May 8th, 12:30 PM - 2:00 PM

Learning & Practice Sessions: Contributing to a Strong Academic Foundation for Undergraduate CSD Students

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LEARNING & PRACTICE (L&P) SESSIONS: CONTRIBUTING TO A STRONG ACADEMIC FOUNDATION FOR UNDERGRADUATE CSD STUDENTS

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PSU Student Research Symposium
May 8, 2013
**TERMS**

CSD = Communication Sciences and Disorders & 

SPHR = Speech and Hearing Sciences

undergrad/post-bacc pre-reqs for clinical master’s in . . .

SLP = speech-language pathology
Education & Training Leading to Clinical Practice as an SLP

- Foundational UG/PB courses
  e.g.: Anatomy & Physiology, Neurology, Phonetics & Acoustics, Basic Audiology...

- 2-year clinical master’s (includes clinical practica)

- Clinical fellowship year, then CCCs

- Speech-language pathologist
# SLP Scope of Practice

**ASHA (2007) [www.asha.org/policy](http://www.asha.org/policy)**

<table>
<thead>
<tr>
<th>Speech</th>
<th>Language (comprehension &amp; expression)</th>
<th>Cognition</th>
<th>Feeding &amp; swallowing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulation</td>
<td>Phonology</td>
<td>Attention</td>
<td>Oral</td>
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<tr>
<td>Voice</td>
<td>Morphology</td>
<td>Memory</td>
<td>Pharyngeal</td>
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<tr>
<td>Resonance</td>
<td>Syntax</td>
<td>Executive functions</td>
<td>Laryngeal</td>
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<tr>
<td>Fluency</td>
<td>Semantics</td>
<td>Problem solving</td>
<td>Esophageal</td>
</tr>
<tr>
<td>Apraxia</td>
<td>Pragmatics</td>
<td>Sequencing</td>
<td>Orofacial myology</td>
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<tr>
<td>Dysartrhia</td>
<td>Literacy</td>
<td></td>
<td>Oral motor function</td>
</tr>
<tr>
<td>Ataxia</td>
<td>Pre- and para-linguistic</td>
<td></td>
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</tbody>
</table>
PATIENT / CLIENT SCENARIOS

- Elderly man who suffered a stroke - lost language ability and ability to eat and swallow safely
- Teenage girl - traumatic brain injury - significant cognitive and memory deficits
- Premature infant in the NICU who needs to learn how to feed safely
- Cochlear implant recipient learning to interpret sound, communicate orally
- A child with language impairment that significantly interferes with learning
- A mid-level professional whose stuttering is limiting his career advancement
- A child who is not achieving literacy goals like others in her class
- A child with autism who needs to improve classroom and social skills
- Middle aged woman with head and neck cancer who is learning to speak through an electrolarynx after her larynx was removed.
Issue

- SLP Scope of Practice is ever-expanding

BUT . . .

- Clinical education remains a 2-year master’s degree
A major issue . . . is how to prepare professionals to meet the ever-expanding scope of practice with more diverse and complicated clients . . .” (Lubinski & Golper, 2007).
What can be done to adequately prepare students for the expanding breadth and depth of required knowledge & skills?
Strengthen long-term learning of critical foundational concepts at the undergraduate level

Why??

Science-based courses - many students without background

UG concepts apply directly to clinical practice
  - (structure, function, typical/atypical development, assessment, intervention...)

Allow instructors to make the most of the 2 year master’s
  - Quicker grasp of in-depth graduate courses
  - No time to review the basics!
STRENGTHEN LONG-TERM LEARNING OF CRITICAL FOUNDATIONAL CONCEPTS

HOW??

Distributed practice for long-term learning

- **Meta-analysis**: “More than 100 years of distributed practice research have demonstrated that learning is powerfully affected by the temporal distribution of study time” (Cepeda, Pashler, Vul, Wixted, & Rohrer, 2006).

- **Literature review**: “Past and ongoing data provide consistent implications for education... spacing study is the optimal strategy” (Son & Simon, 2012).

Active retrieval for long-term learning

- “Actively attempting to retrieve and reconstruct one’s knowledge is a simple yet powerful way to enhance long-term, meaningful learning” (Karpicke, 2012).

  - Experiment by Karpicke (2012) found these effects on long-term retention:
    - Reading text once = 15% retention
    - Reading & practicing retrieval once = 34% retention
    - Practicing repeated retrieval = 80% retention!
ENHANCING LONG-TERM LEARNING FOR SPHR UG/PB STUDENTS

- Learning & Practice (L&P) Sessions
  - Weekly, 60 – 90 minutes
  - Small group (ave. 4 – 20 participants)
  - Peer-facilitated

- Objectives:
  - Review week’s content (*distributed practice*)
  - Practice challenging concepts (*distributed practice*)
  - Ask questions, ‘quiz’ for retention (*active retrieval*)
  - Examine anatomical models (*distributed practice*/*active retrieval*)
  - Self-assess own learning (*active retrieval*)
  - Share study/learning strategies
LEARNING & PRACTICE (L&P) SESSIONS - BACKGROUND

