

Project Description

Music has long been acknowledged for its universality, power, and influence. For example, in pre-literate civilizations, music was considered magical and was used to diagnose and treat illnesses (Davis, Gfeller & Thaut, 2008). Plato even referred to music as medicine for the soul (Davis et al., 2008). More recently, there is a growing body of empirical research addressing the association of music with physical and mental well-being, preference, and skill acquisition with a wide variety of individuals and age ranges, including young children with and without typical development. Hedon and Bohon (2008), determined that children who were hospitalized for trauma showed significantly better mood improvements during music therapy sessions than during play therapy sessions. Trainor and Heinmiller (2008) concluded that infants with typical development preferred ‘consonant’ music (music that is typically pleasing to the ear) to ‘dissonant’ music (music that is typically displeasing to the ear), indicating that even at the very beginning of life children have an awareness of music and some capacity for preference. In terms of skill acquisition, Kim, Wigram, and Gold (2008) found that improvisational music therapy facilitated joint attention for preschool-aged children with autism.

Music and language share similar features and learning language may be closely tied to musical attributes. Both music and language facilitate social closeness and bonding, and rely on prosody for expression (Sallat & Jentschke, 2015). Prosodic cues include patterns of rhythm, stress and intonation. In early language development children use those cues to identify phonemic and morphological patterns, syntactic structure, and pragmatic rules, all which aid in language acquisition. Brandt, Gebrian & Slevc argue that “without the ability to hear musically, we would be unable to learn language” (2012, p. 5). Speech-language pathologists (SLPs) studying early language development and assessing and treating language deficits would benefit from having a greater understanding of the role of music in language development and its use to improve children’s overall communication skills.

Effective speech-language pathologists (SLPs) must be mindful of the consistent application of evidence-based decision making in assessment and treatment (ASHA, 2005) in order to ensure use of best practice procedures with clients. Early intervention SLPs often utilize play as a means to observe and assess children’s communication skills because both play and language develop interdependently and involve the representational use of objects (Owens, 2012). Play provides the opportunity for young children to practice and form symbolic relationships to be used in language. Given the connections between music and language as well as language and play, the relatively unexplored use of music in early speech-language intervention indicates an area for empirical exploration. Evidence regarding the use of music in assessment and treatment may lead to new assessment and treatment practices for the field.

The current study aims to add to the empirical body of knowledge regarding the potential use of music in a therapeutic setting for SLPs. Specifically, the studies purpose is to address the association of music type with observed language and play skills of young children at a critical developmental phase for both of these important skill sets. By age two, most children with typical development experience a burst in vocabulary growth along with an increase in multi-word utterances and transition from simple play behaviors like exploration of toys to more complex pretend play schemes. The following research questions will be addressed:

1. Is there an association between type of music (upbeat, major and mostly consonant music versus subdued, minor and mostly dissonant music) for two-year-olds with typical language development on communicative behaviors observed during a 20-minute play-based communication sample?
2. Is there an association between type of music (upbeat, major and mostly consonant music versus subdued, minor and mostly dissonant music) for two-year-olds with typical language development on type of play skills observed during a 20-minute play sample?

Activities/Methodology

Participants. Participants will include three children with typical language development between the ages of 24 to 36 months. Potential participants will be recruited from educational institutions in the

Omaha-metro area. All data collection will be conducted in the University of Nebraska at Omaha Speech-Language-Hearing Clinic (UNO SLHC) located in 512 Roskens Hall and video-recorded.

Procedures. Participants will attend two hour-long data collection sessions. The first will involve language screening to identify children who meet inclusionary criteria. The second will include three 20-minute play conditions during which communication and plays skills will be observed.

Language screening. The use of two screening measures will determine whether a potential participant has typically developing language: The *Preschool Language Scale-5th edition* (PLS-5), a standard measure for early language development (Zimmerman, Steiner & Pond, 2011), and the *Language Development Survey* (LDS), a parent checklist of a child’s expressive vocabulary (Rescorla, 1989). Scores at or above the 15th percentile on the LDS and a total language standard score of 85 or higher on the PLS-5 will be used to identify children who are developing language typically.

Play/Communication sample. After the screening measures are completed, three 20-minute play sessions will be collected and video recorded from each child participant as they interact with a parent and toys of high interest to two-year-olds (e.g, farm, grocery toys). The play conditions are as follows: no background music, upbeat music in a major key (consonant condition), and subdued music in a minor key (dissonant condition). Aside from the presence or lack of music all other condition variables will remain constant and conditions will be counterbalanced for order across participants.

