The Development and Implementation of a Music Therapy and Speech-Language Therapy Collaborative Model

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This thesis titled
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**Abstract**

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Collaboration in healthcare fields is beneficial for the patients and clients served as well as the professionals who make up the treatment team. Patients and clients receive higher quality of care and professionals improve their communication skills, increase their knowledge about the different disciplines of their colleagues, and improve their quality of work in addition to many other benefits. Music therapy and speech-language pathology are two healthcare fields in which collaboration with other healthcare professionals currently occurs for the treatment of clients. Music therapists and speech-language pathologists (SLPs) also collaborate with each other. More evidence supporting collaborative models used between these two healthcare professions, particularly in a clinic setting, is needed so that collaboration can become more prevalent in work settings. Therefore, the purpose of this study was to investigate how a music therapist and an SLP graduate student work together to develop and implement a collaborative model in the treatment of a child currently receiving speech-language therapy services in a clinic setting.

The study was a pilot and feasibility study that used qualitative and quantitative measures. The collaborative model that was developed and implemented was consultative with some occurrences of interdisciplinary collaboration. The qualitative data showed that the SLP graduate student, music therapist, and child client had positive experiences
during the collaboration. The quantitative data showed that the music therapist’s performance in preparing the student to use music-based interventions increased over time, and the SLP graduate student increased the use of music in speech-language therapy sessions over time.

Keywords: music therapy, speech-language pathology, collaboration, interprofessional collaboration, collaborative model, university clinic, level of collaboration, consultation, interdisciplinary
Dedication

To my Grandpa Skip, who made me my first guitar
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Chapter 1: Introduction

Communication is an essential part of daily life. Having the ability to voice desires, dislikes, and needs is empowering, and people who are able to communicate with ease experience greater independence. Unfortunately, communication does not come easy for all, particularly those who have speech, language, and communication disorders. When children have these communication difficulties, their lives are greatly impacted. They may have trouble expressing desires, needs, dislikes, and thoughts that will not only adversely affect their development but also their independence as they age. Seeking treatment is often the course of action for these children since communication is essential to proper development and functioning in life (American Speech-Language-Hearing Association, 2016b).

Speech-language pathologists (SLPs) are healthcare professionals who specialize in preventing, assessing, diagnosing, and treating children, as well as adults, with social communication, cognitive-communication, speech, language, and swallowing disorders (American Speech-Language-Hearing Association, 2016c). Children may receive treatment addressing speaking, listening, learning, reading, and writing strategies in early intervention, preschool, general education, special education, and clinic settings (American Speech-Language-Hearing Association, 2016a).

Music therapists are healthcare professionals who use music therapy interventions to address individualized goals in cognitive, social, physical, emotional, and communication domains (American Music Therapy Association, 2016; Hobson, 2006a). They work with children and adults in all stages of life, from premature infants in Neonatal Intensive Care Units (NICUs) in hospitals to older adults at the end of life in
hospice care. Other people with whom they work and settings at which they take place include children with special needs in early childhood, preschool, and school settings, patients in medical and surgical units in hospitals, patients in acute and long-term psychiatric facilities, adults with developmental disabilities in work and day facilities, incarcerated individuals in prisons, older adults in skilled nursing and long-term care facilities, and patients in physical rehabilitation.

Music therapists often provide music therapy services to children who have communication difficulties. According to the American Music Therapy Association (2010), 345 music therapists served clients with speech impairments in 2010. Music therapy interventions can be designed to target communication skills, such as increasing expressive communication, improving receptive communication, and improving fluency of speech. Because of structural similarities between music and speech and how they are processed in the brain, adding music to speech-language therapy can enhance this form of treatment (Hobson, 2006a).

Currently, music therapists and SLPs are collaborating together in the treatment of clients to a large degree (McCarthy, Geist, Zojwala, & Schock, 2008). They work together in early childhood centers, public and private schools, hospitals, private practice, geriatric facilities, rehabilitation centers, and residential facilities (McCarthy et al., 2008). Music therapists also consult with SLPs (Register, 2002). Not much evidence exists of music therapists and SLPs working together in the treatment of children in clinic settings, however.

Both healthcare fields of music therapy and speech-language pathology are beneficial therapeutic treatments for children with communication difficulties when
separate because they can target specific skills and use carefully-designed interventions specific to the clinical training that each healthcare professional received. However, when music therapists and SLPs combine their expertise to create treatment plans that use the best of each other’s skills, children receiving treatment benefit and have improved outcomes (Geist, McCarthy, Rodgers-Smith, & Porter, 2008; Twyford & Watson, 2008).

Problem Statement

Children who have speech, language, and communication disorders often need treatment in order to function in daily life. Speech-language pathologists and music therapists provide therapy separately to clients with these disorders with some success (Hobson, 2006a). However, collaborative treatment that combines the unique set of skills practiced by both SLPs and music therapists enhances the quality of care provided to clients (Twyford & Watson, 2008). Music therapists and SLPs collaborate professionally, but more research is needed to gain knowledge about how specific examples of collaboration occur in the workplace, in clinic settings in particular, and what collaborative models are successful. In order to expand the literature on collaboration between music therapists and SLPs in clinic settings, research needs to be done in such a way as to equip professionals in these fields with knowledge so that they can apply it to their own practice. Research that explicitly describes the development and implementation of a collaborative model used between a music therapist and SLP when treating a child in a clinic setting is needed since, to our knowledge, none currently exists.

Purpose of the Study

The purpose of this study was to investigate how the researcher, a board-certified music therapist, and a graduate student clinician studying to be an SLP work together
toward developing and implementing a collaborative model in the treatment of a child currently receiving speech-language therapy services in a hearing, speech, and language clinic.

**Research Question**

The following research question was addressed by this study: How do a music therapist and an SLP graduate student collaborate in a speech-language therapy clinic setting?

The research question will be addressed by the following sub-questions:

1A) What procedures do the music therapist and SLP graduate student follow during the collaboration?

1B) How does the SLP graduate student view collaborating with the music therapist?

1C) How does the music therapist view collaborating with the SLP graduate student?

1D) Does the music therapist equip the SLP graduate student with the necessary tools to implement music-based interventions in speech-language therapy sessions?

1E) How many music-based interventions does the SLP graduate student implement in speech-language therapy sessions?

1F) How many music-based interventions are used at appropriate times in sessions?
IG) How many skills needed to implement the music-based interventions does the SLP graduate student accomplish in sessions as a result of the collaboration?

**Definition of Terms**

- **Interprofessional collaboration**: the working together of professionals from different disciplines to treat clients and patients in their work setting. Collaborators may work toward the same goals and objectives or may address goals and objectives specific to their individual disciplines as part of client and patient treatment plans. These differing levels of collaboration are defined below. Examples of different disciplines in healthcare include physical therapy, occupational therapy, social work, nutrition, speech-language pathology, counseling, music therapy, and medicine.

- **Level of collaboration**: a type or category of collaboration that exists when professionals from different disciplines work together to treat clients and patients. Collaboration can occur with distinct or overlapping roles and with little or extensive communication (Suleman et al., 2014). Examples of levels, listed from least to most integrative, are multidisciplinary, consultation, interdisciplinary, and transdisciplinary. In other studies, these may be referred to as “models.” The levels of collaboration used in this study were consultation and interdisciplinary.

- **Collaborative models**: examples of interprofessional collaboration that have occurred and contain steps or protocols of procedures that can be followed in
future collaborative endeavors. Collaborative models exist in order to expand knowledge about and encourage additional interprofessional collaboration.

- University clinic setting: a healthcare facility on a university campus that provides outpatient treatment. It is part of a specific school or department to offer students the opportunity to gain clinical experience during their education. The clinic in this study provided only speech-language therapy and audiology services.
Chapter 2: Literature Review

In order to add to the knowledge of music therapy and speech-language pathology collaborative treatment, it is important to understand the current state of collaboration in healthcare professions. Interprofessional collaboration, or working together across disciplines to treat clients and patients, occurs frequently in healthcare fields, including speech-language pathology and music therapy. Speech-language pathologists (SLPs) and music therapists also collaborate together. Collaborative models among professionals in healthcare fields, in speech-language pathology, and in music therapy exist and contain steps or protocols of procedures that can be followed to assist future collaborators. Collaborative models between SLPs and music therapists also exist but are limited. More evidence of collaboration between SLPs and music therapists and the benefits of this collaboration is needed.

Interprofessional Collaboration in Healthcare Professions

In the healthcare setting, the primary concern for any professional is to provide treatment that addresses the needs and desires of a patient or client. Often treatment of a patient or client is enhanced when healthcare professionals work together toward common goals and objectives. Interprofessional collaboration occurs when healthcare professionals from various fields (e.g., medicine, nursing, social work, nutrition, physical therapy, occupational therapy, speech-language pathology, music therapy) provide comprehensive services and work with patients, families, caregivers, and communities to deliver the highest quality of care (World Health Organization, 2010). Interprofessional collaboration creates a unique team experience that involves the coordination of services and combination of skills to enhance patient or client care (Twyford & Watson, 2008).
The integration of knowledge and skills between professionals in different disciplines can result in effective services for clients, and clients have access to high quality of care and “a wider range of therapists, skills and therapeutic approaches” (Twyford & Watson, 2008, p. 17).

According to the World Health Organization (2010), interprofessional collaborative practice is needed to strengthen health systems, which in turn improves health outcomes. Improved patient outcomes, perceived higher quality of care, and reduction of unnecessary costs, such as shortened hospital stays, are some of the benefits patients have experienced as a result of interprofessional collaboration (Choi & Pak, 2006; Eghaneyan, Sanchez, & Mitschke, 2014; McKay & Wieck, 2014; Truitt, Pina, Person-Rennell, & Angstman, 2013; World Health Organization, 2010; Young, Van Oss, & Wagenfeld, 2014).

The following studies provide evidence of positive results in patients when collaboration occurred between healthcare professionals of different disciplines. Truitt et al. (2013) found that using the Collaborative Care Management approach (CCM), which consisted of a team of a primary care provider, mental health specialist, and care manager, to treat women with postpartum depression resulted in higher quality of care. In this study, the women had timelier follow up after their diagnosis, experienced three or more contacts in the first three months after diagnosis, and their six-month remission rates for depression significantly increased. Eghaneyan et al. (2014) supports these data by adding that for patients diagnosed with depression, a collaborative care model effectively improved depression symptoms, response to treatment, recovery from symptoms, remission of symptoms, satisfaction with care, and quality of life. As another
example, interprofessional collaboration between an occupational therapist, builder, and architect resulted in a home environment that supported the safety, daily living, and future privacy needs of a 12-year-old boy with cerebral palsy (Young et al., 2014). The home environment also allowed for his parents to safely care for their son and remain there as they aged (Young et al., 2014).

Collaboration among healthcare professionals not only has benefits for patients but also for the professionals themselves. Collaboration has been known to increase learning, improve communication among treatment team members, promote new skill development, and improve work quality and job performance (Choi & Pak, 2006; Stringer et al., 2015; Truitt et al., 2013). In a study by Stringer et al. (2015), healthcare personnel who participated in daily TeamSTEPPS briefings improved their operating room efficiency. Time in the operating room decreased and on-time first-start rates increased. TeamSTEPPS, meaning Team Strategies and Tools to Enhance Performance and Patient Safety, is a teamwork model used to improve safety and quality in healthcare by enhancing communication, mutual support, and leadership among treatment team members (Plonien & Williams, 2015).

The approach for patient or client care in interprofessional collaboration is the same for professionals working in their own disciplines: it is client-centered. It is for the benefit of clients or patients that healthcare professionals collaborate together so that quality of care is enhanced and patient outcomes are improved. Therefore, it is important that healthcare professionals continue to collaborate for the benefit of their clients. The professional benefits are also important as they affect client outcomes. More evidence of the professional benefits that result from interprofessional collaboration, particularly in
the healthcare profession of music therapy, is needed. The purpose of this study was to examine how well graduate students from two healthcare fields, one being music therapy, work together to treat a client in a clinic setting. In order to see the need, current models of collaboration in healthcare are described.

**Collaborative Models in Healthcare Professions**

Collaborative models can inform healthcare professionals of the benefits of collaborating with colleagues across disciplines and ways in which they can apply elements of the models into their own practice so that their patients and clients benefit. In healthcare, these models may involve medical professionals, mental health professionals, therapists, social workers, and educators. The following study is important because it provides an example of a model that requires good communication among treatment team members, which relates to the current study. In the study by McKay & Wieck (2014), a collaborative model called the Clinical Integration Model (CIM) was used by medical teams in hospitals in treating patients with Congestive Heart Failure (CHF). Each medical team consisted of a nurse, physician, other allied health practitioners, and sometimes a case manager, hospitalist, social worker, and educator.

McKay & Wieck (2014) describe CIM as a goal-directed collaborative approach rather than discipline-specific so that the patient is the central focus of care. The model involved the development of a process tool called the CareGraph, team members focusing on identical patient-centered goals, and coordination of care around patient needs. The utilization of the model also caused organization changes, including making sure essential staff was present, explicitly defining caregiver roles, and communicating expectations. The CareGraph tool provided a way for the different healthcare
professionals on the medical team to use the same language, focus on the same goals, coordinate their care of the patient according to his/her needs, and document collaborative care notes. The nurse updated the CareGraph daily and formally met with the entire medical team three times per week to discuss any problems and progression of care. If the patient did not progress as desired, additional steps were taken, including referring to a complex care team. The CareGraph tool allowed for common communication between all healthcare disciplines.

The purpose of the study by McKay & Wieck (2014) was to determine if hospitals that used CIM showed any differences in cost, length of stay, and survival in patients with CHF as compared to hospitals using a traditional, yet still evidence-based, delivery of care model. Two hospitals used CIM and two hospitals used traditional methods. The patients at the hospitals that implemented CIM had significantly shorter lengths of stay than patients at the control hospitals, which resulted in lower costs for the experimental hospitals. Patient survival was not positively affected by CIM, and the authors conclude that survival of CHF patients may be impacted more by a traditional delivery of care model. However, no hospitals participating in the study had higher than expected mortality rates.

