.6	.050

Each domain of the survey is assigned a unique color in Panel A. This allows easy identification of associated domains in subsequent tables.

DISCUSSION

The study findings described here indicate that a peer-teaching experiential learning activity is feasible for impacting student's perceptions of important attributes necessary to be a good CI. These findings suggest that incorporation of learning activities similar to the one described in this manuscript in DPT or other professional entry-level curricula may aid in training students to be aware of the roles and responsibilities of a CI. These type of experiences have the potential to increase the quality of future clinical teachers.

The subjects participating in this study had prior experience with a CI the previous summer. Therefore, when students took the McGill CTE survey prior to the learning activity, they had experience with a CI and their perception of quality CI attributes was from that of a student working under the CI. When the students re-took the survey after the learning activity their perception of quality CI attributes was influenced by the experiential learning process of actually having performed some of the duties of a CI.

Statistically significant differences were found between the survey responses from the second-year cohort pre- and post-learning activity. This suggests that actually assuming the role of a peer-CI had an influence on what these students perceived as important CI attributes. This observation is not unexpected as experiential learning has been touted as a powerful method used across many different health professions.^{14,23-26} Additionally, peer mentoring has also been reported as an effective teaching method in multiple health care professions.²⁷⁻²⁹

Several other examples of courses that expose the DPT student to the role of the CI have been published in the literature.¹⁴⁻¹⁶ One of these courses described the incorporation of a clinical education component to a newly created business as part of an administration course.¹⁵ In contrast to the course described here, the administration course explored the CI role through assignments and discussion forums. Though valuable knowledge is translated to students during this type of course, no actual practice of being a CI was performed. No patients, either simulated or real were involved and no students were actually mentored.¹⁵

Other previously described courses used students further along in their physical therapy education to act as a CI to more novice students participating in a pro-bono clinic.^{14,16} While these type of courses offer a more realistic CI experience, the learning activity described here offers the added benefit of allowing students to experience the role of the CI without utilizing actual physical therapy patients. Additionally, since a volunteer licensed PT provides feedback after the case is performed, education on patient safety is further supplemented.

Results from this study indicate that the described learning activity is feasible for influencing student perceptions of attributes present in a quality CI. These initial results will be confirmed and strengthened in future research by the collection and analysis of qualitative data which would support an educational intervention. This type of data would allow us to determine if the peer-teaching activity described here had any influence on the desire of students to be a future CI. Additionally, future studies will involve surveying past graduates who had experience with this learning activity to see if participation in it changed their desire to be a future CI and was helpful in preparing them to be a competent CI.

Limitations

There are several limitations to this study worth noting. First, statistical data analysis would have been enhanced if study participants were identified so that responses from individuals could be compared pre- and post-learning activity. This minor change would have allowed us to report subject demographics. Additionally, results of this study could have been strengthened if they included multiple cohorts over the course of several years. These additional cohorts would allow survey responses to be directly compared from individual participants eliminating the limitation imposed by differences between cohorts.

CONCLUSION

The future of the physical therapy profession depends on the generation of students with a solid foundation in physical therapy clinical education. This solid foundation would not be possible without licensed physical therapists who were willing to learn about attributes necessary for effective clinical instruction. In conclusion, the results presented here suggest that incorporation of a peer-teaching experiential learning activity where students assume the role of a clinical instructor may be beneficial for educating students about the attributes necessary to be a quality CI and providing experience for a future role as a CI.

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Appendix A. Objectives for the 2nd year course peer-teaching experiential learning activity.

