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

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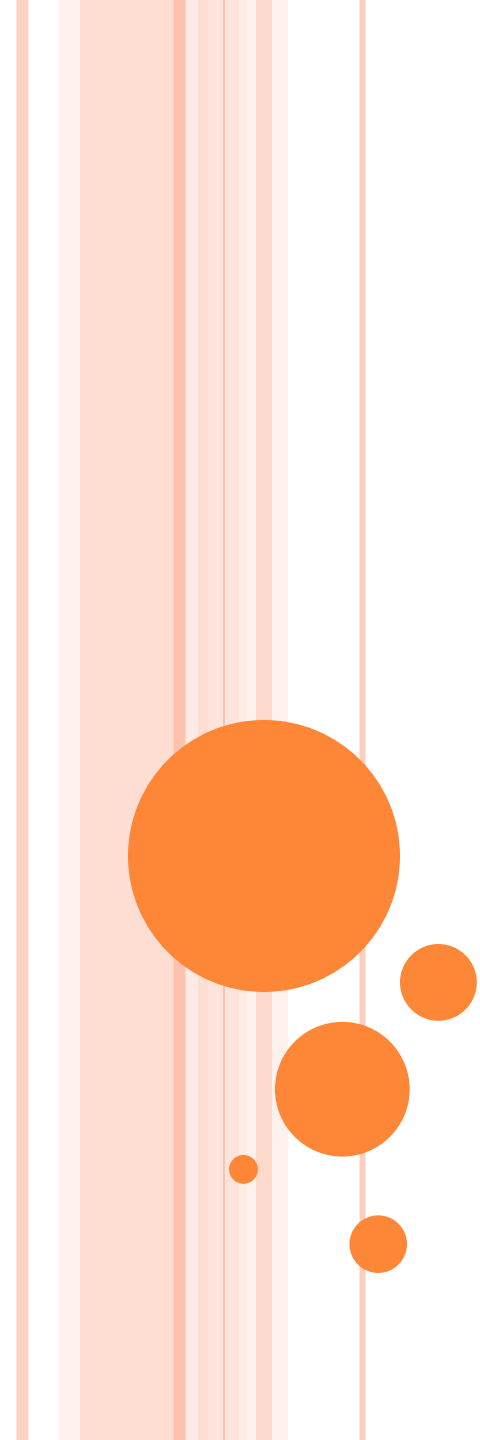
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# **LEARNING & PRACTICE (L&P) SESSIONS: CONTRIBUTING TO A STRONG ACADEMIC FOUNDATION FOR UNDERGRADUATE CSD STUDENTS**

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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

**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)

<b>Speech</b>	<b>Language (comprehension &amp; expression)</b>	<b>Cognition</b>	<b>Feeding &amp; swallowing</b>
Articulation	Phonology	Attention	Oral
Voice	Morphology	Memory	Pharyngeal
Resonance	Syntax	Executive functions	Laryngeal
Fluency	Semantics	Problem solving	Esophageal
Apraxia	Pragmatics	Sequencing	Orofacial myology
Dysarthria	Literacy		Oral motor function
Ataxia	Pre- and para- linguistic		