The study by McKay & Wieck (2014) shows positive results for patients when professionals from different healthcare disciplines work together during treatment. However, barriers can arise during interprofessional collaboration. Lack of communication between team members, miscommunication due to language barriers, long-standing hierarchical relationships that are difficult to change (e.g., between nurses and physicians), team conflicts, personality issues, insufficient time or financial resources
for a collaborative project or program, technical difficulties, lack of adequate preparation for a program, and the need for standardization in the implementation of a program were some of the more common barriers that arose during collaborative studies (Choi & Pak, 2007; Eghaneyan et al., 2014; McKay & Wieck, 2014; Stringer et al., 2015; Twyford & Watson, 2008). A solution to some of these issues may be to provide more interprofessional education before a project begins (McKay & Wieck, 2014). Another solution could be to continue to investigate the development and implementation of healthcare collaborative models to inform evidence-based practice. More research is needed to improve the collaborative process among healthcare professionals.

**Interprofessional Collaboration in Speech-Language Pathology**

Speech-language pathologists specialize in preventing, assessing, diagnosing, and treating “speech, language, social communication, cognitive-communication, and swallowing disorders in children and adults” (American Speech-Language-Hearing Association, 2016c, par. 1). Speech-language pathologists are experts in these areas, but in cases in which their clients have additional needs that extend beyond their scope of practice, they collaborate with professionals from other disciplines so that they can meet the needs of their clients. No one professional can know all that is necessary to treat the complex needs of clients and have the tools to do so. Therefore, collaboration between professionals of different disciplines is not only accepted as necessary but also expected in healthcare (Benson, Williams, & Stern, 2002; Suleman et al., 2014).

Collaboration is necessary because of the complexity of diagnoses that clients have and because of the growing number of clients who require multiple services. For example, Autism Spectrum Disorder (ASD) is one disability that can benefit from
collaborative treatment because it affects not only social communication but all areas of development, including cognitive, motor, play, social, communication, and adaptive skills (Donaldson & Stahmer, 2014). Donaldson & Stahmer (2014) argue that SLPs, who have expertise in social and communication skills, together with Board-Certified Behavior Analysts (BCBAs), who specialize in addressing challenging behaviors in children with ASD, are both vital for providing comprehensive school-based services to these children. The authors’ tutorial aimed to shed light on the potential for successful collaboration between SLPs and BCBAs because there is overlap in their treatment: They both often target skills in the same developmental domains and may use the same strategies, but are most likely viewing the children’s needs through different lenses according to their specific disciplines. The authors assert that if SLPs and BCBAs collaborate together, this can result in improved outcomes for children with ASD who receive services in schools.

Since school-based services are likely a primary intervention service for children with ASD, and the number of children diagnosed with ASD continues to rise (one in 42 boys and one in 68 children), school-based treatment teams must carefully coordinate care in order to make the most efficient and economical use of staff (Donaldson & Stahmer, 2014). Learning about each other’s disciplines, sharing their expertise with each other, and incorporating strategies from the other discipline when appropriate can increase the use of evidence-based techniques, improve challenging behaviors, improve the developmental appropriateness of communication goals and instructions given, and address the functional use of these skills in children with ASD.
In addition to improved client outcomes, collaboration is necessary because it supports best practice and is essential to effective service delivery (Benson et al., 2002; Suleman et al., 2014). As previously discussed, Donaldson & Stahmer (2014) claimed that collaboration between SLPs and BCBAs can increase the use of evidence-based strategies. Using strategies that are evidence-based supports best practice because they are grounded in the best available and most relevant research. According to Benson et al. (2002), “interdisciplinary intervention is considered ‘best practices’ in early childhood special education programs for children from birth to 5” (p. 24) because services are most effective when provided in this way. Similarly, Suleman et al. (2014) describe the collaboration between SLPs and teachers as “crucial to effective service delivery” (p. 299), particularly in areas in which SLPs specialize, such as literacy. Not only do SLPs have a responsibility to collaborate with teachers and other professionals in the school setting, according to the American Speech-Language-Hearing Association (ASHA) 2010 Ad Hoc Committee on the Roles and Responsibilities of the School-Based SLP; but collaboration also helps teachers learn literacy and other speech and language strategies to teach their students who may need additional assistance (Suleman et al., 2014). This relationship between professionals provides better services for students.

The responsibility to collaborate can be viewed as an expectation. Other ways in which professionals in healthcare fields are expected to collaborate are brought on by government policy and legislation (Benson et al., 2002; Suleman et al., 2014; Watson & Bellon-Harn, 2013). According to Suleman et al. (2014), the Inclusion movement in Canada, which is similar to the mainstream movement in the United States in which students with disabilities were included in the general education environment, is
considered best practice in special education. The Government of Alberta accepted the Action to Inclusion document in June 2010, which meant that specialized services, including speech-language pathology, had to be organized to meet the diverse needs of all students. Therefore, “collaboration was formally recognized as the primary method to achieve an inclusive education system” (Suleman et al., 2014, p. 299). In the United States, Part H of the Individuals with Disabilities Education Act (IDEA) is the Infant and Toddler Program, which mandates family-centered services (Benson et al., 2002). According to Benson et al. (2002), these services are “best provided within an interdisciplinary framework” (p. 23) because everyone on the interdisciplinary team—the child, his/her family, and the professionals from various disciplines, including speech-language pathology—works together to develop a “well-connected path of treatment” (p. 23).

Related to the Inclusion and mainstream movements, response to intervention (RTI) is a general education initiative that utilizes assessment and intervention to assist struggling learners in reaching educational achievements (Watson & Bellon-Harn, 2013). RTI requires “close collaboration between general and special education personnel, including speech-language pathologists” (Watson & Bellon-Harn, 2013, p. 237) because students who need additional assistance from RTI require educators and specialists, like SLPs, to draw from their expertise and work together to provide the best possible educational environment. Based on government policy and legislation, collaboration between SLPs and other professionals must occur in order to best serve students or clients with diverse needs.
There are many benefits to having SLPs collaborate with other professionals. Donaldson & Stahmer (2014) presented benefits to both clients receiving treatment and professionals on the treatment team, including the improvement of client outcomes as a result of professionals incorporating strategies from other disciplines when appropriate which can increase the use of evidence-based techniques. Benson et al. (2002) supports this information by also stating that interdisciplinary collaboration is beneficial to both professionals and clients. The interdisciplinary team must interact in order to assess, identify, and address the needs of a client, which exposes each professional to the work of other disciplines. This expands team members’ understanding of other disciplines, knowledge of treatment approaches, and the level of service provided because they promote the contribution of another discipline. This enhances the overall treatment of clients.

Other benefits presented by Benson et al. (2002) came from their study, the purpose of which was to describe the development, implementation, and outcomes of collaboration between speech-language pathology and occupational therapy departments in a university interdisciplinary clinic. These benefits included providing university students with a unique experience of collaborating in an interdisciplinary environment before becoming professionals, increasing the students’ skills, knowledge, and professional behaviors, and providing students with an opportunity to better understand and respect those in another discipline. Students learned to rely on each other for better problem solving, build on each other’s goals, and use one activity to address the goals for both disciplines. Even though this study took place in an interprofessional education (IPE) environment, the implications for collaboration remain the same for professionals.
More about the development and implementation of this collaborative program will be discussed in the section below.

Collaboration is necessary among SLPs and other professionals due to the complexity of diagnoses, the need for best practice and effective service delivery, government policy and legislation, and its benefits. The implication of collaboration to impact treatment outcomes for clients based on enhanced service delivery from SLPs and other professionals is evident. However, more needs to be presented regarding how collaboration should occur. Understanding current collaborative models can direct SLPs and other professionals who have the opportunity to work with them to apply evidence-based strategies to their own practice.

**Collaborative Models in Speech-Language Pathology**

Collaborative models used in the field of speech-language pathology can inform not only SLPs but also professionals with whom they work on how to begin practicing collaboration or improve the collaboration already occurring in their work setting for their own and their clients’ benefit. Models exist between SLPs and professionals in many different disciplines, including applied behavior analysis (ABA), education, voice training, and occupational therapy (Benson et al., 2002; Donaldson & Stahmer, 2014; Goffi-Fynn & Carroll, 2013; Suleman et al., 2014; Watson & Bellon-Harn, 2013). The models to be discussed occurred or may occur in schools, classrooms, a private voice studio, IPE environments associated with universities, and a university clinic.

**Models in schools and classrooms.** Donaldson & Stahmer (2014) describe a model for SLPs and BCBAs to work together in the treatment of children with ASD in the school setting. This model is important to the current study because some elements
within it were used to guide the procedures of the collaborative model that transpired. The authors claim that SLPs are most likely already using some ABA principles, and this commonality with BCBAs may assist with effective collaboration. The authors suggest that both professionals video record a portion of a session and review the video to determine if and what behavioral principles were used. The viewing should occur within a team setting so that discussion of approaches and sharing strategies for targeting specific behaviors, like social and communication, can more easily occur. Donaldson & Stahmer (2014) continue with this integrative approach by encouraging team members to share data with each other once it has been collected and analyzed according to each profession. The authors suggest that each person on the team should continue to keep data on the skill acquisitions applicable to their profession in order to provide a well-rounded view of a child’s progress, but the sharing of data has several benefits. It allows team members to experience communicating with those of different communication styles, analyze performance across environments, and determine the most efficient and effective data collection methods in order to promote ease and accuracy of measurement.

Donaldson & Stahmer (2014) suggest team members increase understanding and mutual respect of the different disciplines’ interventions and progress by training across disciplines, which can be done by team members training each other or through continuing education opportunities provided by professional organizations, like ASHA. In this case, an SLP who knows how to correctly apply ABA principles due to collaboration and training can enhance her service delivery by reducing behavioral challenges that hinder therapeutic gains and maximizing motivation to accomplish tasks in therapy sessions. Collaboration among team members can continue through activity
planning. For example, a treatment team could maintain an activity list that documents the activities that were successful at producing desired behaviors so that team members can be efficient with the interventions they use in therapy sessions. The authors emphasize the many ways professionals from each discipline can work together to enhance each other’s service delivery because collaboration among SLPs and BCBAs in schools can result in improved outcomes for children with ASD.

The collaborative model described by Watson & Bellon-Harn (2013) is geared toward SLPs and general education teachers who have Tier 2 students in their classrooms. Tier 2 students need additional support because they are not responding to general education instruction but do not yet need special education placement. The authors present six steps needed to develop and implement such a model: 1) define and understand professional roles; 2) obtain administrative support; 3) plan and communicate; 4) access classroom and curriculum; 5) implement Tier 2 instructional elements; and 6) monitor the collaboration and student performance.

Several components of the six steps in this model were important to the current study as they provide an example to follow. The first step is comprised of meetings to define and understand roles and discuss cross-disciplinary training, how each professional can assist the other, goals and objectives to work toward, and the most effective level of collaboration to pursue, such as multidisciplinary, interdisciplinary, or transdisciplinary. The second step is obtaining administrative support since collaboration could affect one or both professionals’ workload. It is important for the administration to know that “classroom scheduling and core curriculum would remain unchanged. Rather, the existing curriculum would be enhanced and supplemented” (Watson & Bellon-Harn,
The third step involves setting up 20-30 minute scheduled meetings where discussion of student performance and program implementation can occur.

The fourth step, which is the beginning of implementation, is comprised of the SLP making classroom observations to increase understanding of the current state of the classroom and coordinate participation within it. The fifth step involves implementing program objectives for the teacher and SLP, which would be discussed and planned out during scheduled meetings. They may exchange ideas and offer suggestions for the other to use in a consultative manner as well as propose when changes to the program need to occur to best meet their students’ needs. The sixth and final step is keeping a journal to document the activities used, skills being taught, type of student work, and materials used by students and teachers. Both collaborative partners should monitor student progress since both have different perspectives, and suggestions of the type of data to be collected include checklists and audio recordings as well as program-specific, standardized, and curriculum-based tests.

A model in a private voice studio. The study by Goffi-Fynn & Carroll (2013) examined the collaboration between an SLP and voice teacher trained in vocology, otherwise known as a singing voice specialist (SVS), in treating and retraining a singer with muscular tension dysphonia (MTD). MTD in this singer presented as loss of range, a high breathing pattern, excessive use of chest voice in upper frequencies, increased perceived breath pressure, and laryngeal tension. The singer was no longer able to sustain her singing voice demands. In this qualitative case study, the SLP and SVS conducted their own assessments since the singer was a new client for each. Voice lessons were recorded as were interviews from the singer’s perspective. Other data collected included
journal entries of both the singer and SVS and follow-up questioning. As a result of this study, the authors suggest that the SLP and SVS establish mutual goals to address the technical and muscular retraining needs. They also warn about the importance of recognizing differences in terminology between professionals as the words used to give instructions to a client could be misleading despite the fact that the same concept is being addressed. These two suggestions can be discussed between the professionals as they prepare to collaborate in the treatment of the singer.

One of the three themes that emerged from this study by Goffi-Fynn & Carroll (2013) was about the rapport between the singer and all professionals involved in the treatment. This was a crucial part of the applied voice lessons as was the coordination between all professionals that included physicians, opera directors, and coaches in addition to the SLP and SVS. This coordination was essential to the singer achieving healthy use of her voice, managing stress, promoting her career development, and increasing her self-esteem as a performer. Therefore, the singer gained several positive benefits as a result of the openness and continued collaboration between the professionals involved in her treatment. Since the relationship between members of the treatment team had such a large impact on the singer in this study, it was important for the researcher and SLP graduate student involved in the current study to have a positive relationship during the collaboration for the benefit of the child client.

**A model in an IPE environment.** In the study by Suleman et al. (2014), student SLPs and student teachers at the University of Alberta participated in an IPE course that involved instruction, opportunities for students to work through activities in pairs, and a collaborative case study in which small groups of students from mixed disciplines
designed an intervention plan to be used in a hypothetical classroom. The purpose of the study was to determine the effects of the IPE experience on the students’ awareness and understanding of “models of specialized service delivery” (Suleman et al., 2014, p. 299), or what others may refer to as different levels, categories, or types of collaboration. From least to most integrative, these include multidisciplinary, consultation, interdisciplinary, and transdisciplinary. In multidisciplinary, the line between professionals is distinct, and separate treatment is provided to clients. In consultation, experts are called in to provide recommendations for a case, and they may model techniques, coach and provide support, and eventually withdraw as the professional gains confidence in his/her abilities. Interdisciplinary involves professionals working and communicating together but still maintaining their distinct roles. Finally, transdisciplinary encompasses a lot of professional overlap and sharing of roles and responsibilities, which requires extensive communication among team members.

