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

Erin E. Robling  
*Portland State University*

Susan Ginley  
*Portland State University*

Rik Lemoncello  
*Pacific University*

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

Erin E. Robling, BA
Co-creator, Facilitator, & Coordinator, Learning & Practice Session Project
Post-baccalaureate, Speech & Hearing Sciences
Portland State University

Susan Ginley, MA, CCC-SLP
Faculty Mentor, Speech & Hearing Sciences, Portland State University

Rik Lemoncello, PhD, CCC-SLP
Co-creator of Learning & Practice Session Project, Pacific University (previous PSU faculty)

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
## Speech Language Pathology Scope of Practice

**ASHA (2007) [WWW.ASHA.ORG/POLICY](http://WWW.ASHA.ORG/POLICY)**

<table>
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<tr>
<th>Speech</th>
<th>Language (comprehension &amp; expression)</th>
<th>Cognition</th>
<th>Feeding &amp; swallowing</th>
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<tbody>
<tr>
<td>Articulation</td>
<td>Phonology</td>
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<tr>
<td>Voice</td>
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<td>Dysarthria</td>
<td>Literacy</td>
<td></td>
<td>Oral motor function</td>
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<tr>
<td>Ataxia</td>
<td>Pre- and para-linguistic</td>
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</tbody>
</table>

**Domain Definitions:**
- **Speech:** Articulation, Voice, Resonance, Fluency, Apraxia, Dysarthria, Ataxia
- **Language:** Phonology, Morphology, Syntax, Semantics, Pragmatics, Literacy, Pre- and para-linguistic
- **Cognition:** Attention, Memory, Executive functions, Problem solving, Sequencing
- **Feeding & Swallowing:** Oral, Pharyngeal, Laryngeal, Esophageal, Orofacial myology, Oral motor function
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?

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

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%

- Positive impact
- Very positive impact
- 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%

- **Very positive impact**
- **Positive impact**
- **Neutral/no impact**
- **Negative impact**
How likely would you be to recommend the L&P Sessions to a friend/classmate?

- **Strongly recommend** (10)
- **Recommend** (5)
- **Neutral** (1)

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

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
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?