# 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



# ISSUE

- **“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?**



# OPTION

- **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

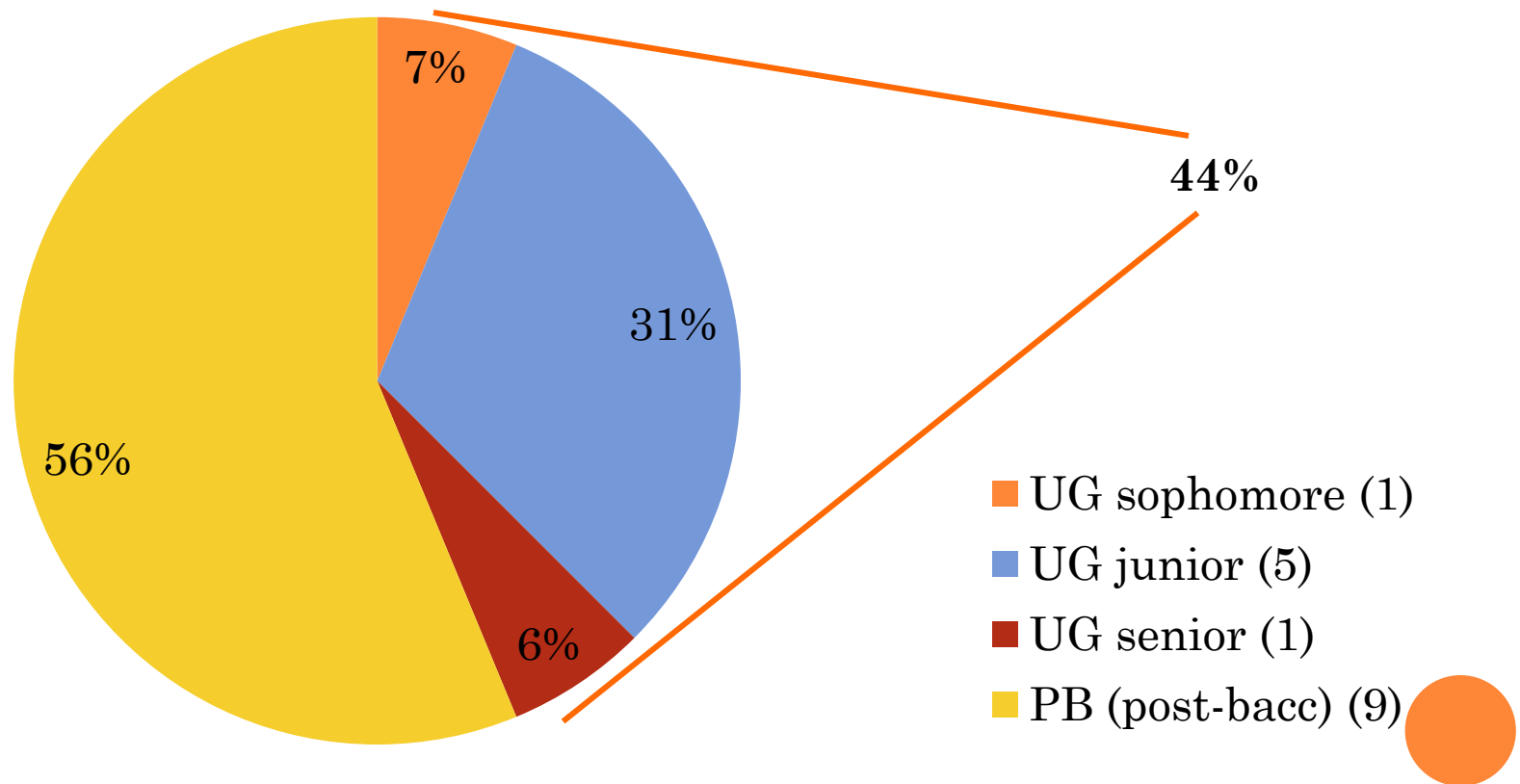
Participating **student** respondents

$N = 32$ , 50% response rate