In this study, students were charged with deciding which model of specialized service delivery they would use in their collaborative case study intervention plans. The data taken consisted of group responses regarding the collaborative case studies and pre- and post-study measures in the form of online reflective surveys. These surveys were used to not only assess the effectiveness of the IPE experience but also give students the opportunity to reflect on their skills, knowledge, and attitudes regarding interprofessional collaboration.

The results of the survey showed that over 80% of the collaborative case study groups decided to use some form of transdisciplinary collaboration in their intervention plans. Not only does this indicate that the IPE experience exposed these pre-professional
students to the possibility of sharing roles and responsibilities, but the students were also overwhelmingly willing to do so. In addition, the IPE experience was successful in increasing students’ knowledge about the different models of specialized service delivery that exist. During the study, the students recognized the need to use other models of service delivery to best meet the needs of children in schools. For instance, over 90% of case study groups decided that pull-out programming, which fits under the multidisciplinary model, should still be an option for children who need the extra support.

This decision demonstrates that the students in the IPE experience, while wanting to have classroom-based service delivery, understood current policies and legislation that require providing service delivery that is the right fit for children with special needs, which may mean using a variety of models. The authors provide an example of this by explaining that a child with an articulation delay may begin receiving treatment through a multidisciplinary model, but as he makes progress the model may change to interdisciplinary, to consultation, and finally to transdisciplinary in order to continue to meet his changing needs. Choosing the model of service delivery to best meet a child’s needs is an important part of successful collaboration (Suleman et al., 2014). This was important to the current study because it informed best practice. The model of service delivery that would be best for the SLP graduate student’s client was determined as part of the development of the collaborative model in order to create as successful an experience as possible for both the collaborators and the client.

A model at a university clinic. The study by Benson et al. (2002) presented the development, implementation, and outcomes of collaboration between the Speech-Language Pathology and Occupational Therapy Departments in an interdisciplinary clinic.
at Duquesne University. The Good Beginnings program, which is staffed by faculty from both departments, provides opportunities for the faculty and students to collaborate in the treatment of children from ages 0 to 5 with multiple disabilities through research opportunities and IPE experiences.

The clinic has existed as an interdisciplinary clinical training site since September 1999. It began as a speech-language pathology clinic, and since the faculty from both departments wanted to provide interdisciplinary education opportunities for their departments, they, with the approval of their respective department chairs, devised a business plan that included such information as start-up costs, revenue potential, growth potential, faculty time, workload, scholarship, and student involvement. The program is now host to a maximum of four speech-language pathology and four occupational therapy students per semester. The students are provided with opportunities to learn about the other discipline, practice co-treatment, and interact personally with faculty and students from another discipline on campus.

The way the program is set up is that children can be referred by an SLP who is the child’s clinician at the clinic, community clinicians, or a family member. When the referral is received, the speech-language pathology and occupational therapy students jointly conduct an informal play-based assessment, with faculty supervision, to determine the child’s need for services. If more information is needed that was not sufficiently covered by the initial assessment, separate discipline-specific assessments are performed. The students provide recommendations for service and develop goals and objectives specific to their disciplines to be used during intervention. The faculty supervisors then review these documents and have the final say in determining whether the child will be a
candidate for the interdisciplinary treatment offered through the Good Beginnings program. The faculty considers questions about whether the child and family will benefit more from collaborative or individual services and the family’s interest in the program when making their decision.

When it has been decided that a child and family are a good fit for the program, a treatment schedule is determined based on the academic calendar, the length of the semester, and the availability of the family, students, and faculty. The collaborative session is one hour in length once per week. The student clinicians meet to plan intervention activities at least once one week prior to the start of the intervention sessions. Session plans that are specific to each discipline and based on initial assessment data are developed by each student clinician. The students will be using the same play activities, but their individual session plans “reflect the goals that are relevant to their individual discipline” (Benson et al., 2002, p. 28). After each session, the student clinicians meet with the faculty from both departments to discuss the session, model the collaborative process, and clarify theory and interventions used. Student clinicians also have weekly individual supervision meetings with the faculty member from their department. Additional meetings are scheduled as needed.

Regarding documentation, each student clinician completes a discipline-specific SOAP note after each treatment session, which stands for subjective, objective, assessment, and plan and is used by many healthcare professionals. Within their SOAP notes, students are encouraged to include information about the other discipline that enhances or supports their data. At the end of the semester, each student writes a one-page summary report to inform the family of the child’s progress and to ease the
transition to another student clinician for the next semester. An end of semester team meeting also occurs, and this is the time the family receives the report. Each student also completes an open-ended questionnaire so they can provide information about their experience and evaluate the Good Beginnings program, of which past responses have been overwhelmingly positive.

Benson et al. (2002) emphasized that it is possible to establish an interdisciplinary practicum program at a university. Other universities who have established similar programs include Nazareth College, Radford University, and the University of North Dakota (“Nazareth College,” n.d.; “Radford University,” n.d.; “Toddler Language Circle,” n.d.). The fact that these programs exist demonstrates that universities are recognizing the positive benefits of providing students and faculty with opportunities to collaborate across disciplines. Benson et al. (2002) reported their desire to expand the Good Beginnings program to include other disciplines, such as physical therapy, developmental psychology, and early childhood special education, to provide additional opportunities for collaboration throughout the university.

Based on the knowledge gained from describing models of collaboration in speech-language pathology with other professions, and particularly its application in a university clinic setting, the implication for studying collaboration in speech-language pathology with a variety of other disciplines is needed. Although the effectiveness of music therapy and speech-language pathology collaboration is limited in the literature, interprofessional collaboration involving music therapy with other disciplines is well documented.
Interprofessional Collaboration in Music Therapy

Music therapy is an evidence-based healthcare profession that occurs in a clinical setting and involves the use of music interventions to address individualized goals in cognitive, social, physical, emotional, and communication domains (American Music Therapy Association, 2016; Hobson, 2006a). Since music is enjoyed by most people and can be a motivating and fun medium, music therapists can use the innate elements in music to address goals in several areas. However, some goals may be beyond the scope of practice of a music therapist, which is where collaboration with specialists and other healthcare professionals is important.

Music therapists value collaboration not only for the benefit of their clients but also for professional reasons. There is satisfaction that comes when working with colleagues from different disciplines as well as feeling supported and accepted as a profession (Twyford & Watson, 2008). When the profession of music therapy is understood and valued by other professionals and has been proven effective, collaboration can actually help music therapists gain acceptance for their work. This could result in more opportunities for music therapists to serve the needs of clients, which is why collaborative opportunities need to be available in professional settings.

In various workplace settings, music therapists have collaborated with professionals from many different disciplines. They include physical therapists, occupational therapists, SLPs, medical personnel, counselors, social workers, educators, behavioral specialists, scientists, administrators, clergy, activity/recreation professionals, dance movement therapists, physiotherapists, and other creative arts therapists (Bunt & Marston-Wyld, 1995; Register, 2002; Travaglia & Treefoot, 2010; Twyford & Watson,
According to this list, music therapists had many diverse opportunities to work with fellow colleagues in order to provide the best care for clients.

Providing the best care for clients is often the basis for collaboration. Clients who receive treatment via a transdisciplinary approach, for example, or one in which the healthcare professionals share roles and responsibilities, benefit from a combined intervention and continuity of care (Twyford & Watson, 2008). Clients benefit from the contribution of each individual specialist from the various disciplines, which results in a greater understanding of clients. When music therapists are part of a collaborative team, expressive skills of individual clients can be enhanced, which increases “self-awareness, awareness of others, and the ability to integrate with others” (Twyford & Watson, 2008, p. 22). Since music can be motivating, having a music therapist as part of a treatment team can bridge the gap between talking and non-verbal therapies, which is crucial for many professionals. In order to understand what music therapists can offer to enhance the practice of other healthcare professionals when working together, collaborative models that music therapists have used with colleagues need to be examined.

**Collaborative Models in Music Therapy**

Collaborative models used by music therapists can benefit others in the profession as well as healthcare professionals from different disciplines with whom they work because they provide a template that can be applied to other work environments. The more that collaboration occurs in work settings, the more the clients who are served will benefit. Collaborative models in music therapy involve professionals from a variety of disciplines, including education, medicine, and dance movement therapy (Kern & Aldridge, 2006; Travaglia & Treefoot, 2010; Tunks, 1983). The study to be described
involved a consultative collaborative approach between a music therapist and educators of young children with Autism Spectrum Disorder (ASD) and typically-developing children (Kern & Aldridge, 2006). This study provides important implications regarding this approach when a music therapist is the consultant, which is necessary since music therapists often provide consultation services in education-related settings (Register, 2002). In addition, this study informed the researcher’s decision about the approach to the current study.

Kern & Aldridge (2006) evaluated the effects of a music therapy intervention designed to increase social interaction among young children with ASD and their peers on a musical adaptation of a playground. The music therapy intervention was implemented by classroom teachers and, subsequently, peers through a consultative collaborative approach involving a music therapist. Consultation encompasses bringing in an expert to remark on and provide recommendations for a case. The expert may model techniques, coach and provide support to professionals, and eventually withdraw support as the professionals gain more confidence in their abilities.

The collaboration in this study involved the first author working and consulting with teachers, parents, and specialists to define the problem, determine intervention goals, plan the intervention, and discuss how the intervention could be used in the current playground routine. The first author trained all participating teachers individually to use music therapy principles and specific materials designed for the study. The training equipped teachers with learning how to initially engage a child with ASD and a peer, initiate play with the children, involve children in singing individualized intervention songs and playing instruments, continue play on the musically-adapted playground, help
peers develop a play routine, help peers learn to model play tasks for the children with ASD, gradually decrease physical and verbal prompts by letting peers lead, and give positive and supportive praise to the child with ASD. The first author also introduced the intervention songs to all participating children prior to the intervention. Teacher training ceased when they indicated that they felt comfortable with the intervention songs and procedure.

The study used a multiple baseline design. The following protocol was implemented: 1) no changes were made during the baseline condition; 2) the child with ASD was introduced to the musically-adapted playground by the teacher; 3) the intervention was applied by the teacher; and 4) the intervention was applied by the peer.

There were several findings from this study. First, the intervention was indeed needed since the children with ASD engaged less in peer interactions and meaningful play than their peers during baseline. Second, the children with ASD were attracted to the sounds from the musically-adapted playground. Third, the individualized intervention songs that targeted specific therapeutic goals resulted in desirable outcomes. Fourth, peer involvement in implementing the intervention was effective in increasing meaningful play and peer interactions on the playground.

Lastly, the consultative collaborative approach was effective in providing support to teachers so that they could successfully implement the interventions. This study showed that when teacher training and ongoing consultation were provided, teachers accurately applied interventions that were individualized for child needs and based on music therapy principles to current playground routines. Thus, the targeted skills of the children with ASD would show improvements. This finding also indicates that high-
quality on-site training and ongoing consultation by a board-certified music therapist is essential for successful and appropriate implementation of interventions utilizing music therapy principles.

This study provides evidence of successful collaboration through consultation between a music therapist and educators that benefited students. Not all studies that describe interprofessional collaboration with music therapists provide detailed information about the steps involved in the collaborative process, however. More research is needed to provide this practical information to healthcare professionals, particularly between the healthcare fields of music therapy and speech-language pathology.

**Interprofessional Collaboration in Music Therapy and Speech-Language Pathology**

Interprofessional collaboration between the healthcare fields of music therapy and speech-language pathology is increasingly documented in the literature (Twyford & Watson, 2008). In a therapeutic context, these two fields have the potential to complement each other, which may be due to structural characteristics that music and spoken language share (Geist et al., 2008; Hobson, 2006a; Twyford & Watson, 2008). This potential may also be due to the ways in which music can be used to support the goals addressed in speech-language pathology. For example, music is effective at non-verbal and pre-verbal levels and “can assist in establishing the necessary components for language acquisition” (Twyford & Watson, 2008, p. 61) in children. Music is also motivating, can enable self-awareness and the awareness of others, can increase attention, and provides an enjoyable way of making sounds with one’s mouth, which are elements that SLPs can use to enhance their practice.
Music therapists and SLPs collaborate together in treating a variety of clients and patients in several different settings. The clients and patients they treat include people of all ages with developmental delay, Autism Spectrum Disorder (ASD), neurological disorders, language and communication difficulties, behavioral disorder, learning disabilities, multiple disabilities, Alzheimer’s/dementia, hearing impairments, Parkinson’s disease, head injury, and people receiving medical and mental health care (Hobson, 2006b; McCarthy et al., 2008; Twyford & Watson, 2008). Settings of music therapy and speech-language pathology collaboration include hospitals, schools, long-term care facilities, and hearing, speech, and language clinics.

Even though music therapy and speech-language therapy collaborative studies are becoming more common in the literature, studies that explicitly describe how collaborative models are developed and implemented are lacking. Studies about current collaborative models can, however, inform future research.

**Collaborative Models in Music Therapy and Speech-Language Pathology**

Music therapists and SLPs may often work in the same facilities and therefore have opportunities to collaborate together when treating clients. Because this partnership is somewhat common, exploring collaborative models in the literature can provide support for future collaborative endeavors so that their clients receive higher quality treatment. The study to be presented involved the development and implementation of a collaborative model between a music therapist and SLP, which resulted in the SLP acting as consultant while the music therapist supported speech-language therapy goals (Geist et al., 2008). Challenges can arise during collaboration between these two fields but solutions to those challenges exist.
In the study by Geist et al. (2008), the collaborative model involved assessment of the child participant’s current communication skills and needs, assessment to determine if the child would benefit from music therapy, team meetings with the parents and authors to target the most appropriate communication goals, identify the target communication goals, design the music therapy/speech-language therapy collaborative intervention, and implement and evaluate the treatment. The purpose of the study was to document the collaborative process of a music therapy and speech-language therapy collaboration and include the use of Augmentative and Alternative Communication (AAC).