- 1. Screening:** Given a mock case scenario, assist a first year DPT student in identifying the priority signs, symptoms, and conditions that make physical therapy examination and intervention applicable and/or require referral to other appropriate medical personnel.
- 2. Examination:** Given a mock case scenario, assist a first year student in performing and recording an appropriate examination including history, systems review and indicated tests and measures as found in the current version of *Guide to Physical Therapist Practice*
 - a. Practicing in a manner consistent with the professional Code of Ethics.
 - b. Exhibiting caring, compassion, and empathy in providing services to patients/clients.
- 3. Evaluation:** Following examination of a mock case scenario, assist a first year DPT student with synthesizing and evaluating examination results identifying
 - a. Necessity of tests and measures
 - b. Patient/client level of health condition, impairments, activities, participation, environment, and personal factors
 - c. Possible need for re-evaluation
 - d. Relevant psychosocial factors
 - e. Clinical judgment of patient/client condition consistent with the available scientific evidence
 - f. Practice in a manner consistent with professional Code of Ethics
 - g. Exhibit caring, compassion, and empathy in providing services to patients/clients
 - h. Use clinical judgment and reflection to identify, monitor, and enhance clinical reasoning to lessen errors and augment patient/client outcomes
 - i. Consistently apply current knowledge, theory, and professional judgment while considering the patient/client point of view in patient/client management
 - j. Consistently and critically assess sources of information related to physical therapist practice, research, and education and apply information from these sources in scientific manner and to appropriate populations
 - k. Consistently incorporate the best evidence for practice from sources of information with clinical judgment and patient/client standards to determine the best care for a patient/client
- 4. Diagnosis:** Following the student's evaluation of a mock case scenario, assist a first year DPT student with:
 - a. Diagnosis the patient/client's health conditions, impairments, activities, participation, environment, personal factors consistent with:
 1. Age
 2. Psychosocial factors
 3. Medical information
- 5. Prognosis:** Following the student's evaluation and diagnostic process of a mock case scenario, assist a first year DPT student with estimating the anticipated maximum level of improvement following intervention identifying
 - a. Anticipated impact on ICF dimensions affected by interventions
 - b. Time frame for anticipated improvement
 - c. Effect of pre-existing and current health status, health behaviors, and psychosocial factors on the efficacy of interventions
- 6. Plan of Care:** Following the examination, evaluation, diagnosis, and prognosis of a mock case scenario, assist a first year DPT student with planning an intervention program
 - a. Including established goals and functional outcomes with time parameters
 - b. Define possible patient outcomes beyond the plan of care addressing specific outcomes realistic and acceptable that is consistent with the needs and goals of the patient/client
 - c. Consistent with administrative and safety procedures within practice environment
 - d. Consistent with applicable regulations and APTA Code of Ethics
 - e. Including rationale consistent with the available evidence for intervention
 - f. Modifying as needed due to patient condition (physically and psychosocially) and response.
 - g. Appropriately follow and understand legal practice standards, including all federal, state, and institutional regulations related to patient/client care and fiscal management.
 - h. Have a legal and ethical responsibility for all patient/clients.
 - i. Place patient's/client's needs above the physical therapist's needs.
 - j. Exhibit caring, compassion, and empathy in providing services to patients/clients.
 - k. Promote active involvement of the patient/client in his or her care.

- I. Demonstrate professional behavior in all interactions with patients/clients, family members, caregivers, other health care providers, students, other consumers, and payers.

7. Intervention: Following planning an intervention for a mock case scenario, assist a first year DPT student with implementing the planned intervention

- a. Consistent with planned intervention, goals, and patient condition
- b. Modifying as needed due to patient condition/response with reassessment of goal-related parameters
- c. Consistent with safety considerations, risk management, need for emergency measures, and patient response
- d. Consistent with criteria for specific intervention procedure
- e. Documenting consistent with course criteria and setting guidelines.
- f. Place patient's/client's needs above the physical therapist's needs.
- g. Exhibit caring, compassion, and empathy in providing services to patients/clients.
- h. Communicate and educate others using *culturally competent* manner with patients/clients, family members, caregivers, practitioners, interdisciplinary team members, consumers, payers, and policymakers.

8. Communication: During the physical therapy management of a mock case scenario, assist a first year DPT student with communicating with patient, family, and healthcare providers

- a. Identifying diagnosis, prognosis, planned interventions, and anticipated outcomes/realized outcomes.
- b. Demonstrating consideration of applicable ethical and cultural issues.
- c. Modifying behavior in response to patient/client response.
- d. Have a legal and ethical responsibility for all patient/clients.
- e. Alter behavior in response to understanding the consequences (positive and negative) of his or her actions.
- f. Encourage active involvement of the patient/client in his or her care
- g. Demonstrate professional behavior in all interactions with patients/clients, family members, caregivers, other health care providers, students, other consumers, and payers.
- h. Communicate and educate others using *culturally competent* manner with patients/clients, family members, caregivers, practitioners, interdisciplinary team members, consumers, payers, and policymakers.
- i. Identify, respect, and act with thoughtfulness for patients'/clients' differences, values, preferences, and expressed needs in all professional activities.