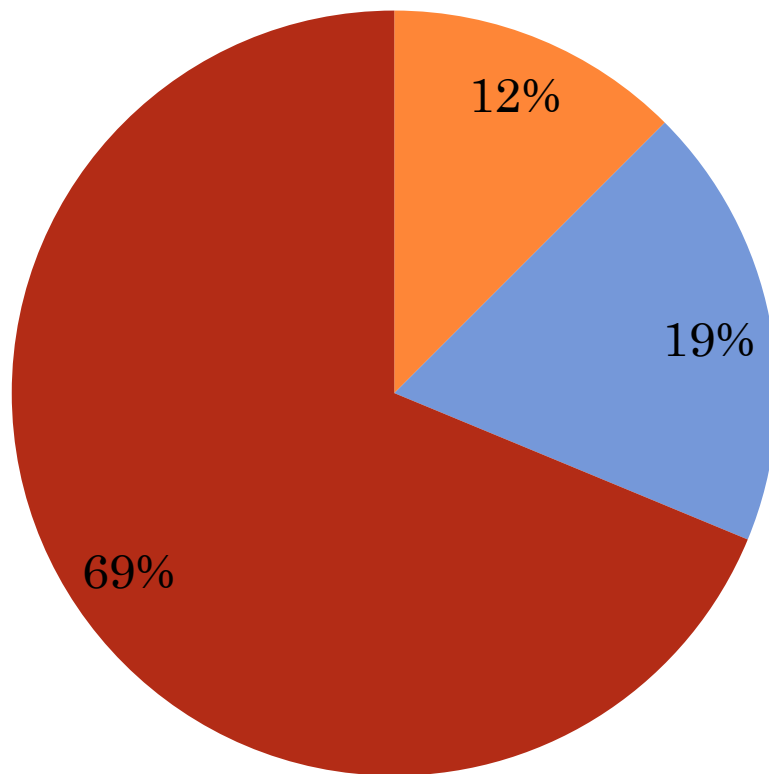
# PARTICIPATING STUDENT DEMOGRAPHICS

## Class standing of respondents



# PARTICIPATING STUDENT DEMOGRAPHICS (CON'T)

## Respondent relationship with the course material?



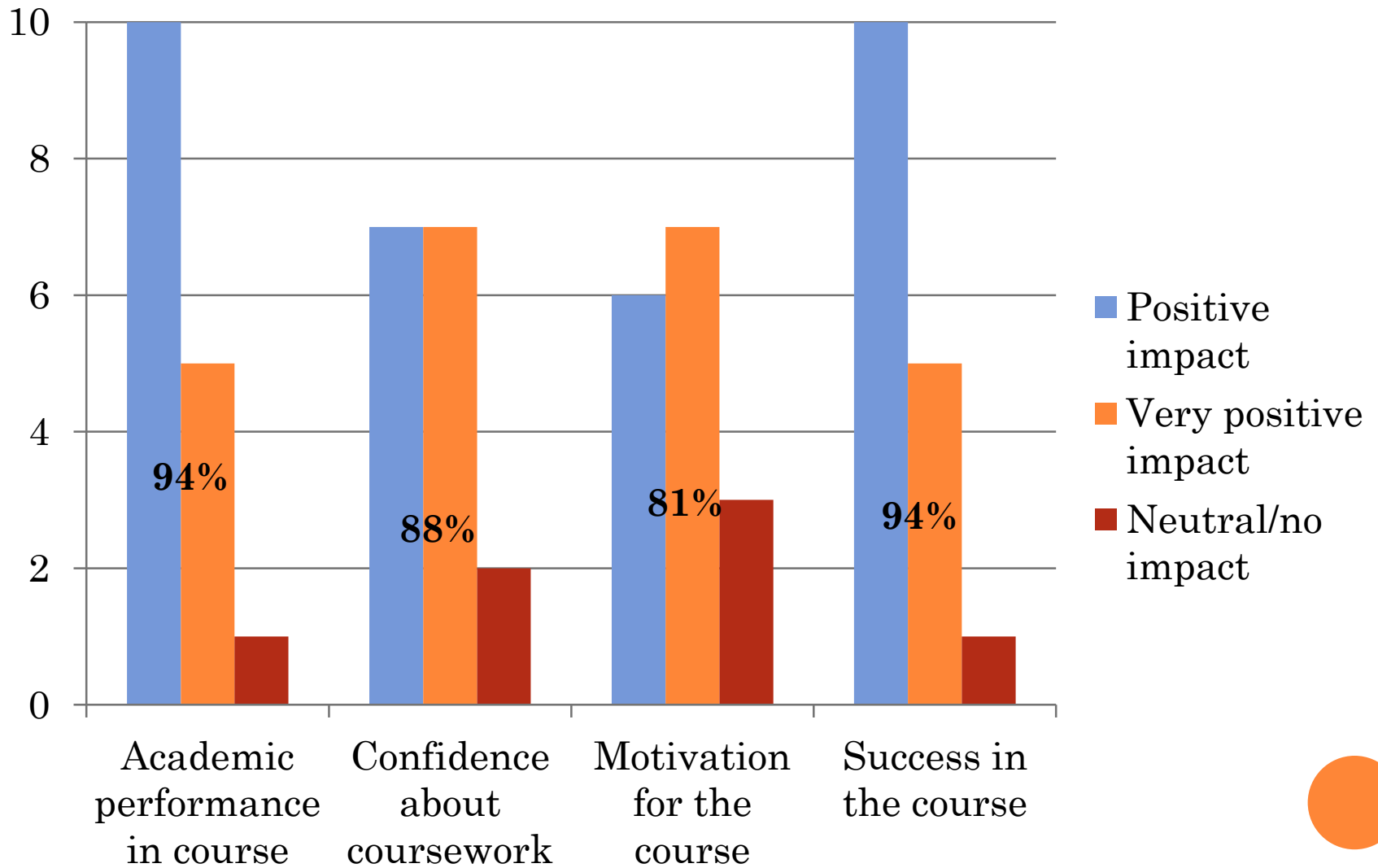
■ I've often found it difficult (2)

