



UNIVERSITY OF
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SANFORD SCHOOL OF MEDICINE

Center for Disabilities

Comparing Phonological Learning in Musical and Spoken Context

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Acknowledgments

This project is completed in partial fulfillment of the requirements for the South Dakota Leadership Education Excellence in Caring for Children with Neurodevelopmental and Related Disorders (LEND) – a one year interdisciplinary training program that prepares trainees to serve children with disabilities and their families through clinical services, research, advocacy, and public policy efforts.

Background



Music can enhance phonological awareness such as rhyming, segmenting, and blending; it is comparable to the effects of a phonological skills program on phonological awareness.

(Avari, Trainor, Woodside, & Levy 2002)

Purposes/Questions

Part 1:

Purpose: To determine if employing traditional therapy techniques in a musical context would result in improved speech sound productions.

Question: Does employing traditional therapy techniques in a musical context result in improved speech sound productions?

Part 2:

Purpose: To compare phonological learning in musical and spoken context.

Question: Does phonological learning in a musical context result in higher performance and retention rates than in a spoken context?

Methods (Part 1)

Part I: Therapy in a musical context

Participant: Male, 4 years, 4 months

- Typical hearing
- The GFTA-2 and language sample identified phonemes /l/ and /θ/ as the most frequent errors in his speech; accuracy in conversation and in single words was 0%.
- The client was stimulable for /l/ and /θ/.



Methods (Part 1)

Part I: Therapy in a musical context

Procedures:

1. **Opening songs** (e.g. If You're Happy and you know it, Wheels on the bus, etc.)

2. **Introduction, instruction, modeling, reinforcement of target sounds and words**

- /l/: Lamb, Lion, Lollipop, Green Lantern, Lake, Little
- /θ/: Thor, Thumper, Thumb, Thirsty, Thanks, Thief

3. **Singing the target sound**

4. **Singing the target word**

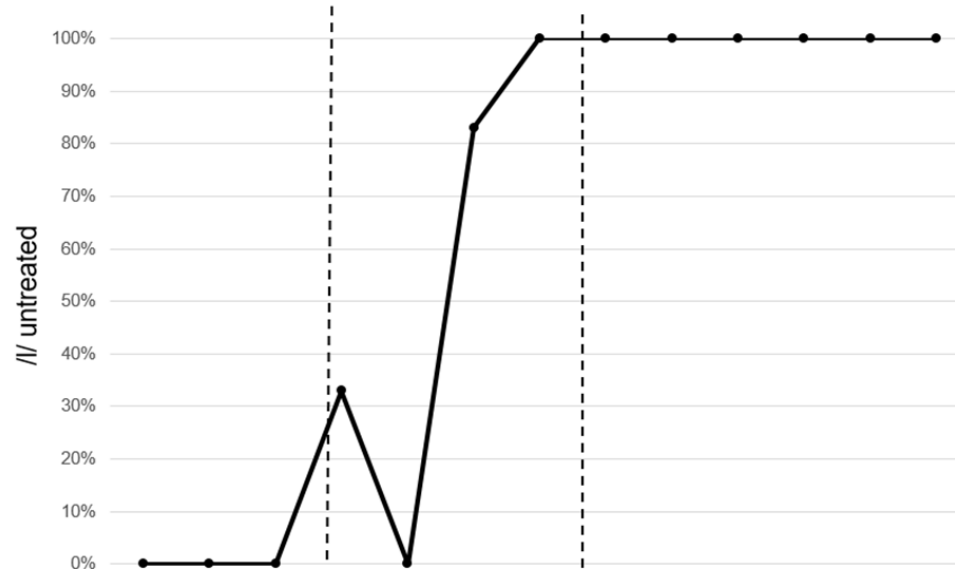
Songs:

1. *Do you know the Muffin Man?*
2. *Mary had a Little Lamb*
3. *Where is Thumbkin?*
4. *The Hokey Pokey*
5. *The Bear went over the Mountain*

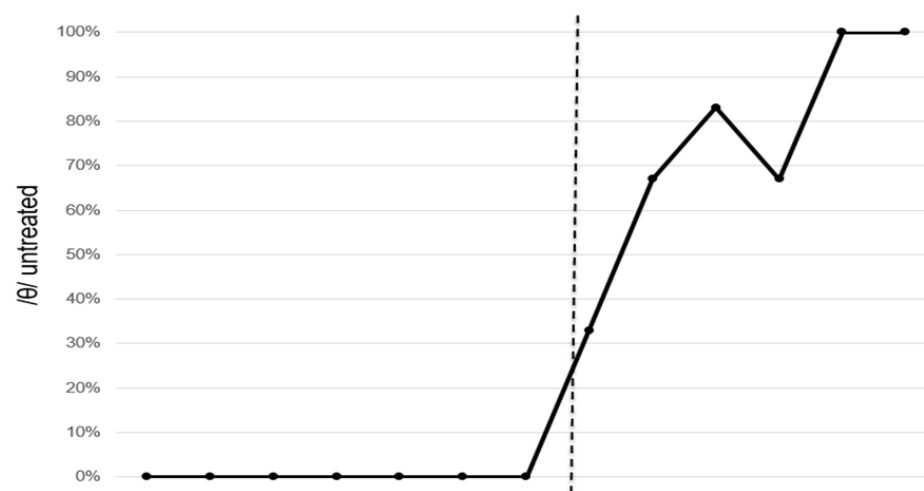


Results (Part 1)

