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UNIVERSITY OF ST. AUGUSTINE

FOR HEALTH SCIENCES

Experiential learning enhances physical therapist student confidence in management of neurologically-involved adults and children

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Introduction

- Students clinical decision making improves¹
- Students continue to lack self-confidence in working with both adult and pediatric patients who present with neurological impairments²
- Clinical experiences are an integral part of professional physical therapy (PT) education programs.





Literature

- Experiential learning helps improve student confidence³
 - Uses direct student interaction with community volunteers
 - Simulates real-world clinical application of didactic material
- Hands-on engagement helps foster critical thinking skills^{4,5,6-11}
- Many entry level PT education programs weave integrated clinical experiences throughout the curriculum.
 - Simulation lab
 - Clinical observation¹²
 - Standardized patient scenarios^{10,13,14}



POINT Lab

- POINT = Patient Oriented Integrated Neurological Treatment
- Utilizes community volunteers with participation restrictions: adults and children
- Student groups of 3-5 members work with the same volunteers x 4 weeks, one adult and one pediatric

- **Week 1:** PT evaluation (including history, systems review, mobility assessment, tests and outcome measures)
- **Weeks 2 -3:** implementation of the plan of care
 - Students treat the client according to the established goals
 - Provide evidence-based peer reviewed articles to support interventions
- **Week 4** (final week): continuation of interventions, re-evaluation, HEP

- Written documentation of each session submitted by the groups within 48 hours
- Supervised by an experienced physical therapist: verbal feedback on session, written feedback on documentation





Purpose

- To explore the effect of experiential learning
- Hypothesis
 - PT students would perceive greater levels of confidence in their patient management skills for neurologically-involved patients across the lifespan





Methods: Participants

- Convenience sample over 3 trimesters
- N = 128 DPT students (63 male, 65 female)
- Age range: 20 – 50 y/o
- Inclusion:
 - completed all didactic work in the neuromuscular and pediatric curriculum
 - were about to leave on their final internships
- Exclusion:
 - did not participate in the initial pretest survey prior to the start of POINT labs



Methods: Procedure

- One-group pretest-posttest design utilizing a 10-item survey
- Likert scale rating of self-confidence in the evaluation and treatment of people with activity and participation restrictions across the lifespan.
- Pretest: prior to the first POINT lab session, informed consent.
- The investigators were blinded as to which students participated in the study – did not administer pretest or posttest.
- Posttest: upon completion of final adult and pediatric POINT labs
- Open ended questions for qualitative assessment

Methods: Survey



I am confident in my ability to...	Not Confident	Somewhat Confident	Confident	Very Confident
1. Complete a full age-appropriate evaluation of a neurologically involved patient	1	2	3	4
2. Perform appropriate screen to determine need for PT for a neurologically involved patient	1	2	3	4
3. Choose an appropriate outcome measure for the neurologically involved patient	1	2	3	4
4. Develop a plan of care for a neurologically involved patient	1	2	3	4
5. Write realistic, age-appropriate measurable goals for a neurologically involved patient	1	2	3	4
6. Implement the developed treatment plan for a neurologically involved patient	1	2	3	4
7. Develop an appropriate home exercise program for a neurologically involved patient	1	2	3	4
8. Complete reassessment and discharge summary for a neurologically involved patient	1	2	3	4
9. Interact with the neurologically involved patients and families in a supportive manner	1	2	3	4
10. Practice in a safe and effective manner for the neurologically involved patient	1	2	3	4

*This scale was based off a similar questionnaire published by Ohtake et al that measured student confidence in a simulation experience.¹⁶

Results: Quantitative Analysis



Exploratory factor analysis

- A principal access factor analysis was conducted on the 10 item questionnaire with an oblique rotation (direct oblimin).
- The Kaiser-Meyer-Olkin (KMO) = **0.876**, and all KMO values for individual items were greater than 0.790.

Item	Evaluation Competency	Professional Behaviors
1. Complete a full age-appropriate evaluation of a neurologically involved patient	.21	.47
2. Perform appropriate screen to determine need for PT for a neurologically involved patient	.25	.48
3. Choose an appropriate outcome measure for the neurologically involved patient	.28	.28
4. Develop a plan of care for a neurologically involved patient	.73	.06
5. Write realistic, age-appropriate measurable goals for a neurologically involved patient	.67	.06
6. Implement the developed treatment plan for a neurologically involved patient	.70	-.04
7. Develop an appropriate home exercise program for a neurologically involved patient	.82	-.08
8. Complete reassessment and discharge summary for a neurologically involved patient	.69	.07
9. Interact with the neurologically involved patients and families in a supportive manner	-.10	.66
10. Practice in a safe and effective manner for the neurologically involved patient	.01	.77
Eigenvalues	4.55	1.18
Percent of Variance	45.54%	11.82%
Cronbach's alpha	.839	.748

Note: Factor loadings over .40 appear in bold

Results: Quantitative Analysis

Factor 1 (items 4-8) represented, evaluation competencies, Cronbach's $\alpha = .839$

- Develop a plan of care
- Write realistic age appropriate measurable goals
- Implement the developed treatment plan
- Develop appropriate HEP
- Complete reassessment and discharge summary

Factor 2 (items 1,2,9, & 10) represented professional behaviors, Cronbach's $\alpha = .748$

- Complete full age appropriate evaluation
- Perform appropriate screen for need for PT
- Interact with neurologically patients and families
- Practice in a safe and effective manner



Results: Quantitative Analysis

Wilcoxon signed-rank test was run to assess the difference between the means of the pretest and posttest total scores.

- On average, students reported more self-perceived confidence in the posttest survey in the evaluation and treatment of the neurologically involved individual ($M = 30.67$, $SE = .52$), than in the pretest survey ($M = 22.77$, $SE = .41$), $T = 7700.5$, $p < .001$, $r = .56$.



Results: Qualitative Analysis

- The pretest questions asked students to comment on their perception of confidence. Three themes emerged:

1. Self-confidence can improve with exposure to neurologically involved clients.
2. Preparation through practice and experience is necessary for self-confidence.
3. Self-confidence increases with guidance through feedback from and observation of experienced clinicians.

- The posttest questions asked students to reflect on their didactic and POINT lab experience to identify strengths and weaknesses in their self-confidence. Three themes emerged:

1. Students value feedback from experienced PTs and peers.
2. POINT labs give students the exposure and preparation they need to improve their confidence.
3. Increased time in POINT labs would further improve self-confidence, as would exposure to a wider variety of patients



Discussion

- PT students at USA expressed decreased self-confidence in the evaluation and treatment of people with neurological conditions prior to POINT labs
- POINT labs facilitated an improvement in students' self-confidence
- PT students linked self-confidence to clinical reasoning
- Reported feedback from instructors helpful
 - Shown to improve practical examination scores ¹⁵



Limitations



- POINT labs are a requirement of their curriculum
- All students were from the same university
- No objective assessment of student participation in POINT labs
- Survey not validated in current research



Conclusion

- Transition to an expert clinician through application of skill and knowledge¹⁶
- Hands-on engagement of POINT labs facilitates using critical thinking
- Introducing clinical experience through experiential learning into the curriculum can be a powerful teaching tool



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Questions

