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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**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

- Speech-language pathologist
- Clinical fellowship year, then CCCs
- 2-year clinical master’s (includes clinical practica)
- Foundational UG/PB courses
  e.g.: Anatomy & Physiology, Neurology, Phonetics & Acoustics, Basic Audiology...
## 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>
</tr>
<tr>
<td>Voice</td>
<td>Morphology</td>
<td>Memory</td>
<td>Pharyngeal</td>
</tr>
<tr>
<td>Resonance</td>
<td>Syntax</td>
<td>Executive functions</td>
<td>Laryngeal</td>
</tr>
<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>
</tr>
<tr>
<td>Dysarthria</td>
<td>Literacy</td>
<td></td>
<td>Oral motor function</td>
</tr>
<tr>
<td>Ataxia</td>
<td>Pre- and para-linguistic</td>
<td></td>
<td></td>
</tr>
</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).
QUESTION

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)

56%
31%
6%
7%
Respondent relationship with the course material?

- I've been generally comfortable with it (11)
- I've been comfortable with it some weeks and found it difficult other weeks (3)
- I've often found it difficult (2)
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
- Brown: Neutral/no impact
**Participating Students – perceived impact (con’t)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Very positive impact</th>
<th>Positive impact</th>
<th>Neutral/no impact</th>
<th>Negative impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with academic program</td>
<td>81%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sense of support from academic program</td>
<td>88%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sense of community with other students</td>
<td>81%</td>
<td></td>
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</tr>
</tbody>
</table>
How likely would you be to recommend the L&P Sessions to a friend/classmate?

- Strongly recommend (10)
- Recommend (5)
- Neutral (1)
Participating instructor respondents

\[ N = 4, \ 75\% \ \text{response rate} \]
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
LEARNING & PRACTICE (L&P) SESSIONS - OUTCOME MEASURES

Peer facilitator respondents

$N = 3$, 100% 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