The authors implemented the collaborative model with one child participant. The goal they determined was to increase his classroom participation, particularly targeting greetings and engagement during story time activities. They decided that since he displayed increased engagement and social interaction in music experiences that the music therapist would provide direct therapy and support speech-language therapy goals. Sessions began as individual and progressed toward small group and finally to the classroom where the teacher applied the music experiences during group activities. The SLP acted as consultant to the classroom teacher and music therapist and provided communication strategies when needed. Later the music therapist acted as consultant when the teacher applied the music experiences. Pre- and post-study videos were taken of the child participant, and the post-study video showed that he was more involved in the classroom. No off-task behaviors occurred in the final group session.

Using music to support speech-language therapy goals has several benefits, one of which being repetition. When not using music, repetition of a task may seem unnatural. Since repetition in music is commonplace, it therefore allows for natural opportunities for
repeated practice (Geist et al., 2008). When music therapists and SLPs work together, challenges can arise, however. Scheduling, lack of knowledge and skepticism about music therapy, different orientation in addressing goals, lack of comfort with music, funding, professional boundaries, effective and efficient collaboration, and interpersonal issues were reported challenges of collaborating together in a survey by McCarthy et al. (2008). McCarthy & Geist (2014) offer solutions to the first few challenges, including using technology such as mobile video conferencing applications for scheduling problems; considering the similarities rather than differences between the two fields and recognizing that a growing body of literature supports music therapy’s effectiveness to address skepticism; realizing that different orientation in addressing goals may be an issue based in terminology and not a problem with approach; and knowing when to set aside personal discomforts for the benefit of clients or taking that opportunity to engage a music therapist to address lack of comfort with music.

Models describing how music therapists and SLPs can collaborate to treat clients are in the literature, but more research is needed. In particular, studies that show how a music therapist and SLP take steps to develop and implement a collaborative model need to occur to provide other healthcare professionals with a foundation for implementing collaborative projects in their own practice. Since the literature shows that clients benefit from professionals collaborating together by way of receiving higher quality of care and displaying improved outcomes, more collaboration needs to occur among healthcare professionals and in healthcare settings so that more clients have access to these and other benefits.
Summary

Interprofessional collaboration is currently occurring in healthcare professions and has several benefits for clients and patients as well as the professionals involved in the collaboration. These benefits include enhanced client and patient care, improved client and patient outcomes, improved communication among treatment team members, and heightened work quality and job performance of professionals. Collaboration exists among medical personnel, mental health professionals, educators, therapists, and specialists. Speech-language pathologists collaborate with professionals from various disciplines as do music therapists, and SLPs and music therapists often collaborate together. However, there is limited information on how well these collaborations work. Studies that describe collaborative models are needed to add to the evidence-based practice in order to provide practical information to healthcare professionals ready to implement similar programs into their practice. Equipped with this information, healthcare professionals can create more opportunities for collaboration and therefore offer higher quality of care to their clients and patients. Studies that outline the specifics of developing and implementing a collaborative model are especially needed in the fields of music therapy and speech-language pathology in which collaborative opportunities may often arise.
Chapter 3: Method

The purpose of this study was to investigate how the researcher, a board-certified music therapist, and a graduate student clinician studying to be a speech-language pathologist (SLP) work together toward developing and implementing a collaborative model in the treatment of a child currently receiving speech-language therapy services in a hearing, speech, and language clinic. The study was a pilot and feasibility study and involved the following: recruitment of participants, gaining informed consent, pre- and post-study interviews and a post-study evaluation, and qualitative and quantitative data collection and analysis. The development of a collaborative model of treatment and its implementation also occurred in the study, and these processes are described in the Results chapter. Measures to address internal validity and researcher bias were implemented. Minor changes to study procedures from the proposal occurred.

Research Design

This study was a pilot and feasibility study. Pilot studies are conducted in order to test protocols of procedures on a small scale before doing a larger study (LaGasse, 2013). They often address feasibility and are used to collect initial data in a developing area of research and perform trial runs of study procedures. Feasibility studies are conducted to determine whether or not study components are practicable.

Background of the Researcher

The researcher had an interest in learning more in-depth about the field of speech-language pathology prior to the start of this study. She took four graduate-level courses in the Division of Communication Sciences and Disorders prior to this study and, therefore, had an educational background in speech-language therapy concepts. She also took two
graduate-level courses in the College of Health Sciences and Professions that gave students interprofessional education experience. In addition to being a board-certified music therapist and having professional clinical experience, the researcher collaborated weekly with a certified SLP during her music therapy internship. Thus, she had prior collaborative experience before this study began.

**Participants**

There were four participants in this study, which was the maximum number allowed by the researcher. Two were graduate students studying to be SLPs, and two were children on each of the SLP graduate students’ caseloads who were receiving speech-language therapy services. The participants were chosen by convenience sampling.

**Selection criteria.** Criteria for selection of the graduate students included that they were enrolled as graduate students in the M.A. in Speech-Language Pathology program at a specific public university in the Midwestern United States, were a practicing student clinician at the campus hearing, speech, and language clinic, and provided supervised speech-language therapy services at least once per week in the clinic to a child between the ages of four and 12 requiring services. The SLP graduate student clinicians needed to be interested in collaborating with a music therapist to enhance the treatment for their clients and needed to be 18 or over.

Criteria for selection of the children included that they were receiving speech-language therapy services at least once per week at the on-campus hearing, speech, and language clinic at the time of the study, were on the SLP graduate student clinicians’ caseloads, and were between the ages of four and twelve.
Recruitment and gaining informed consent. After the researcher informed the Coordinator of Clinical Services at the clinic of the study’s approval by the Institutional Review Board (see Appendix A) and thesis committee, the Coordinator emailed SLP graduate student clinicians who met the criteria for selection. The email explained the basic parameters of the study and asked students’ permission to have their names and email addresses given to the researcher. Since no one opted out, the Coordinator forwarded the names and email addresses of the students to the researcher. The researcher then emailed all students to inquire about their interest in participating in the study (see Appendix B). Students were informed in the recruitment email that their participation was optional, their clinical supervisor would not be informed if they declined to participate, and their grades and evaluations for their clinical experience would not be affected, neither positively nor negatively, if they agreed or declined to participate.

The researcher initially received three emails from interested SLP graduate students. The first student eventually expressed that she was no longer interested. The researcher arranged to meet with the remaining two students soon after their emails were received to explain more about the study and ask them questions to determine who would be the best match for the study. The researcher asked questions regarding their level of interest in collaboration, experience with past collaboration, potential client benefits, and availability to participate in the study (see Appendix C). The researcher considered the following when determining who would be the best match, in order of highest to lowest priority: the order of the reply to the recruitment email, reasons for why they were interested in collaboration, reasons for why their clients would benefit from the collaboration, if they knew whether their clients responded positively to music or not, and
their past experience with collaboration. Since a maximum of two students could participate in the study, both students were considered best matches based on their responses.

During these meetings, both SLP graduate students confirmed their interest in participating in the study. The researcher informed them that, at the request of the Coordinator of Clinical Services at the clinic, she would share their names with the Coordinator who would then speak with their clinical supervisors to determine if a client on their caseloads would meet the participant criteria. When the researcher contacted and heard back from the Coordinator that the students’ clinical supervisors identified one client on each of their caseloads who met the criteria, the researcher informed the students and set up meetings to obtain informed consent. At these meetings, the researcher explained the parameters of the study, including the purpose, the students’ participation expectations, the length of time they would be obligated to participate, the possible risks and benefits, how confidentiality and records would be kept, compensation information, and contact information of the researcher and faculty advisor. Both SLP graduate students agreed to participate in the study and signed Adult Consent Form with Signature forms that included all parameters of the study in writing (see Appendix D). They were informed that they could withdraw from the study at any time without penalty, and if the parents of their clients refused to have their children participate they would no longer be participants in the study. They were given copies of their signed consent forms.

At the time the Coordinator of Clinical Services informed the researcher that each interested SLP graduate student had one client who met the participant criteria, she also identified a treatment team of two students who agreed to participate in the study and
whose client they treated together also met the criteria. The researcher followed the same protocol as with the first two SLP graduate students, including having them sign consent forms. However, since the parents of the clients of the first two students agreed to have their children participate, these students and their client were not included in the study.

Recruitment of the children occurred after the SLP graduate students gave informed consent. After the two students signed the consent forms, the researcher gave them a flyer of her own design that described the study and contained her contact information that was to be given to the parents of the potential child participants (see Appendix E). The researcher provided the students with a script to use when giving the flyer to the parents in order to maintain consistency in communicating the information (see Appendix F). The script included statements addressing no obligation to respond, no change to their child’s Plan of Care if the parents declined to participate, and a deadline to respond if interested.

The researcher was contacted by the parents of both potential child participants shortly after obtaining consent from the SLP graduate students. Meetings were arranged at which the researcher explained the parameters of the study, including the purpose, the participation expectations of their children, the amount of time their children were expected to participate, the possible risks and benefits to their children, how confidentiality and records would be kept, compensation information, and contact information of the researcher and faculty advisor. Both parents permitted their children to participate and signed Parental Consent Forms, which included all parameters of the study in writing (see Appendix G). They were informed that their children could withdraw from the study at any time without penalty.
After parental consent was obtained, the researcher informed the children of the parameters of the study, as appropriate for their ages, and asked if they wanted to participate. Both children agreed and signed Minor Assent Forms, which included the parameters of the study in writing (see Appendix H). They were informed that they could withdraw from the study at any time without penalty. The parents and children were given copies of their signed consent forms.

Once the child participants were confirmed, the researcher notified the SLP graduate students that their participation in the study would continue. Consent was gained from a parent and child on the caseload of one of the students prior to the other, thus the study began with this student first. Since both students conducted speech-language therapy sessions with their clients two times per week, the researcher determined the pace of the study would be managed best if she completed the study with the first student prior to starting the study with the second student. Each student participated in the study for two weeks, therefore the study lasted a total of four weeks. No sessions were missed by either the students or clients.

Two different experiences emerged from collaborating with both SLP graduate students. The collaboration that resulted was influenced by what was best for their clients, who had different needs. The first student’s client was a 6-year-old boy diagnosed with childhood apraxia of speech. His session goals included targeting a specific sound, and the targeted sound changed every two sessions. The student planned different interventions to use with him in each session, so different music-based interventions to support her interventions were created for each session. One exception was a movement song that was used in two sessions. The second student’s client was an 8-year-old girl
also diagnosed with childhood apraxia of speech. Her session goals remained the same
during her participation in the study, however, because the student thought it best that the
pace of sessions not change rapidly for her client. Therefore, the same music-based
interventions were used throughout the student’s time in the study.

The researcher decided to describe and analyze the collaboration that occurred
with only the first SLP graduate student. This was determined because of the scope of the
thesis study, time constraints, and the model of collaboration that transpired. More
opportunities for collaboration occurred in this model due to the way the student
structured her client’s sessions, which resulted in new music-based interventions being
designed for each session. What follows is information that pertains to only the first
student who participated in the study.

**Protocol of Procedures, Research Setting, and Materials**

Several procedures were involved in the study protocol, including gaining
informed consent, gathering materials, and collecting qualitative and quantitative data by
way of conducting interviews, observing sessions, and holding post-session meetings. In
order to ensure the researcher followed her own protocol of procedures, she created a
checklist on a data collection form for herself to follow (see Appendix I). The form
contained all procedures of the study and monitored the researcher’s own performance of
following the study protocol.

The study took place in a hearing, speech, and language clinic located on the
campus of a public university in the Midwestern United States. Clinic rooms, observation
rooms, and separate meeting rooms were available for use. The speech-language therapy
sessions occurred in a clinic room, which was approximately 10’ long X 8’ wide and
included a small table and two small chairs. Observation rooms were adjacent to clinic rooms and were equipped with one-way windows and sound equipment. The researcher viewed sessions from an observation room during the study. Separate meeting rooms in the clinic and elsewhere in the building were used for the pre- and post-study interviews, post-study evaluation, and post-session meetings between the researcher and SLP graduate student.

Materials used in the study included CDs, documents pertaining to the music-based interventions, musical instruments, and DVDs. Two movement songs were adapted by the researcher and recorded onto four CDs. The SLP graduate student received two CDs of each movement song so she could use them in future sessions, if desired. The child also received two CDs of both movement songs so that he could listen to them outside of sessions. The researcher gave the student documents that outlined the music-based interventions to be used in upcoming sessions as a guide as well as lyrics to both movement songs so that she could sing and interact with the child (see Appendices O, P, Q, R, and S). The student was given temporary use of an ocean drum to accompany one music-based intervention that was about water. When the researcher went into sessions and did music therapy interventions with the child, she used a guitar, various small percussion instruments, a small djembe, and egg shakers. She either owned or borrowed these instruments from her employer. After the study ended, the researcher gave the student to give to the family of the child a DVD that included clips of his participation in each of the four video-recorded speech-language therapy sessions that occurred in the study.
Pre- and Post-Study Interviews, Post-Study Evaluation, and Journal Entries

A pre-study interview of the SLP graduate student was the first task in the study. The interview was audio recorded, and the researcher asked questions pertaining to the student’s expectations of the possible outcomes of the study for herself and the child participant as well as her perceptions about the study (see Appendix J). The final tasks of the study involved conducting a post-study interview and post-study evaluation (see Appendix J). The post-study interview was audio recorded, and questions were asked about whether the student’s expectations of the outcomes of the study for both herself and the child participant were fulfilled as well as her perceptions about the collaborative process that transpired. The post-study evaluation, which involved questions about how the study went and suggestions for improvements, was also audio recorded and occurred after the post-study interview was completed. Throughout the two-week study, the researcher wrote journal entries reflecting on all aspects of the collaborative process that occurred in order to gather qualitative data about the experience.

Research Question and Analysis Procedures

The following research question was addressed by this study: How do a music therapist and an SLP graduate student collaborate in a speech-language therapy clinic setting?