■ I've been comfortable with it some weeks and found it difficult other weeks (3)

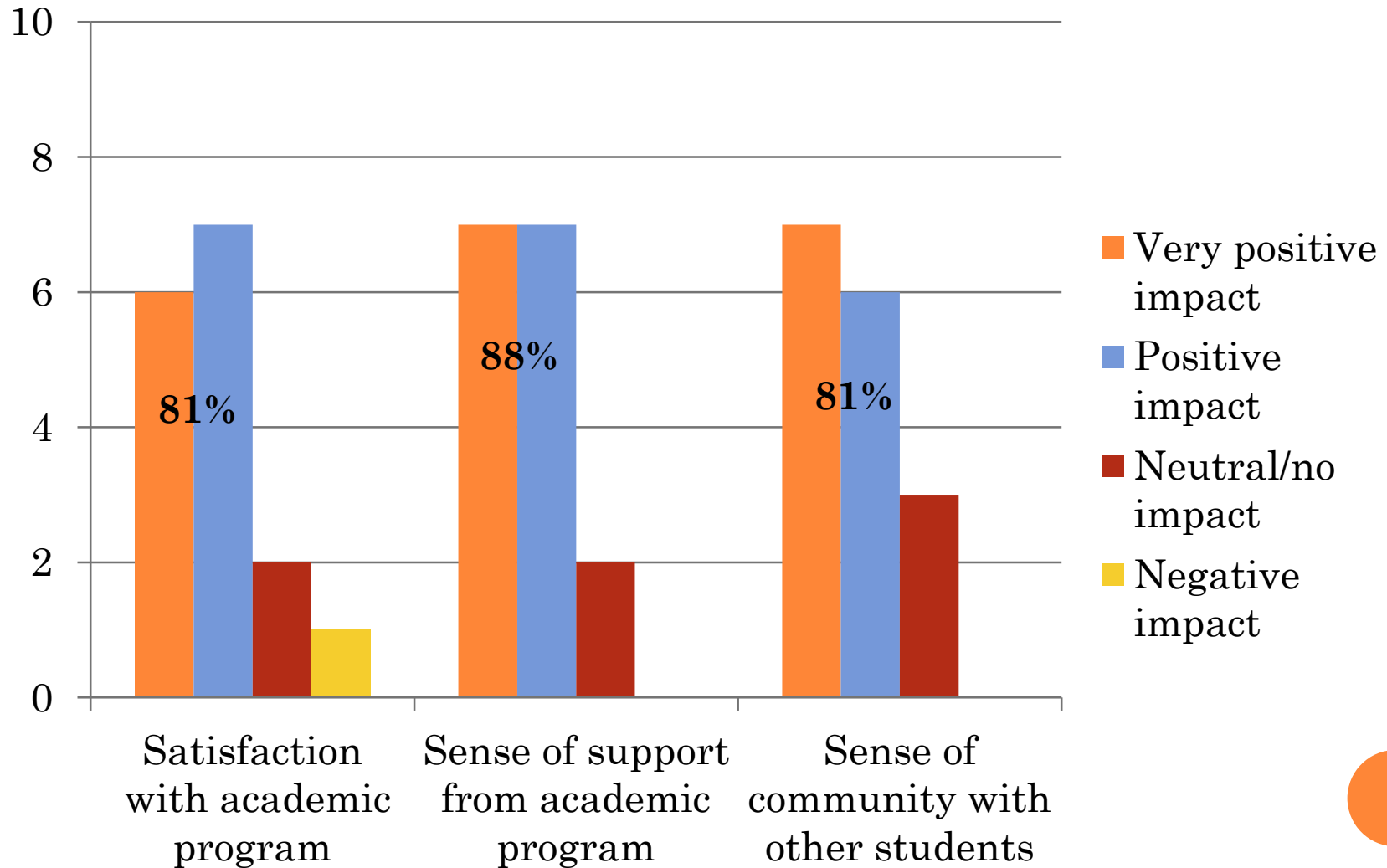
■ I've been generally comfortable with it (11)



