Pediatric PT Educational Research:
Best Practices in Teaching and Learning

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Disclosure Statement
The speakers have NO relevant financial relationships related to the content or material discussed in this presentation.

Learning Objectives
- Apply newly acquired knowledge from recently published manuscripts on pediatric physical therapy education to current educational practices
- Discuss use of educational research methods to understand and inform the teaching and learning of pediatric physical therapy content in the DPT curriculum
- Compare and contrast published papers and apply the relevant contributions to current teaching/learning situations in classroom, lab and clinic situations
- Contribute ideas to an educational research agenda for pediatric physical therapy

Course Outline
- Teaching and learning in the classroom
  - Best practices in general education
  - Best practices in PT education
- Education(al) Research Agenda in PT Education
- Pediatric PT Education
  - What have we learned
  - Describe past and present
  - Where are we headed now
- Next Steps
  - Using the Essential Core Competencies for teaching and learning

Best Practice in Education:
Application and Implementation in the Classroom

Teaching and Learning Tools
- Long Term Learning
  - Retrieval of information is KEY
    - Teaching tips
      - THUS – short answer questions BETTER than multiple choice for learning
      - Fill in the blank facilitates retrieval of information
      - Student studying – self retrieval
      - Writing down everything a student can remember about Cerebral Palsy
      - Organization of this material

Best Practice in Teaching and Learning (General Education)

**Teaching and Learning Strategies**

- **Spacing**
  - **Teaching Tips**
  - Mass versus Distributed
  - "If one wishes to retain information for a long period of time, the interval of time over which one studies or practices should be moderately long as well."
  - "If the goal is very long-term retention, then previously studied material should be revisited at least a year after the first exposure = COMPREHENSIVE CLINICAL EXAMINATIONS"
  - How are your courses taught?
    - Blocked versus distributed
    - If they are blocked... How can you make them more distributed?


**Interleave vs Block Teaching**

<table>
<thead>
<tr>
<th>Practice</th>
<th>Interleave</th>
<th>Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>0.5</td>
<td>1.5</td>
</tr>
</tbody>
</table>


**Summary: TESTING as a teaching tool**

- Evidence-based teaching and learning strategies
- Frequent testing even self-testing = identifies what learner does and DOES NOT know
- Increase student RETRIEVAL of knowledge when studying NOT just re-reading material
- Spacing of content over longer periods of time
- Various practice opportunities
- Testing enhances learning & slows rate of forgetting
- WHY ISN'T THIS USED?
  - Training errors – in the short term, these strategies lead to increased errors during practice but improved overall test performance at the end

Excellence in PT Education Study

- **Purpose:** Investigate elements of excellence and innovation in academic and clinical physical therapist education
- **Design:** Qualitative, multiple case study design
- **Methods:** 6 academic and 5 clinical programs were selected for the study. Qualitative case studies were generated from review of artifacts, field observations, individual/focus group interviews.
- **Results:** Working conceptual framework
  - Grounded in 3 dimensions
  - 1) Culture of excellence
  - 2) Praxis of learning
  - 3) Organizational structures and resources


Excellence in PT Education - ASPIRATIONAL

- **Conceptual Model**
  - Culture of Excellence
  - Praxis of Learning
  - Organizational Learning & Resources

Developing an Education Research Agenda in PT Education

"The editors of JOPTE and our colleagues contributing to this editorial believe that the quantity and quality of educational research produced in physical therapy is not at the level needed to face the upcoming complexities of higher education and practice."1 (p3)


Recommendations from Study

1. Develop a national shared research agenda
2. Institutional and national training infrastructure (K type awards, grant writing workshops, institutional seed grants, & renewable federally funded investigator initiated grants)
3. Robust data repository, [demographic data about physical therapy education programs, outcomes of physical therapy education, workforce supply and demand data]
4. Fund a center for education research [PODS, CoSTAR]


PEDIATRIC PT EDUCATION: A little background

- Pediatric PT Education – Variability
- Some publications
- Education Summit I
- JOPTE Special Series
- Education Summit II
- What’s next
  - Research agenda – identified project ideas
  - Additional projects, studies and publications

Historical Timeline

1993
1996
2006
2013
2015
2016

Clinical reasoning teaching/remediation strategies

Pediatric Education Summit II

Exemplary learning experiences

Knowledge, skills, abilities across curriculum

Comprehensive across didactic & clinical education

Pediatric Phys Ther Special Edition - defining State of Pediatric education

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Revisit what is, CI & Academic perspectives
Early evidence – Describing “what is” in pediatric PT education

**Pediatric Phys Ther 1993; Focus on Education**

  - Most teaching time spent on normal development versus pediatrics exam & intervention (No DPT yet)
  - 38% of primary pediatrics faculty = adjunct (a large majority were full-time faculty)
  - Philosophy of program dictates stand-alone pediatrics course versus integrated content
  - Variability in how pediatrics is taught - # of hours in lecture/lab, and any exposure to children
  - Limited pediatric clinical experience sites (23% of interested students WERE NOT able to obtain pediatrics clinical)
  - Pediatric clinical experiences only available “later in curriculum”
  - Discussed various types of faculty models (full-time, part-time, adjunct) and relationship to encouraging students to consider pediatric PT
  - Discussed various types of clinical models – integrated (PT), separate (PT), self-contained, independent (Physician) - consider medical model and residency education

Early evidence – A Look Back

  - C-grade of producing adequate PT’s to meet the health needs of society in pediatrics.
  - Questions after reading articles in special issue
    - What is the relationship between # hours in a curriculum and a competent pediatric PT?
    - Is one curricular model more effective than another?