Qualitative data were gathered through pre- and post-study interviews, the post-study evaluation, observational notes, emails between the researcher and SLP graduate student, post-session meeting notes, and journal entries written by the researcher. The interviews, evaluation, and part of one post-session meeting were transcribed. Part of Post-Session Meeting #3A was transcribed because the researcher used part of that
meeting as a mid-study check-in with the student and asked for any comments about how the collaboration was going. All sources of qualitative data were grouped together by the documentation categories above and examined, and passages were underlined that mentioned and/or described the collaboration between the researcher and student. Underlined passages were typed into a table with columns labeled “Person saying/writing it,” “What was said/written,” and “Where in documentation.” Specific words describing the collaboration, such as “helpful” and “worked really well,” were highlighted and bolded to easily find later. Passages in the table that were of similar content were highlighted in corresponding colors, and a key to the content that the colors represented was typed in the header and footer sections of the document. This is how the data were coded by themes.

Quantitative data were collected by event recording via the data collection forms for both the researcher and SLP graduate student. Three forms were completed each for the researcher and student: Three intervention sessions in which the student was evaluated occurred in the study, therefore the researcher needed to prepare the student for each intervention session. Checklists were on each form, and each task on the list was either marked by a checkmark or left blank to indicate whether or not it had been accomplished or had occurred. Data collection forms for the researcher contained only one checklist while forms for the student encompassed three checklists. Each checklist on the researcher data collection forms was analyzed for frequency and percentage of response. The overall average of the percentages from all three researcher forms was calculated. Each checklist on the student data collection forms was analyzed for frequency only. In addition, the comments sections on the student forms were analyzed to
find common content. Two categories were found across the three forms, and the number of times they appeared on each form was counted. The frequencies of these two categories were combined with the frequencies of the first checklist on the student forms to show additional results.

**Validity**

**Internal validity.** In order to ensure internal validity was maintained, the researcher created a data collection form to monitor her performance in following her own protocol of procedures. The form contained a checklist of all procedures of the study, including obtaining informed consent, gathering materials, and collecting qualitative and quantitative data by way of conducting interviews, observing sessions, and holding post-session meetings (see Appendix I).

**Researcher bias.** Peer review occurred to prevent researcher bias. The researcher asked two peer board-certified music therapists to analyze excerpts of the qualitative data from the interviews, evaluation, and part of one of the post-session meetings. The accuracy of the researcher’s analysis was determined by whether or not similar portions of the qualitative data were marked based on the parameters given during the peer review.

**Changes to Procedures**

Several minor changes to the protocol of procedures from the proposal occurred over the course of the study. First, recruitment of participants took longer than expected. At the time the researcher was ready to recruit, the current semester was near its end. Since SLP graduate student clinicians often receive new clients at the start of every semester, it was counterproductive to start the study before the new semester began. Time
also needed to be given to the clinical supervisors of the students to identify which children on their caseloads met the criteria of the study, which affected when the researcher could obtain informed consent from the interested students.

Placing potential participants on a waiting list was an option in the proposal. The team of two SLP graduate student clinicians were briefly put on a waiting list until the child clients of the first two interested students and their parents gave their consent to participate. No waiting list was used for other potential child participants.

The study lasted for half as long as originally planned. It was expected that collaborating with the SLP graduate student would take four weeks. Instead, the time was reduced by half since the student saw her client two times per week. As a result, her participation in the study lasted for two weeks.

The study was expected to take place in the on-campus hearing, speech, and language clinic. All speech-language therapy sessions and most post-session meetings and interviews took place in the clinic. However, a few meetings and interviews occurred in other rooms belonging to the Division of Communication Sciences and Disorders in the building that housed the clinic.

The level of collaboration in this study was expected to be either consultative or interdisciplinary. What transpired was a mixed collaboration. Most of the music-based interventions that were used in the speech-language therapy sessions were the result of a consultative collaboration, but an interdisciplinary approach occurred for a few minutes at the end of every session when the researcher went into the clinic room and worked directly with the SLP graduate student’s client. In addition, the structure of the
collaborative model was not changed or adjusted. It remained the same throughout the study.

A few changes to post-session meetings occurred. First, additional post-session meetings were required with the SLP graduate student due to her session-planning schedule. One extra meeting occurred after the first post-session meeting, and the other took place after the third post-session meeting. Second, some joint session planning between the student and researcher took place over email, which was not previously anticipated. Third, video recordings were not viewed during post-session meetings. Rather, the events of the previous session were recalled from memory.

Two forms of measurement were added to the study. First, a data collection form was created to measure the researcher’s performance in equipping the SLP graduate student with the necessary tools to implement the music-based interventions. Second, a checklist containing the study protocol was made to document whether or not internal validity was maintained throughout the study.

In some ways more materials were required than expected, and in some ways fewer were required. In the proposal, the researcher accounted for musical instruments as materials, but several non-musical-instrument materials were needed. CDs, printed documents, and DVDs were used. The researcher was expecting to offer the use of several musical instruments to the SLP graduate student, but because the student wanted to continue using music-based interventions with her client after the study, the researcher created more song-singing interventions than instrument-playing interventions.
Chapter 4: Results

The research question to be answered in this study was the following: How do a music therapist and a graduate student studying to be a speech-language pathologist (SLP) collaborate in a speech-language therapy clinic setting? To answer this question required it to be separated into seven sub-questions:

1A) What procedures do the music therapist and SLP graduate student follow during the collaboration?

1B) How does the SLP graduate student view collaborating with the music therapist?

1C) How does the music therapist view collaborating with the SLP graduate student?

1D) Does the music therapist equip the SLP graduate student with the necessary tools to implement music-based interventions in speech-language therapy sessions?

1E) How many music-based interventions does the SLP graduate student implement in speech-language therapy sessions?

1F) How many music-based interventions are used at appropriate times in sessions?

1G) How many skills needed to implement the music-based interventions does the SLP graduate student accomplish in sessions as a result of the collaboration?

The first sub-question refers to the development and implementation of the collaborative model of treatment. The second and third sub-questions required qualitative analysis.
Sub-questions 1D, 1E, 1F, and 1G required quantitative analysis. Transcriptions of pre- and post-study interviews and a post-study evaluation, observational notes of speech-language therapy sessions, emails between the researcher and SLP graduate student, post-session meeting notes, and journal entries written by the researcher were analyzed to answer the qualitative sub-questions. Data collection forms containing checklists were analyzed to answer the quantitative sub-questions. Procedures were put in place to maintain internal validity and prevent researcher bias.

**Development and Implementation of the Collaborative Model**

The first sub-question was addressed by the level of collaboration that transpired based on what would best meet the needs of the SLP graduate student’s client. What resulted was the development of the collaborative model and the implementation of the procedures of the model.

**Development of the collaborative model.** After the pre-study interview, the researcher observed the following speech-language therapy session that occurred between the SLP graduate student and child participant at the regularly-scheduled session time. The researcher took observational notes on the speech-language therapy interventions used by the student clinician and the child’s response to those interventions as well as ideas for where to add music. The session was video recorded so that the researcher and student could review it if needed in the post-session meeting, but no review was needed.

Next, the researcher and SLP graduate student met to have their first post-session meeting, which was audio-recorded for accurate data collection of the information discussed. In this meeting, they discussed what the researcher observed, ideas for where music could be added to speech interventions, what musical elements the student would
be comfortable adding to her interventions, what the target areas would be for the client in the next session, and the level of collaboration (e.g., consultative, interdisciplinary) they would follow. The SLP graduate student thought it best that the researcher not be in the clinic room during sessions to maintain her client’s engagement, so a consultative level of collaboration was decided. In a consultative collaboration, an expert remarks on and provides recommendations for a case and may model techniques, coach and provide support to the professional, and eventually withdraw support as the professional gains confidence in her abilities. The researcher’s role in this collaboration was to provide the SLP graduate student with music-based interventions to use in speech-language therapy sessions with her client and coach her to use them successfully. The researcher would continue to observe the speech-language therapy sessions.

It was determined in this post-session meeting that several types of music-based interventions would be added to interventions in the next session. They were a fill-in-the-blank song in which the child would respond with the targeted sound of /j/, a melody to use with memory recall tasks, a song or melody to use to maintain attention during repeated tasks, using rhythm or body percussion to elicit the targeted sound, and a movement song that offered a short break for the child but also contained the targeted sound. Since the SLP graduate student had not yet planned all interventions for the next session, it was agreed that she would send the researcher her session plan over email once finished so that the researcher could determine which music-based interventions would fit into the plan. They also agreed to have an additional post-session meeting prior to the next speech-language therapy session so that they could discuss the specific music-based interventions to be used and provide time for the student to practice the music.
Over email, the researcher and SLP graduate student exchanged several ideas and solidified their plan. It was determined that the music-based interventions to be used in the next session were a short song to maintain attention during repeated tasks (e.g., “Now it’s time to roll the dice, what will you get?” and “Which one starts with /j/?” to the tune of “Skip to My Lou”), a movement song that contained the targeted sound of /j/ (e.g., an adapted version of Raffi’s “You Gotta Sing” that was performed and recorded onto a CD by the researcher; see Appendix O), and a melody added to an “I Spy” game that would serve as a fill-in-the-blank song containing the targeted sound (e.g., “I spy with my little eye something [yellow]” to the tune of “Yo Ho [A Pirate’s Life for Me]”). It was also decided that for the last five minutes of the session, the researcher would do a music therapy intervention with the child as an incentive for good behavior and as an additional way to target session goals. This idea was offered by the SLP graduate student and exhibited the interdisciplinary level of collaboration, which involves professionals working together and communicating with each other but still maintaining their distinct roles. The researcher decided to do an interactive instrument-playing intervention that would allow the child to explore musical instruments not commonly seen and use expressive language to describe them, using the targeted sound.

During the additional post-session meeting, which was also audio recorded, a few adjustments were made to the session plan. The SLP graduate student wanted to use the movement song as a warm-up activity at the beginning of the session rather than between speech interventions. She also said she may not use the intervention that included the fill-in-the-blank song in this session but wait until the next session. Since this was a consultative collaboration, the researcher modeled the music-based interventions and had
the student practice. It was the idea of the student to record the researcher singing the songs and melodies onto her phone so she could later refer to them.

The researcher took data on herself during the post-session meeting that involved modeling the music-based interventions and having the SLP graduate student practice. She used a data collection form containing a checklist of skills to monitor her performance when coaching the student on how to use music-based interventions in the following session (see Appendices K and L). Two versions of this data collection form exist as changes were made to improve the form over the course of the study.

**Implementation procedures of the collaborative model.** The collaborative model determined by the researcher and SLP graduate student continued through the next three speech-language therapy sessions. The structure of the events that had already occurred served as a template for the remainder of the study. The researcher continued to observe and video record sessions. She took observational notes on how the student implemented music-based interventions and the child’s response to them as well as quantitative data on the student’s use of the interventions in sessions. The data were collected via checklists on data collection forms, which included whether the interventions were implemented or not, whether the interventions were used at appropriate times in the session or not, and how well the SLP graduate student implemented them based on a list of skills specific to the music-based interventions (see Appendices M and N). Two versions of this data collection form exist as changes were made to improve the form over the course of the study.

Audio-recorded post-session meetings occurred after sessions to gain feedback from the SLP graduate student on how the session went, provide her with feedback on
how she implemented the music-based interventions, and discuss the child’s response. These meetings also functioned like the first two post-session meetings in which the researcher and student planned, coached, and practiced for the next session. An additional post-session meeting was scheduled prior to the fourth and final speech-language therapy session so that the student could practice. The video recordings were available to view if needed during these meetings, but they were not used.

The three sessions that contained music-based interventions were structured similarly. Each session began with a movement song that was performed and recorded on a CD by the researcher. The movement song used in the second, or first intervention, session was used again in the third session. A different sound was targeted in the fourth session, which was /r/, so the researcher wrote a new movement song called “Let’s Reach” that was to the tune of “The Ants Go Marching In” (see Appendix P). Any time a repeated task appeared in a session, the researcher created a melody or song (e.g., repeated words in a book set to “The Imperial March;” singing “Rain, Rain, Go Away” while dropping rain drop pictures during a “Rainy Day” game). Fill-in-the-blank songs or opportunities were included in all three sessions (e.g., “It’s raining on the [object]” to the tune of “Rain, Rain, Go Away” during the “Rainy Day” game). Music-based interventions that utilized chanting or using rhythm or body percussion were included in the third and fourth sessions (e.g., chanting “Feed the shark” like the camp song “Baby Shark” during an expressive language intervention; chanting a repeated phrase in a book, “red, ripe strawberry,” while tapping on the table). Finally, each session ended with the researcher doing a music therapy intervention with the child for the last five minutes. The third session involved tapping on a drum while chanting sentences using the target sound
of /j/. In the fourth session, the researcher sang a repeat-after-me song, called “I Know a Chicken,” that targeted the cluster sound of “pl” that the SLP graduate student needed to assess for the next session.

**Views on the Collaboration**

The following sub-questions of the research question were addressed with qualitative data:

1B) How does the SLP graduate student view collaborating with the music therapist?

1C) How does the music therapist view collaborating with the SLP graduate student?

The data were compiled through pre- and post-study interviews, observational notes of speech-language therapy sessions, emails between the researcher and student, post-session meeting notes, researcher journal entries, and a post-study evaluation.

When reviewing the data, the researcher marked passages that mentioned and/or described the collaboration between the researcher and SLP graduate student, including the process or procedures of the collaborative model. The sources of data that contained such information were the pre- and post-study interviews, post-session meeting notes, researcher journal entries, and post-study evaluation. Five themes emerged from the marked passages: 1) continuing the use of music in sessions for the child client after the study; 2) the style of the collaboration between the researcher and SLP graduate student; 3) how the collaboration affected child client outcomes; 4) the structure and planning involved in the collaboration; and 5) future collaborations. Table 1 provides examples of
passages in each theme. In addition, each of the five themes appeared across multiple data sources, and Table 2 shows where in the data the themes occurred.