Appendix B. Sample paper cases used in the peer-teaching experiential learning activity

Case 1 Description: Alex Jones is a 54-year-old, 3 weeks post right middle cerebral artery infarct, and was just discharged from the acute care hospital. Alex is left hand dominant and lives with his/her spouse in their home. Alex demonstrates left sided hemiparesis with the upper extremity more involved than the lower extremity. Alex was working prior to CVA and his/her spouse is pushing Alex to get better and to return to work.

You have a prescription that states "Eval and Treat".

PMH: Type II diabetes, HTN

Stimulus Questions:

Neuroanatomy

1. What neuroanatomical structures does the MCA supply?
2. What would you expect the clinical presentation to be?

Clinical Practice

3. Describe the best way to transfer this patient for the first time based on the written information in the case, including what equipment you would use.
 - a. How would you adapt the transfer if the patient needed more assistance?
 - b. How would you adapt the transfer if the patient needed less assistance?

Pharmacology

4. Explain the mechanism of action of Alteplase (Activase) in the treatment of stroke. When must this be given to Alex to be most effective?
5. Alex was taking Doxazosin (Cardura), Glipizide (Glucotrol), and Metoprolol (Toprol XL) for his/her pre-existing conditions.
 - a. Describe the clinical indications for each medication.
 - b. What are the PT considerations associated with each medication?

Pathophysiology

6. What is the impact of hypertension on CVA?
7. What is the impact of hypercholesterolemia on CVA?
8. What is the impact of Diabetes on CVA?

Integumentary

9. Alex reports a loss of sensation to his/her bilateral LE's that existed before the CVA.
 - a. Name some strategies to prevent injury to the skin in the acute/subacute phase of care?
 - b. What information will you include when educating the patient on taking care of his/her skin?
10. How can you differentiate between sensation loss that occurs with diabetes and sensation loss associated with a CVA? Please expand about the difference in the pattern of loss.

Kinesiology

11. Describe the phases of scapulohumeral rhythm?
 - a. Explain at least two muscular problems that can create an abnormal rhythm and describe what happens to the structures they support.
12. Describe which gait abnormalities might occur with the infarct in this case?

Case 2 Description: Sam Goodman is a 73 year old who fell 3 days ago and fractured his/her right femur. Sam is 3 days post-op THA posterior approach with Dupuy S-ROM component which is cemented. Sam is the primary caregiver for his/her ill sibling. You have received a referral for PT to include transfer training, ther ex, gait, follow standard THA precautions, WBAT.

Stimulus Questions:

Kinesiology:

1. What are the arthrokinematics of the hip joint? (open chain)
2. What are some reasons the hip may degenerate?

Human Physiology/Diagnosis and Management of the Integument:

3. Describe the immune response at the surgical site immediately post operatively?

Human Anatomy:

4. What hip muscles could be injured due to surgery?

Intro to Clinical Practice:

5. What equipment might you prescribe for this patient? Why?

6. What other disciplines might you recommend to provide services to help this patient?

Diagnosis and Management of the Integument:

7. What are the advantages of using cryotherapy during the acute healing phase?

8. Describe the signs and symptoms of an infected surgical site.

Pharmacology for the PT

9. General anesthetics and/or nerve blocks are used when orthopedic surgeons perform a THA.

10. What are potential adverse effects of general anesthesia post-operatively?

11. Briefly describe the danger of a thromboembolic complication.

12. Identify adverse drug reactions associated with commonly used preventative medications such as Enoxaparin (Lovenox) or Warfarin (Coumadin).

13. Describe common adverse effects of opioid medications which may impact a patient's ability to tolerate activity.