Revisiting “what is” in Pediatric PT Education

  - Variability in how pediatrics is being taught
  - 45% > 90 hours of pediatrics content; 45% < 90 hours
  - Pediatric lab hours: 3 – 148 hours
  - 45% of primary pediatrics faculty = adjunct
  - General/foundational knowledge & skills – “normal development” & common diagnoses
  - PT exam/intervention/standardized tests
  - Interaction with children – both typically developing & those with special needs
  - Academic faculty and CI identify the knowledge, skills, and abilities of DPT students at various points across curriculum
  - Are these K, S, A – developing skills, beginning, intermediate, or advanced

Education Summit I: Developing Competencies

- Competency
  - As defined by ten Cate and Scheele:
    “The ability to do something successfully.”

Domains of Competence

- An area around which a set of skills and a level of competence can be achieved
  - For example, pediatric PT is a domain with Physical Therapy Education
- Core competencies further define the skills and knowledge we believe are necessary for someone to successfully provide pediatric PT
- Learning objectives
  - Specific to a course or learning period
Essential Competencies in Entry-Level Pediatric Physical Therapy Education.

Rapport, Mary; Jane PT, DPT; PhD, FAPTA; Furze, Jennifer; PT, DPT; Martin, Kathy; PT, DHS; Schreiber, Joe; PT, PhD; Dannemiller, Lisa; PT, DSc; DiBiasio, Paula; PT, DPT; Moerchen, Victoria; PT, PhD

DOI: 10.1097/PEP.0000000000000003

Figure 1. Conceptual framework for the development of pediatric essential competencies.

5 Essential Core Competencies

- Human development
- Legislation, policy, and systems
- Health promotion and safety
- Age-appropriate patient/client management
- Family-centered care for all patient/client and family interactions

Followed by

- Application of 5 essential core competencies to clinical education
- Specific examples and application to clinical education
- Learning behaviors and activities at the beginner, intermediate, entry-level
- Identifying importance of experiential learning with children and children with special needs for pediatrics
- Examples of various curricular models integrating experiential learning with children & children with special needs

Example

- Domain of Competence: Pediatric Physical Therapy
- Core Competency: Human development
- Entrustable Professional Activity: Analyze the development of movement skills across the lifespan.
- Milestone: Compare movement patterns during the transition from the floor to standing at various ages/stages.
- Learning Objective: Describe the movement pattern used to transition from the floor into standing typically used at 3 time periods across the lifespan.
Teaching Strategies (some examples)

- Flipped Classroom
- Standardized Patients (and Cases)
- Community Volunteers in Labs
- Students into Community Settings
  - Clinics, homes, schools
- Interprofessional labs/activities
  - IEP, Developmental assessment
- Course models
  - Integrated or Separate

What was still seen as missing?

- Comparative data
- Longitudinal data
- Standardized outcomes
- Moving beyond “the description”

How can we achieve greater understanding?

- Data (evidence) obtained through:
  - Quantitative designs
    - Survey
    - Scores, Tests/Measures
  - Comparative/Contrast, Pre/Post
  - Qualitative designs
    - Open ended questions
    - Interview
    - Reflective narrative
    - Focus Groups

Building an Education Research Agenda

Understanding of Teaching and Learning: Domains of Competence in Physical Therapy Education

Essential Core Competencies in Pediatric PT – Summit I

Collaborative Research Projects – Summit II

- Essential Competencies 
- Person-Based Learning
- Evidence in Pediatric PT Education
Research Agenda

- Built on 3 Collaborative Projects
  - Essential Competencies – Implementation
  - Practice Based Learning
  - Excellence in Pediatric PT Education

5 Essential Core Competencies

- Human development
- Legislation, policy, and systems
- Health, promotion and safety
- Age-appropriate patient/client management
- Family-centered care for all patient/client and family interactions

Active Learning - Your Turn

- Identify one of essential core competencies to improve/expand in your course (previous slide)
- Determine the specific components of THIS competency and discuss the teaching and learning strategies you could utilize
- Discuss how you could use quizzes (both as formative and summative assessments) and tests as a study tool and to improve learning retention

Think-pair-share

Discuss above questions with a partner

Summary

- Strategies for teaching and learning
- Assessment of the learner
- Assessment of the teacher/teaching
- Use of competencies as a framework for knowledge acquisition
- Based on domains of competence
- Measured by performance

Summary continued

- Educational Research designs
- Collaborative Projects
- Research Agenda
- Framing Next Steps

- ULTIMATE GOAL: Excellence in Pediatric PT Education in the Classroom and Clinic
References


Questions and Discussion

References


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