Table 1

*Examples of Passages in the Five Emerged Themes*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example Passage</th>
<th>Stated by Whom</th>
<th>Location of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuing music for child client</td>
<td>“I’m definitely going to keep all this stuff that we’ve been doing in mind even after we’re done, especially for him because I don’t want to start it and then stop doing that kind of thing when he enjoys it.”</td>
<td>SLP graduate student</td>
<td>Post-Session Meeting Notes</td>
</tr>
<tr>
<td>Style of collaboration</td>
<td>“I think things are going really well with our working relationship…I just think we’re really compatible, and I like how I’ll give an idea but then you might fine-tune it because you’ve got certain speech goals…or sometimes I’ll…have a suggestion and then you’ll add to it or you’ll even come up with stuff on your own…I’m not just telling you all the music that you should do and you should do it this way. It’s much more like give and take.”</td>
<td>Researcher</td>
<td>Post-Session Meeting Notes</td>
</tr>
<tr>
<td>How collaboration affected child client outcomes</td>
<td>“…his productions during songs were sometimes a little better than his…word-initial productions…so I think songs can definitely help with that production.”</td>
<td>SLP graduate student</td>
<td>Post-Study Interview</td>
</tr>
<tr>
<td>Structure and planning in collaboration</td>
<td>“I thought everything went pretty smoothly, especially us working back and forth together like on the weekend before, getting the week together. I thought that was really helpful…”</td>
<td>SLP graduate student</td>
<td>Post-Study Evaluation</td>
</tr>
</tbody>
</table>
Table 1: continued

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example Passage</th>
<th>Stated by Whom</th>
<th>Location of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future collaborations</td>
<td>“It’s also interesting to start learning and understanding the way SLPs take data…so that I can better support what they do and understand what they’re talking about. I can use this knowledge in future collaborations with SLPs and have an advantage because I know what they’re talking about.”</td>
<td>Researcher</td>
<td>Researcher Journal Entries</td>
</tr>
</tbody>
</table>

Table 2

*Themes across Different Data Sources*

<table>
<thead>
<tr>
<th></th>
<th>Continuing music for child client</th>
<th>Style of collaboration</th>
<th>How collaboration affected child client outcomes</th>
<th>Structure and planning in collaboration</th>
<th>Future collaborations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Study Interview</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Post-Session Meeting Notes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Researcher Journal Entries</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Post-Study Interview</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Post-Study Evaluation</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
In addition to the themes occurring across different data sources, passages about specific topics also appeared across data sources. For example, in the pre-study interview, the SLP graduate student answered the second question, which addressed her expectations for the child client, by stating, “I think just variability in his therapy sessions and…switching things up a little bit, making it more interesting for him and hopefully more engaging in different ways than it has been before.” In a researcher journal entry addressing closing thoughts about the collaborative experience, the researcher wrote, “…it was great to see that adding music to [the child client’s] speech therapy sessions seemed to have a positive impact. Not only were his attention and engagement and word productions better, he also seemed to really enjoy it.”

Another example of passages about specific topics appearing across data sources fit in the theme of continuing music for the child client. In the post-session meeting notes, the researcher wrote that the SLP graduate student “would like to have materials to continue using music in sessions with [her] client.” In the post-study interview, the student stated, “I felt like I learned a lot of very simple and general ways that I can include aspects of music therapy within my sessions that I think are going to be really helpful.”

The qualitative data were also analyzed based on how equally the researcher and SLP graduate student contributed statements according to the themes. It was found that the researcher and student contributed relatively equally to the themes of continuing music for the child client, the structure and planning in the collaboration, and future collaborations. The researcher contributed slightly more according to the theme of how
the collaboration affected child client outcomes and significantly more to the style of collaboration theme.

Repeating terms that described the collaboration emerged from the data. The most common was “helpful,” most often stated by the SLP graduate student (e.g., “I think this has been really helpful. I’m really glad I did it!” “I felt like I learned a lot of very simple and general ways that I can include aspects of music therapy within my sessions that I think are going to be really helpful.” “I thought everything went pretty smoothly, especially us working back and forth together like on the weekend before, getting the week together. I thought that was really helpful…”). Other terms that emerged included “going/went/worked really well,” “beneficial,” “productive,” and “effective.” The terms “going/went/worked really well” were stated relatively equally by both the researcher and student. These terms appeared most often in the style of collaboration theme and occasionally in the structure and planning theme. “Beneficial” was used by the student to describe the structure and planning in the collaboration (e.g., “I also think it’s been really beneficial in…how I think about doing therapy…”). “Productive” was stated by the researcher in journal entries and fit into the structure and planning theme (e.g., “I think this meeting was incredibly productive because we really set the plan for later today and already started getting ready for Thursday.”). The researcher used the term “effective” in post-session meeting notes to describe what the student did in a session, which affected child client outcomes (e.g., “The SLP added music where not discussed, but appropriate, really effective; client seemed to respond well to music and give her [word] production she was looking for”).
There were no discrepancies among the qualitative data. No contradictory passages were found across data sources. However, one passage was found in which the SLP graduate student responded nearly exactly to what the researcher has just said. The researcher said, “I also think that…us working together is going really well. Do you have any comments about how this collaboration is going so far?” to which the student responded, “I think it’s going really well.” The student then proceeded to talk about the structure of the collaboration and her plans for continuing using music in sessions with her client after the study.

**Implementation of the Music-Based Interventions**

The following sub-questions of the research question were addressed with quantitative data:

1D) Does the music therapist equip the SLP graduate student with the necessary tools to implement music-based interventions in speech-language therapy sessions?

1E) How many music-based interventions does the SLP graduate student implement in speech-language therapy sessions?

1F) How many music-based interventions are used at appropriate times in sessions?

1G) How many skills needed to implement the music-based interventions does the SLP graduate student accomplish in sessions as a result of the collaboration?

The data were in the form of checklists and were measured by event recording on data collection forms (see Appendices K, L, M, and N for the forms).
Question 1D addressed the performance of the researcher, which was measured by whether or not 10 tasks related to preparing the SLP graduate student for the upcoming intervention session were accomplished (see Appendices K and L for the data collection forms). Tasks included teaching the student the lyrics and melodies of the songs to be used, providing strategies for when to pause in songs as well as use rhythm or body percussion to elicit targeted expressive language, providing recordings of movement songs and suggestions for interacting with the client while the songs were played, having the student practice the music, recording the music for the student to practice on her own, and asking if enough support was provided for the following session. These tasks were evaluated during each of the three post-session meetings. Table 3 shows the percentages at which the researcher performed these tasks across the three post-session meetings and the average performance overall.

Table 3

<table>
<thead>
<tr>
<th>Post-Session Meetings</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1B</td>
<td>88.9</td>
</tr>
<tr>
<td>#2</td>
<td>88.9</td>
</tr>
<tr>
<td>#3B</td>
<td>100</td>
</tr>
<tr>
<td>Overall Average</td>
<td>92.6</td>
</tr>
</tbody>
</table>

The data collection form evaluating the SLP graduate student’s performance in each of the three intervention sessions measured how many music-based interventions
were implemented in each session and how many were used at appropriate times, which addressed Questions 1E and 1F. The data collection form also evaluated how many skills needed to implement the music-based interventions the student accomplished, which addressed Question 1G (see Appendices M and N for the form). Three of the skills, or tasks, included pausing appropriately during the fill-in-the-blank song to elicit the desired response from the client, using rhythm to elicit targeted expressive language from the client, and interacting with the client during the movement song. Table 4 shows the frequencies at which the student performed these three categories during each of the three intervention sessions.

Table 4

<table>
<thead>
<tr>
<th></th>
<th>Number of Interventions Implemented</th>
<th>Number Used at Appropriate Times</th>
<th>Number of Skills Accomplished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session #2</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Session #3</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Session #4</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

While measuring the SLP graduate student’s performance in sessions, the researcher made note in the comments section the number of times the student added music to speech therapy interventions that was not previously discussed in meetings as well as when she referred to or repeated music-based interventions later in sessions. The researcher recorded how frequently these events occurred. Table 5 shows the number of
times the student added music and repeated interventions during the three intervention sessions and the totals per session.

Table 5

*Frequency of the SLP Graduate Student Adding and Repeating Music across Three Intervention Sessions*

<table>
<thead>
<tr>
<th>Additional Music Used</th>
<th>Referred To or Repeated Interventions Later</th>
<th>Total Per Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session #2</td>
<td>2x</td>
<td>0x</td>
</tr>
<tr>
<td>Session #3</td>
<td>1x</td>
<td>2x</td>
</tr>
<tr>
<td>Session #4</td>
<td>2x</td>
<td>3x</td>
</tr>
</tbody>
</table>

To show all the times music was used by the SLP graduate student in each speech-language therapy session, elements from Table 4 and Table 5 were combined. Table 6 shows the number of music-based interventions implemented and additional and repeated music used by the student across the three intervention sessions and the total number of times music was used per session.
Table 6

*Frequency of Music Used by the SLP Graduate Student across Three Intervention Sessions*

<table>
<thead>
<tr>
<th></th>
<th>Interventions</th>
<th>Additional Music</th>
<th>Repeated Music</th>
<th>Total Per Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session #2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Session #3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Session #4</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

**Validity**

**Internal validity.** To ensure internal validity was maintained, the researcher monitored her performance in following her own study protocol by completing a checklist that contained all procedures of the study on a data collection form (see Appendix I). The checklist was measured by event recording and showed that the researcher followed 100% of her study protocol, which included obtaining informed consent, gathering materials, and collecting qualitative and quantitative data by way of conducting interviews, observing sessions, and holding post-session meetings. Two additional post-session meetings occurred, one after the first post-session meeting and one after the third post-session meeting. These meetings were added to the data collection form.

**Researcher bias.** Peer review occurred to prevent researcher bias. Two board-certified music therapists analyzed excerpts of qualitative data from four transcriptions, which were the pre-study interview, part of the third post-session meeting, the post-study interview, and the post-study evaluation. The music therapists were instructed to mark
any passages that referred to the process or procedures of the collaborative model and any that mentioned and/or described the collaboration or protocol of procedures.

The marked passages of both board-certified music therapists were compared to each other and to what the researcher marked. Percentages were calculated based on how many passages were equally marked out of the total number between the two comparisons. Table 7 shows the percentages of agreement between the researcher and first peer reviewer, the researcher and second peer reviewer, and both peer reviewers as well as overall averages.

Table 7

*Percentages of Agreement in Marked Passages between the Researcher and Peer Reviewers*

<table>
<thead>
<tr>
<th></th>
<th>Percentage of Agreement between Researcher and Peer Reviewer #1</th>
<th>Percentage of Agreement between Researcher and Peer Reviewer #2</th>
<th>Percentage of Agreement between Peer Reviewer #1 and Peer Reviewer #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Study Interview</td>
<td>13%</td>
<td>33%</td>
<td>60%</td>
</tr>
<tr>
<td>Part of 3rd Post-Session</td>
<td>63%</td>
<td>63%</td>
<td>60%</td>
</tr>
<tr>
<td>Meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Study Interview</td>
<td>34%</td>
<td>47%</td>
<td>50%</td>
</tr>
<tr>
<td>Post-Study Evaluation</td>
<td>78%</td>
<td>71%</td>
<td>74%</td>
</tr>
<tr>
<td>Overall Averages</td>
<td>47%</td>
<td>53.5%</td>
<td>61%</td>
</tr>
</tbody>
</table>
The researcher had the most similar responses with the peer reviewers in the post-study evaluation. Similarities occurred often in the third post-session meeting as well. The pre- and post-study interviews showed few similarities between the researcher and peer reviewers. Overall, the peer reviewers displayed more similar responses to each other than did the researcher to either one of the peer reviewers.

**Summary**

Qualitative and quantitative data were collected during this study to examine how an SLP graduate student and a music therapist collaborate in a speech-language therapy clinical setting. Five themes emerged from the qualitative data about the collaboration between the student and researcher. The quantitative data showed that the researcher’s performance improved over time and the SLP graduate student increased the use of music in speech-language therapy sessions over time. Internal validity was maintained at 100%, and only one out of four qualitative transcriptions had a high percentage of agreement between the researcher and both peer reviewers.
Chapter 5: Discussion

In this study, data were collected and analyzed to examine how a collaborative model was developed and implemented between a music therapist and a graduate student studying to be a speech-language pathologist (SLP). Findings related to the research question, additional findings that supported the research question, and findings related to the literature were important to the overall study. The significance, implications, and limitations of the study as well as recommendations for future research are presented.

Findings Related to the Research Question

This study examined how an SLP graduate student and a music therapist collaborated in a speech-language therapy clinical setting. The perspectives of the student and researcher were collected and evaluations of the performances of both were completed. What resulted from the data analysis was a positive experience for the student and researcher as well as the child participant. The data also showed that the performance of the researcher improved over time and the SLP graduate student increased the use of music in speech-language therapy sessions over time. In addition, other data collected and observations made provided evidence that the collaboration was successful.

Much of what is presented regarding the perspectives of the student and researcher reflects the five themes that emerged from the qualitative data, which were 1) continuing the use of music in sessions for the child client after the study; 2) the style of the collaboration between the researcher and SLP graduate student; 3) how the collaboration affected child client outcomes; 4) the structure and planning involved in the collaboration; and 5) future collaborations.
The perspective of the SLP graduate student. The SLP graduate student stated several times that the collaboration was helpful and did so in reference to the planning of her sessions, her client’s outcomes, and the future sessions she will have with her client. She remarked in one of the post-session meetings that being in this study meant that she had to plan more in advance than usual, and her clinical supervisor noticed how prepared she was for sessions. Her clinical supervisor said it showed in the quality of her work with her client.

The student commented several times on how the collaboration affected her client. After the second session, which was the first time music-based interventions were implemented, she said she felt that the session went really fast and felt less repetitive. She said her client’s attention greatly increased from the previous session and he was less fidgety. They played a board game together in the session, and she said they would not have accomplished as much of the activity as they did without the music, which was a melody accompanying the repeated tasks of rolling dice and saying words with the targeted sound (e.g., “Now it’s time to roll the dice, what will you get?” and “Which one starts with /j/?” to the tune of “Skip to My Lou”). The student also remarked about her client’s sound production. She said his sound production was better when he sang than when he used spontaneous speech in the second session. In the third session, she said his production of /j/ during spontaneous speech was good and he had 100% accuracy when singing or chanting. In the fourth and final session, the targeted sound was /r/, and she said his production was better than expected. She thought the music helped a lot with getting her client to produce the targeted sound as much as he did, and she said overall she and her clinical supervisor were happy with the result. The music used was a “red,
ripe strawberry” chant accompanying a book and singing “Rain, rain, go away, come again another day” while rolling dice during a game.