Production Accuracy in single // words



Production Accuracy in single /θ/ words



Methods (Part 2)

Comparing phonological learning in musical and spoken context:

Participants:

- 31 college students
- Typical hearing; functional vision
- No experience/exposure to Polynesian languages
- Questionnaire regarding musical experiences

Procedures:

Learning colors and numbers in the Hawaiian language

- Randomly assigned to 1 of 2 learning conditions:
 1. Colors in Spoken context and Numbers in Musical contextOR
 2. Colors in Musical context and Numbers in Spoken context

* Watch video and test (5x); retest at return appointment



Results (Part 2)

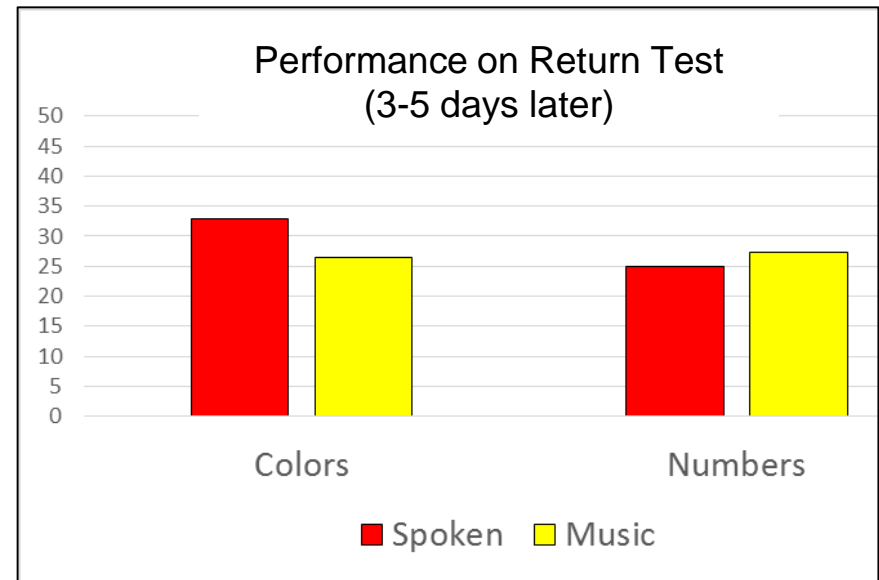
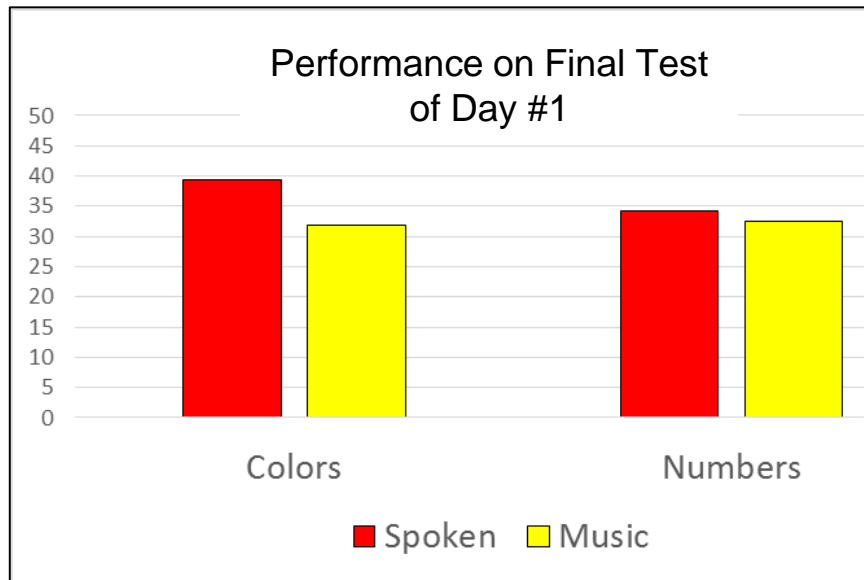
The LARGE majority (90%) of participants preferred learning in a musical context rather than in a spoken context.

But...

The participants on average, performed better in the SPOKEN context than in the musical context.

Interestingly, however...

The participants performed better in the MUSICAL context on the RETURN TEST for numbers.



Limitations

Part 1: Therapy in musical context

- Single individual
- Interest in music may vary
- Further research is necessary

Part 2: Phonological learning in Music/Spoken

- Early stages of research
 - Limited number of participants
 - Further research is necessary
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Future Directions

Part 1: Therapy in musical context

- Small group settings/classroom settings
- Target other speech sounds
- Children with Autism

Part 2: Phonological learning in Music/Spoken

- Initial learning versus long-term learning
 - Impact of instruction/feedback in musical context
 - Children vs. Adults; compare populations
 - MRI scans during phonological learning
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