Since Spring term, 2012:
- Spr ‘12 – Anatomy & Physiology, Erin Robling
- Fall ‘12 – Anatomy & Physiology, Erin Robling
- Winter ’13 – Neurology, Shawn Kelly
- Spr ‘13 – Anatomy & Physiology, Aaron Park
- Next??: Phonetics & Acoustics, Basic Audiology

Why these courses?
- Critical foundational concepts necessary for grad school and future clinical practice
Learning & Practice (L&P) Sessions - Background

- **Session facilitators**
  - How selected?
    - UG Jr/Sr or PB
    - Instructor-recommended
    - Completed course at top 5 – 10% of class
    - Experience in teaching, tutoring, mentoring, etc
  
  - How supported?
    - Orientation
    - Weekly post-session email exchanges
    - Periodic check-in meetings
    - Instructional Google site
    - End of term feedback from participating students and instructor
HOW ARE THE LEARNING & PRACTICE (L&P) SESSIONS UNIQUE?

- Led by UG/PB PEERS (*not* graduate TA or course instructor)
  - Not many grad TA positions

- Advantages??
  - Low pressure, collaborative environment (*not* lecture)
  - Varied perspectives shared
  - Cost-effective for department (i.e. FREE)
  - **Benefits** to peer facilitators
Learning & Practice (L&P) Sessions - Outcome Measures

- Measured perceived outcomes by collecting online survey data from:
  - Participating students
  - Participating instructors
  - Peer facilitators
LEARNING & PRACTICE (L&P) SESSIONS - OUTCOME MEASURES

Participating student respondents

\[ N = 32, \ 50\% \ response \ rate \]
PARTICIPATING STUDENT DEMOGRAPHICS

Class standing of respondents

- UG sophomore (1)
- UG junior (5)
- UG senior (1)
- PB (post-bacc) (9)
Respondent relationship with the course material?

- 69%: I've been generally comfortable with it (11)
- 19%: I've been comfortable with it some weeks and found it difficult other weeks (3)
- 12%: I've often found it difficult (2)

**Participating Student Demographics (con’t)**
PARTICIPATING STUDENTS – PERCEIVED IMPACT

- Academic performance in course: 94%
- Confidence about coursework: 88%
- Motivation for the course: 81%
- Success in the course: 94%

Legend:
- Blue: Positive impact
- Orange: Very positive impact
- Red: Neutral/no impact
Participating Students – perceived impact (con’t)

- Satisfaction with academic program: 81%
- Sense of support from academic program: 88%
- Sense of community with other students: 81%

Categories:
- Very positive impact
- Positive impact
- Neutral/no impact
- Negative impact
**Participating Students – Perceived Impact (Con’t)**

How likely would you be to recommend the L&P Sessions to a friend/classmate?

- **63%** Strongly recommend (10)
- **31%** Recommend (5)
- **6%** Neutral (1)
- **94%**
LEARNING & PRACTICE (L&P) SESSIONS - OUTCOME MEASURES

Participating instructor respondents

$N = 4$, 75% response rate
INSTRUCTORS - PERCEIVED IMPACT/BENEFITS

- **Time commitment** (goal → not a burden)
  - Prior to first session: 0 – 2 hours
  - On a weekly basis: 0 – 1 hour, or “saved me time . . .”

- Did you feel adequately **informed**?
  - 100% were satisfied with communication (quality and frequency)

- **100%** of instructors perceived that participating students had:
  - Better understanding of course material
  - Fewer questions outside of class

- **100%** would recommend (1) or strongly recommend (2) to a fellow instructor
Peer facilitator respondents

\[ N = 3, \ 100\% \text{ response rate} \]
**Peer Facilitators – Perceived Impact/Benefits**

- **Time commitment**
  - 2 – 4 hours/week (prep, facilitation, communication)

- **100% of Facilitators reported these benefits gained:**
  - Greater *proficiency* with the course material
  - *Relationship building* with faculty
  - Enhanced *leadership* skills
  - Enhanced *public speaking* skills
  - Improved ability to explain *difficult concepts*
  - Valuable to list on grad school *applications*
  - Valuable experience for future *teaching* goals (PhD)

- **100% would strongly recommend** facilitating to another student
Learning & Practice Sessions seem to:

- Be perceived as having a positive/very positive impact for participating students

- Are recommended/strongly recommended by students, instructors, and facilitators

- Increase distributed practice & active retrieval
  - Potential for strengthening long-term learning of critical foundational concepts
**Study Limitations**

- Low *attendance* rates (+/- 10-15% of class??)

- Small *sample sizes* and 50% response rate (students)

- *Perceived vs. actual* benefits for students
  - Self report – subjective
  - Different instructors for same course – confounding variable against extrapolating long-term trends

- 2/3rds of students reported not having difficulty with course material
  - How to encourage struggling students to attend?
IMPLICATIONS / NEXT STEPS

- Continue to **add** foundational SPHR **courses**
  - Phonetics & Acoustics
  - Basic Audiology / Hearing Sciences

- **Improve attendance**, especially struggling students

- **Model** for other SPHR/CSD programs

- Encourage **dialogue** – other ways to enhance long-term learning for UG/PB CSD students??
THANK YOU FOR YOUR ENGAGEMENT!

- Questions?

- Comments?

- Suggestions?
REFERENCES