The collaboration was viewed by the SLP graduate student as helpful for future sessions with her client. In the pre-study interview, she said she was interested in adding music to his sessions as a way to make them more interesting and more engaging in different ways than before. She said if he is introduced to something new he usually wants to continue, so she expressed wanting to keep using music in sessions after the study finished. In a post-session meeting, she said she was already starting to think of ways to continue using music after the study since she noticed he enjoyed it. In the post-study interview, she stated that the ways she learned to use music in sessions were helpful in knowing how to continue doing the same in the future.

**The perspective of the researcher.** The collaboration was a positive experience for the researcher based on spoken and written statements about how she and the SLP graduate student worked together, how they planned together, and how the experience prepared her for future collaborations. Several times throughout the study, the researcher said or wrote that they were compatible, worked well together, and contributed ideas equally. She wrote that they came up with ideas together that utilized their strengths and individual training but complemented each other. They would present ideas and fine-tune them together based on goals the student had for sessions and what the researcher thought would be the most appropriate music to use for the situation.

The researcher stated that she liked the process of session planning with the SLP graduate student, which occurred over email and in person in post-session meetings. The student already had session goals and ideas for activities in which to use speech
interventions planned, like reading books and playing board games. This worked well for
the researcher as she expressed it was often easier for her to create music-based
interventions when ideas already existed. With a session structure established, the
researcher designed music-based interventions that she thought would best support the
student in accomplishing her session goals, and the student offered input to make changes
to the music to better fit the needs of her client when needed. An example of this
exchange occurred over email before the second session, or the first intervention session.
The targeted sound was /j/, and the researcher wanted to use the song “You Gotta Sing”
by Raffi as a movement song. She wanted to replace the lyrics “the spirit” with a
character to whom the client would better relate. It was the student’s idea to use “Yoda,”
which not only was a preference of the client since he liked the “Star Wars” movies but
also used the targeted sound of /j/.

The researcher expressed several times how helpful this experience was in regards
to future collaborative opportunities. The experience itself provided a baseline for
collaborations that could happen in the future with SLPs and other healthcare
professionals, including occupational and physical therapists. The researcher also
commented on the terminology she learned during the collaboration that gave her a
deeper understanding of how SLPs measure expressive language. Imitation and
spontaneous speech were documented by the SLP graduate student, who explained that
imitation occurs when a client repeats what a therapist said and spontaneous speech
happens without a prompt. When working toward a targeted sound, like with the client of
this student, spontaneous speech of the correctly-articulated targeted sound is desired
more than imitation. However, the use of imitation is important because it can eventually
build to spontaneous speech. Knowing this information gives the researcher an advantage when working with SLPs in the future.

**The child participant.** Even though the focus of the study was on the collaboration between the SLP graduate student and the researcher, the child participant also had a positive experience during the collaboration. He learned short melodies quickly in sessions and sang them with the student and on his own. He occasionally created his own melodies to accompany activities in sessions. He showed excitement when the researcher gave him his own CDs of the two movement songs, and he sang along to the recordings when used in sessions. During the fourth and final session, he asked the student if the researcher was going to come in to do music with him, which shows that he was looking forward to it. These responses and his sound productions reported by the student show that he had a positive experience during the study.

**Researcher performance.** The performance of the researcher in equipping the SLP graduate student with the necessary tools to appropriately implement music-based interventions in sessions improved over time. The percentages of performance from the first to third post-session meeting were 88.9%, 88.9%, and 100%, respectively. This increase may have been due to an improved version of the data collection form that displayed all tasks the researcher needed to accomplish in a clear way (see Appendix L). This also may have been due to the natural progression of the study. As time went on, the researcher recognized how her performance could improve.

The researcher was motivated by three factors when deciding how to design the music-based interventions to be implemented by the SLP graduate student. First, she wanted to make sure the student could continue using music after the study ended. Rather
than design interventions that used musical instruments, which may have been difficult for the student to access, the researcher focused on what could be done with the voice and body, like sing, chant in rhythm, and use body percussion (e.g., tap table, clap hands, pat legs).

Second, she wanted to make sure the student could easily remember how to do the interventions in sessions during the study. She chose to use melodies from familiar songs, like “Skip to My Lou,” “Rain, Rain, Go Away,” and “Ring around the Rosie,” and from songs the child participant might enjoy based on what she knew of his interests, such as “The Imperial March” and “Yo Ho (A Pirate’s Life for Me).” If the music was for a repeated task, she kept the melodies brief and the lyrics applicable to the activity (e.g., “Which one starts with /j/?”, “Match it to the picture”). Sometimes the activities the student planned inspired the music, like the idea to use the camp song “Baby Shark” to chant “Feed the shark” while her client “fed” fish that were inscribed with words containing the targeted sound to a cardboard shark. Had the researcher been acting alone, she may have composed original songs to target session goals or provided a variety of instruments for the client to play to accompany music therapy interventions in addition to the above music-based interventions. However, ease of implementation was a main focus of the design of the music-based interventions, thus they were kept simple.

Third, the researcher wanted to show the student how she created the interventions so that the student would be able to design her own. She explained that she chose music based on its simplicity, familiarity, and client preference. She modeled her process for creating fill-in-the-blank songs, adding rhythmic chanting and tapping or clapping to various activities in sessions, and using music to accompany book reading,
which was an activity used by the student at least once per session. She also explained how to find other ideas for using music from Google searches, YouTube, and Pinterest.

**SLP graduate student performance.** Over the course of the study, the student increased the use of music with each speech-language therapy session. Two, four, and three music-based interventions were implemented by the student in the second, third, and fourth sessions, respectively. This was the first category measured on the student’s data collection form. Additional and repeated music used by the student, which were unexpected results, occurred two, three, and five times in the second, third, and fourth sessions, respectively. With the combination of the number of times the student used additional and repeated music in sessions and the number of interventions implemented, an increase in the use of music in sessions over time is clear: four times in the second session, seven times in the third session, and eight times in the fourth session.

The additional and repeated music used by the SLP graduate student were two categories that resulted from observational notes written in the comments section on the data collection form by the researcher. Times during each session when the student added music to a task that was not previously discussed and when she referred to or repeated previously-used music-based interventions were tracked. Examples of added music that were not previously discussed included chanting words in a book while tapping rhythmically on the table, singing a word that contained the targeted sound in a made-up melody to elicit imitation from the client, following a musical cue from the client and continuing with his song choice, and using a song idea from a music-based intervention but applying it to a different task, like rolling dice during a game. The data show she increased the number of times she did these additional and repeated tasks over time, with
the highest number being during the fourth session. This confirms that the collaboration was successful because she used more music in her sessions as time progressed.

The second category on the data collection form measured the number of times the SLP graduate student implemented each music-based intervention at appropriate times in sessions. The student did so for all interventions in all sessions, resulting in a 100% success rate. Using the interventions at appropriate times meant that they were implemented as discussed by the student and researcher in the session-planning process, like using the movement song at the beginning of the session, speaking in rhythmic chant every time a specific phrase appeared in a book, and singing the roll-the-dice song every time the dice was rolled during the game.

The number of skills the SLP graduate student accomplished in the third category on the data collection form remained the same during all three intervention sessions. The type of skill also remained the same throughout the three intervention sessions, meaning the student accomplished the same five skills in each session. Even though seven skills were included on the data collection form in this category, the maximum number the student could have accomplished was six. This was because no music-based intervention was created that related to one of the skills. This skill required the use of a pre-composed melody during memory recall tasks, but no memory recall tasks were used in the speech-language therapy sessions.

The researcher chose to analyze the data on the SLP graduate student’s data collection forms in frequencies rather than percentages of performance. This was the approach in order to show how often music was used in sessions since the student had not previously used any music with her client. Making any changes, particularly adding a
new element, to therapy sessions can be difficult for any therapist to achieve comfortably. This may have also been the case for the SLP graduate student. Adding music to sessions when having never done so before can be especially jarring since this could require singing and using musical elements that are unfamiliar. In this study, the student had a musical background, specifically in percussion, which may have helped her assimilate as smoothly as she did to using music in sessions. Having prior experience with music was not a requirement for participation in this study, however. Therefore, the job of the researcher was to make sure that the music-based interventions were not overwhelming and could be easily implemented in the speech-language therapy sessions.

Other evidence of the collaboration being successful due to the SLP graduate student’s performance was observed by the researcher but not tracked on any data collection forms. In addition to adding music that was not previously discussed, the researcher observed that the student made adjustments to the music as was therapeutically appropriate in the moment in sessions. One example was during the Feed the Shark activity in which the client was directed to feed fish inscribed with words containing the targeted sound to a cardboard shark. The music-based intervention to accompany this activity was chanting “Feed the shark” like in the camp song “Baby Shark.” The student modeled the chanting several times but the client did not respond in kind. Rather than continue when the response was minimal, she stopped and let the client talk about the activity so she could focus on listening for the targeted sound in his spontaneous speech. This was an appropriate therapeutic decision because he was not responding to the music, and what followed was an opportunity for the student to gauge his spontaneous expression of the targeted sound, which was a speech goal. The purpose of the
collaboration was to support what the student was doing in sessions and not detract from her goals.

The adjustments the SLP graduate student made to the music-based interventions and the addition of music in sessions were encouraged by the researcher. She told the student in meetings to do so if necessary since she recognized the student knew the needs of her client and what worked best for him more than the researcher. The student reciprocated and was able to do so because of the way the researcher modeled how to add music-based interventions to her sessions in post-session meetings. The ways in which the student altered or added music were similar to the original music-based interventions, such as singing the short melody of “Rain, rain, go away” while rolling dice, following the musical cue of “Theme from ‘Jaws’” that the client was singing during the shark activity, and adding melody to words containing the targeted sound. Times when the student repeated or referred to music-based interventions that had happened earlier in sessions as a way to keep the client engaged or encourage additional verbal expression is further evidence that the researcher equipped her with the right techniques to know when to appropriately add music to an activity to support her session goals.

The data on the data collection forms showed the SLP graduate student used music-based interventions at appropriate times, maintained the same skills in order to implement the music-based interventions, and increased the use of music in speech-language therapy sessions over time. Additional data taken and what was observed by the researcher also showed that the collaboration was successful.
Additional Findings

Other elements of this study that further supported the research question were important to the overall collaborative experience. These included the structure of the collaboration during the three intervention sessions and how that was determined, comparison of the pre- and post-study interviews, the post-study evaluation, post-study follow-up with the SLP graduate student, and the resulting percentages of agreement from the peer review.

Collaborative structure during sessions. The structure of the sessions involving music-based interventions was determined by the needs of the SLP graduate student’s client and the way the student had been structuring his sessions prior to the study. Her session goals for him included targeting a specific sound, and the targeted sound changed every two sessions. She planned different activities, like board games, crafts, and science experiments, that incorporated speech interventions for every session because of his age and activity level. He responded well to the structure of sessions but the activities needed to be different every time to maintain his engagement. Since she already had an established session structure in working with this client, it made sense for it to continue during the study and for the researcher to follow it. That is why, except for one movement song used in two sessions, every music-based intervention was different in each session.

This was not the only structure that was used over the course of the study, however. Collaborating with the second SLP graduate student resulted in a different experience, one in which the music-based interventions remained the same during all three intervention sessions. Because of the needs, age, and personality of this student’s
client, having new music-based interventions for each session would not have been in the client’s best interest. The student thought that using the same movement song, fill-in-the-blank song, and concept song to reinforce the goals she addressed in sessions, which also remained the same during the study, would be more effective for her client.

**Pre- and post-study interview comparison.** The questions asked during the pre-study interview pertained to the expectations the SLP graduate student had of outcomes for herself, her client, and the study itself. She hoped to learn how music therapy could be integrated into her sessions and have a better understanding of music therapy in general. For her client, she wanted him to experience something different that could make his sessions more interesting and more engaging since he will be in therapy with her for a long time. Regarding the study itself, the student had interprofessional expectations in which she wanted to understand how the collaboration would work between her and the researcher and how it could be generalized in the workforce.

Post-study interview questions asked if her expectations for herself, her client, and the study were met. All three of her answers were positive. She learned a lot of simple and general ways to include aspects of music therapy in her sessions that she thought would be helpful. She said that as she was putting plans together for future sessions, she thought of similar ideas to use that were in the study, like adding music to a book. She confirmed that her expectations for the client were met because he actively participated in the music by processing and repeating the chants and short melodies that were used. She said she thought the music helped him and would be something he would enjoy as long as she was his clinician. She also said that his productions during songs were sometimes slightly better than his word-initial productions, and she recognized that
songs could help with that. Lastly, she said she thought the collaboration with the researcher worked well, and she could see the way it transpired working successfully in a multi-disciplinary professional setting.

**Post-study evaluation.** The researcher asked the SLP graduate student to provide feedback on the collaboration that occurred in the study and if she had suggestions for improvements for future studies in the post-study evaluation. In the dialogue that followed between her and the researcher, most comments pertained to the structure and planning involved in the collaboration. The student admitted to feeling stressed about the amount of work involved in the study, specifically needing to plan for her sessions further in advance than usual. However, her stress subsided once the first intervention session was completed, and she said she was pleased by how it went. She also said that she thought the collaboration with the researcher worked well and went smoothly, particularly the exchange of ideas back and forth after giving the researcher her session plans for the following two sessions.

The student did not think any part of the collaboration did not go well, and she said if similar studies were done that certain structural components should remain as they worked well in her schedule and would for other SLP graduate students. She said that summer is a good time to do research since student schedules are more open than during the academic year and can more easily accommodate extra obligations such as additional session planning time and meetings. She also said that the schedule of working over the weekend to prepare for the two sessions the following week was helpful because of the extra time available to plan.
**Post-study follow-up.** The researcher saw the SLP graduate student two weeks after her part of the study had been completed, and she informed the researcher that she was still using music in sessions with her client. That day she used a chant about “slimy slugs” and explained she did so because she could not find a song about slugs online. When the researcher asked how the client responded to the chant, the student said he responded well and that the session went well. This information indicates that the study was successful because the student knew where to look for music resources, knew how to create her own music when no resources were available, and was continuing using music with her client two weeks after her part in the study ended.