Analysis. The proposed project is a small n exploratory study and, as such, results will be best displayed through visual representation of descriptive indicators. Study findings will have limited generalization, but will provide information regarding if further investigation is warranted. An inventory of the amount and type of words used by each participant (total number of words, type-token ratio) for each play condition will be calculated. In addition, the *Play in Early Childhood Evaluation System* (PIECES) developmental scale (Kelly-Vance & Ryalls, 2005, 2008) will be used to code play behaviors observed. Results will be compared between each child’s communication and play behaviors under each play condition and will be displayed in a poster presentation depicting descriptive statistics of the participants.

Project timeline

Semester	Month	Tasks
Spring 2017	March - May	Complete IRB application, recruit participants, order materials
Summer 2017	May - August	Collect data, begin data analysis
Fall 2017	August - December	Continue data analysis, plot visual analysis displays for student poster presentation at UNO research fair
Spring 2018	December - March	Apply to disseminate findings to professionals in the field by applying to present at professional conferences (e.g., state, national conventions).

Student/Faculty Mentor Roles

I will complete the IRB application, recruit participants, and collect and analyze data with Dr. DeVeney closely supervising. Dr. DeVeney will be available for guidance through the process, and will provide advice on procedures and protocols for the project as well as complete a reliability check on analyses used.

Budget Justification

External hard drive for data collection and preservation	\$55
External speaker for music production during sessions (Creative Muvo Mini)	\$60
Music recordings for play conditions	\$30
Operational costs	\$150
Participation stipends/gift cards (\$40/participant x 5 potential participants)	\$200
Student Stipend	\$2000

Total: \$2,495

Dr. DeVeney's Toddler Communication Lab already has video recording equipment I can use to record participants play sessions, the language assessment materials, and age-appropriate toddler toy sets.

I am asking for \$55 to purchase an external hard drive so that I have a way to preserve my data through the analysis portion of the study.

During the sessions, I will need a speaker to play the music recordings for the two music conditions. I am asking for \$60 to purchase an external speaker with adequate dynamic range. The music recordings for each music condition will be purchased for \$15.00 each, so I am requesting a total of \$30.00 for them.

I am asking for \$150 for operational costs that may be incurred as part of completing the project (e.g, assessment tool protocols, paper, printing, folders, labels, etc.).

To compensate the participants for their time, I will offer families a \$20.00 Target gift card for each of the two sessions they participate in. Participants do not need to complete the entire study to receive reimbursement for their time. I am estimating five potential participants in order to find three participants who meet inclusionary criteria for the study.

I am asking for a student stipend of \$2,000 which will help cover basic living costs as I focus on completing the proposed research project. The project will require a minimum of 200 hours, so a stipend will allow me to allocate the time needed to complete it to my highest possible standards.

References

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COLLEGE OF
EDUCATION
Department of Special Education
and Communication Disorders

February 7, 2017

Dear FUSE Grant Selection Committee:

It is a pleasure to support Diana Arp's FUSE Grant application. I first got to know Diana when she volunteered as a research assistant for my Toddler Communication Lab this past spring (2016). She provided support for several projects – both student- and faculty-led - and throughout her involvement, consistently demonstrated her dedication and passion for not only the field of speech-language pathology, but also the research process. Diana approached me last fall about her idea for combining her background in music therapy with her current field of study and I am very excited about the project she is proposing. I fully support her endeavor to secure FUSE Grant funding for her project, "Association of Music with Young Children's Language Use and Play Skills."

Diana has already completed the necessary CITI Training and is in the process of applying for IRB approval for the proposed project. I look forward to working with her on this and am familiar with her work ethic and dedication based on the numerous hours she has already committed to assisting with communication disorders research since mid-May 2016.

Although the content of Diana's study is associated with my primary line of research, early language and speech development of young children, she is the lead investigator on this proposed project. My role as Diana's faculty mentor is to supervise her work throughout the entire project. More specifically, I will be available for regular meetings to discuss progress and problem solve issues as they arise, supervise participant recruitment and data collection, supplement her knowledge base on the subject, and guide the dissemination of her findings.

In conclusion, Diana has demonstrated commitment and enthusiasm for research up to this point and I am excited to work with her further on the proposed study.

Sincerely,

A handwritten signature in black ink, appearing to read "Shari L. DeVeney", written in a cursive style.

Shari L. DeVeney, Ph.D., CCC-SLP
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