# PARTICIPATING STUDENTS – PERCEIVED IMPACT

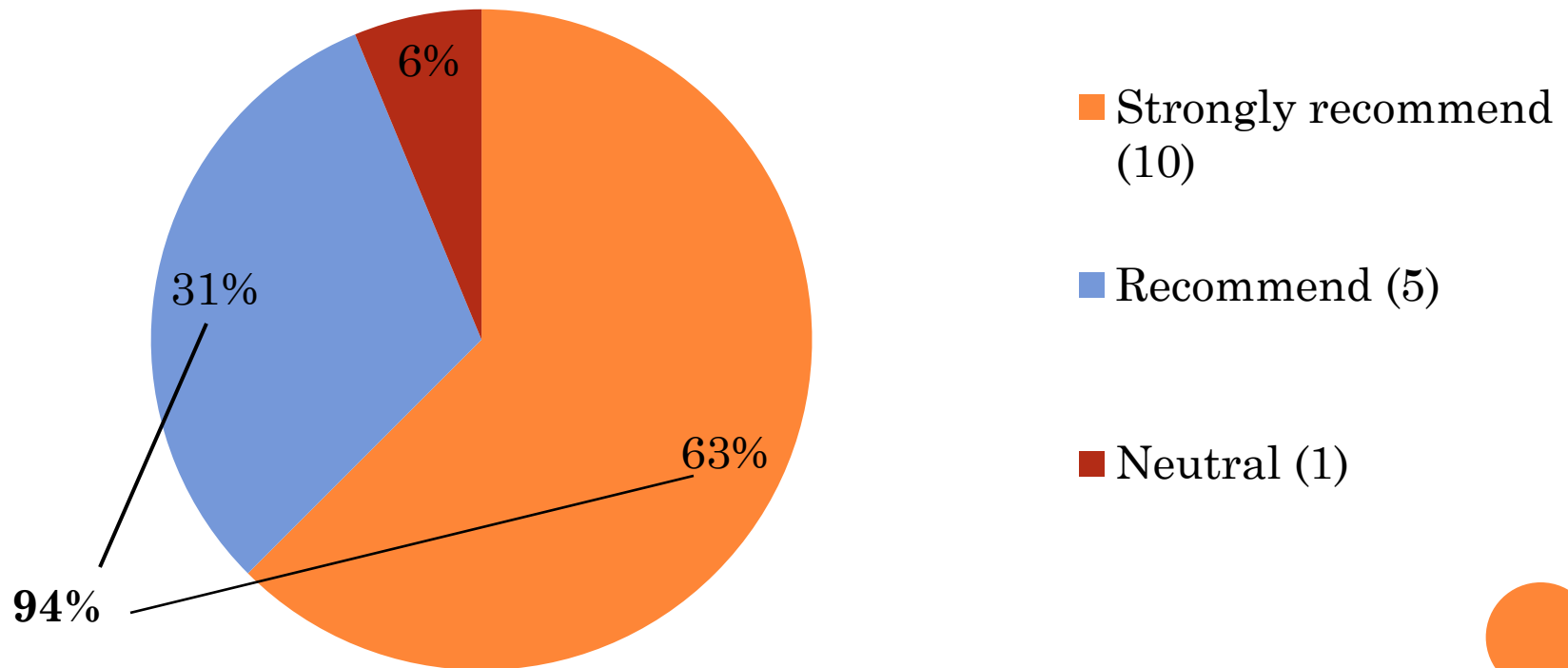


# PARTICIPATING STUDENTS – PERCEIVED IMPACT (CON'T)



# PARTICIPATING STUDENTS – PERCEIVED IMPACT (CON'T)

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



# 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





# 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



# OUTCOME MEASUREMENTS – CONCLUSIONS

- **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?



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