**Peer review results.** The percentages of agreement between each peer reviewer and the researcher were varied between the four transcriptions that were measured. This may have been due to the way the researcher instructed the peer reviewers to mark the transcriptions. They were directed to mark any passages that referred to the process or procedures of the collaborative model and any that mentioned and/or described the collaboration or protocol of procedures. The researcher may not have been specific enough in these instructions since some marked passages by the peer reviewers were about collaboration in general and not directly related to the collaboration in this particular study.

The transcription that had the highest percentage of agreement between both peer reviewers and the researcher as well as with each other was the post-study evaluation. Most of the dialogue in the post-study evaluation related to the structure of the collaboration that occurred in this study. Similarly, the next highest percentage of agreement between all parties was in the transcription of part of the third post-session
meeting, which was when the researcher asked the SLP graduate student to comment on how she thought the collaboration was functioning. These two instances were referring directly to the collaboration in this study and therefore would result in higher percentages of agreement between peer reviewers and the researcher.

The other two transcriptions, which were of the pre-study interview and post-study interview, covered topics that were more difficult to define under the parameters given by the researcher. For example, the passages in the pre-study interview in which the researcher asked the student if she expected opportunities for collaboration in her profession and the student’s response that there should be were marked by both peer reviewers but not by the researcher. The researcher did not think these passages related directly to the collaboration in her study, but since they referred to collaboration, it is understandable why the peer reviewers marked them. More specificity regarding the parameters of marking passages was needed from the researcher.

**Findings Related to the Literature**

The success of the collaboration in this study supports the literature that describes the benefits of interprofessional collaboration. The collaboration in this study involved that which Twyford & Watson (2008) described, which was a unique team experience of coordinating services and combining skills to enhance client care. Donaldson & Stahmer (2014) and Benson et al. (2002) also pointed out the benefits to clients as a result of interprofessional collaboration including improvement of client outcomes and enhanced overall treatment, which occurred in this study. The SLP graduate student reported that her client’s attention greatly increased in the second session, or first intervention session, compared to the previous session, and his sound productions during songs were
sometimes slightly better than his word-initial productions. She said his sound production was better while singing than during spontaneous speech in the second session, his sound production was 100% accurate when singing or chanting in the third session, and his sound production of a new sound was better than expected with the help of the music-based interventions in the fourth session.

Other benefits of collaboration across disciplines apply to the professionals. Choi & Pak (2006) and Benson et al. (2002) stated that collaboration presents opportunities for increased learning and understanding of other disciplines as well as new skill development. As a result of this study, the researcher expressed that she gained a deeper understanding of terminology used by SLPs and how they measure expressive language. The SLP graduate student said she learned several ways to include aspects of music therapy in her sessions. In addition, her performance in implementing the music-based interventions in sessions and continuing the use of music two weeks after the study ended proved that she acquired new skills.

Both the level of collaboration and structure of sessions involving music-based interventions were determined by what the SLP graduate student thought would best meet the needs of her client, which Suleman et al. (2014) stated is an important part of successful collaboration. A consultative level of collaboration was decided in order to maximize the client’s engagement in sessions, although the last five minutes of sessions became interdisciplinary when the researcher worked directly with the student’s client. Sessions with music-based interventions were structured similarly to sessions that occurred prior to the study so that the transition of using music in sessions would be easier for the client.
The protocol of procedures in this study were influenced by previous studies. The collaborative model described by Watson & Bellon-Harn (2013), which was designed for SLPs and general education teachers with students needing additional support but not yet special education placement, had similarities to the current study. These included holding meetings to discuss how the professionals can assist each other, goals to work toward, and the most appropriate level of collaboration to use; scheduling regular meetings in which student performance and program implementation are discussed; starting implementation with observations; determining program objectives during scheduled meetings; providing suggestions to each other for effective implementation in a consultative way; remaining flexible as program objectives may change; and each professional monitoring student progress.

Another study that influenced the current study was by Kern & Aldridge (2006) and involved a music therapist acting as consultant in working with educators to increase social interaction between young children with Autism Spectrum Disorder (ASD) and their typically-developing peers on a musical adaptation of a playground. The music therapist consulted with teachers, parents, and specialists to define the problem, determine intervention goals, plan the intervention, and discuss how to implement the intervention. All participating teachers were trained to use music therapy principles and materials specifically designed for the study. One result was that the individualized intervention songs targeting specific therapeutic goals brought desirable outcomes. Another result was that the consultative collaborative approach was effective in providing support to teachers so that they could successfully implement the interventions. Teachers accurately applied interventions that were individualized for child needs and based on
music therapy principles when teacher training and ongoing consultation were provided. These were also similar results of the current study.

Supporting speech-language therapy goals with music was shown to be effective in this study. One example was the client’s sound production of /r/ in the last session. The SLP graduate student said his production was better than expected, and she thought the music helped him produce the sound as much as he did. The music was a chant of “red, ripe strawberry” during the reading of a book and singing “Rain, rain, go away, come again another day” while rolling dice during a game. Repetition was a factor in these music-based interventions, which is why using music to support speech-language therapy goals is beneficial (Geist et al., 2008). Repetition of a task when not using music may seem unnatural, but since repetition in music is common, like in these examples, it allows for natural opportunities for repeated practice.

Lastly, Twyford & Watson (2008) described long-term benefits for the profession of music therapy as a result of collaborating with colleagues from different disciplines. They expressed that interprofessional collaboration can be satisfying since working with colleagues in other fields can make one feel supported and accepted in their profession. This understanding and being valued by other professionals could help music therapists gain acceptance for their work, which remains a current concern. If acceptance is more widespread, more opportunities for music therapists to serve the needs of clients may occur. This, the authors stated, is why collaborative opportunities must be available in professional settings and is one reason why the researcher pursued this study.
Significance and Implications

This study demonstrated a successful collaboration between a music therapist and SLP graduate student in a university clinic setting. It involved input from both parties to create an enhanced form of therapy in order to meet the needs of a child client. The music therapist equipped the student with the necessary tools to successfully implement music-based interventions in speech-language therapy sessions and continue to do so after the study ended. The SLP graduate student increased the number of times she used music with each speech-language therapy session that occurred. The client showed positive effects of the added music by increasing attention and producing sometimes better sound production through song than spontaneous speech. These results are relevant because they contribute to the literature that supports and describes the many benefits of interprofessional collaboration.

The qualitative data indicated that the collaboration was a positive experience for both the student and researcher as well as the child participant. This is meaningful because it shows that professionals from different fields can maintain positive relationships with colleagues when treating the same client. It is important to have positive relationships in the workplace as a means of support and for the benefit of the client.

The main focus of this study was on the collaboration with the first of two SLP graduate students. The researcher decided to describe and analyze the collaboration that occurred with only the first student because of the scope of the thesis study, time constraints, and the model of collaboration that transpired. More opportunities for collaboration occurred with the first student due to the way she structured her client’s
sessions, which resulted in new music-based interventions being designed for each
session.

Nonetheless, the collaborative models that transpired were different from each
other, which means that more than one model exists. The music-based interventions
created for the first student’s client changed every session while they remained the same
for the second student’s client. Both child clients had the same diagnosis but were
different ages and had different needs. The collaborative experience was a positive one
for the second student and researcher, and the client of the second student showed
improvement in her session goals. Her progress was, in a way, easier for the researcher to
track than the first student’s client because the music-based interventions did not change.
Her response to the music-based interventions could be compared to that in previous
sessions, and the researcher noticed improvement over time. The occurrence of a
different collaborative model emerging from the study is significant because it means that
different models can be successfully developed and implemented to address clients’
varying needs. It also indicates that data can be tracked in various ways. Since clients
require individualized treatment plans that are specific to their needs, collaboration
among professionals serving these clients can also be individualized.

The implications of this study are important to the profession of music therapy
and to other healthcare professions. Because this study adds to the literature that shows
collaboration results in improved outcomes for clients, opportunities for collaboration in
the workforce could become more available. Clients benefit from the higher quality of
services provided when professionals combine skills, contribute their expertise, and
coordinate services in collaboration, so increasing opportunities for this to occur in the
workplace for healthcare professionals is a given. The benefits the collaborators experience from working together is another strong reason why collaborative opportunities should be commonplace in the workforce. Positive professional relationships improve the work environment and thus services to clients.

The profession of music therapy benefits from this study because it further validates its effectiveness. Interventions based on music therapy techniques were taught to an SLP graduate student to use with her client by a board-certified music therapist, and the result was improved outcomes. The combination of these two healthcare professions produced data that showed a client made progress toward session goals. This supports the advantage of having a music therapist as part of a treatment team and could provide more employment opportunities for music therapists in areas where evidence of effectiveness of services provided is needed.

One area in which evidence of effectiveness is needed applies to state licensure of music therapists. It is a goal and current endeavor of the profession of music therapy for all states to provide licensure to music therapists because access to services will be made easier for clients and their families. For example, insurance companies will provide easier access to reimbursement for music therapy services received when a state recognizes the profession as licensed. Many state task forces comprised of music therapists are currently working with state legislators to make progress toward this end. Unfortunately, barriers come up to slow down the progress, and they are often instigated by professionals who are concerned about how far music therapists’ scope of practice reaches. The current study is a favorable example of two people in differing professions working together to treat the same client who had a positive relationship with each other and never had
problems with their scopes of practice reaching too far or being violated. This study could provide evidence in support of state licensure for the profession of music therapy.

**Limitations**

There were several limitations in this study. Its length, the time commitment required, one of the data collection forms, no measure for reliability, and the parameters set for the peer review were limiting to the results of this study.

The study was brief and only lasted the duration of four speech-language therapy sessions. Since the SLP graduate student had sessions two times per week with her client, her time in the study lasted only two weeks. It is possible that the success of the collaboration was due in part to meetings and sessions occurring in close proximity. However, a longer study involving more than four sessions would have contributed more substantial data.

The time commitment required of the SLP graduate student may be difficult to emulate in a professional setting. Caseloads of SLPs are known to be quite full, so scheduling regular and additional meetings may be difficult to accomplish. Meetings may need to be adapted to occur over email or another form of technology, such as Skype or FaceTime.

The data collection form that measured the SLP graduate student’s frequency of performance was somewhat misleading. The seven skills needed to implement the music-based interventions exhibited some redundancy to the first category that measured the number of interventions implemented. Some of the skills were reiterations of the music-based interventions themselves (e.g., “use the song designated for maintaining attention during repeated tasks”). More accurate data may have been collected had the skills been
described as additional competencies needing to be met apart from implementing the actual music-based interventions (e.g., “interact with the child during the movement song” rather than “play the recorded movement song”).

The researcher did not measure the reliability of the SLP graduate student’s performance in implementing the music-based interventions. All speech-therapy sessions during the study were video recorded and could have been reviewed by an outside party to ensure that the observations made by the researcher were valid. Instead, the researcher relied on her own qualifications to make competent observations.

The peer review that occurred as a validity measure to prevent researcher bias resulted in low percentages of agreement between the peer reviewers and researcher. More specificity was needed from the researcher regarding the parameters for which passages in the qualitative data should have been marked. The parameters should have specified that any passages referring to or describing the process or procedures of the collaborative model that directly related to the researcher and SLP graduate student should be marked rather than those referring to general collaboration. As a result, the peer reviewers marked more identical passages with each other than either did with the researcher, which provided an inaccurate depiction of researcher bias.

**Recommendations for Future Research**

This study provided a step in the right direction to contributing to the literature on how collaboration can occur between a music therapist and SLP graduate student in treating a child client at a university clinic. More research needs to be done to continue what this study started. Future studies could include professionals in a non-university work setting rather than graduate students in order to measure a more accurate real-world
application with realistic time commitments; last for longer than four total sessions; incorporate improved data collection forms; and ensure that reliability is measured. Other studies could measure the impact of the collaboration on clients and focus on other models, particularly the collaborative model that emerged from working with the second student. As an example, another study could analyze the data from the collaboration with the second student and compare and contrast with the data from the first student. These studies would provide a more thorough depiction of the importance of interprofessional collaboration and how it could be more readily applied and practiced in professional settings.

**Conclusions**

Because collaboration in healthcare fields, including music therapy and speech-language pathology, is beneficial for patients and clients served as well as professionals on treatment teams, more opportunities for interprofessional collaboration need to be available. These opportunities especially need to be available for children who have speech, language, and communication disorders since they often require treatment in order to function in daily life. These children are often treated by SLPs and music therapists, and collaborative treatment that combines the unique set of skills practiced by both of these professionals enhances the quality of care provided to clients.

Music therapists and SLPs frequently collaborate together, and this study provided an example of a collaborative model that was used between a music therapist and SLP graduate student so that other professionals could potentially apply it to their own practice. The model was consultative with some occurrences of interdisciplinary collaboration. The qualitative data showed that the SLP graduate student, music therapist,
and child client had positive experiences during the collaboration. The quantitative data showed that the music therapist’s performance in preparing the student to use music-based interventions increased over time and the SLP graduate student increased the use of music in speech-language therapy sessions over time.
References


Definitions, objectives, and evidence of effectiveness. *Clinical & Investigative Medicine, 29*(6), 351-364.


Appendix A: Notice of Institutional Review Board (IRB) Approval

**LEO: IRB PROTOCOL 16-X-67 APPROVED**

compliance@ohio.edu  
Tue 2/23/2016 10:27 AM  
to: mcd862407@ohio.edu <mcd862407@ohio.edu>

<table>
<thead>
<tr>
<th>Project Number</th>
<th>16-X-67</th>
</tr>
</thead>
<tbody>
<tr>
<td>Committee:</td>
<td>Social/Behavioral IRB</td>
</tr>
<tr>
<td>Compliance Contact:</td>
<td>Shelly Rex (<a href="mailto:rcnp@ohio.edu">rcnp@ohio.edu</a>)</td>
</tr>
<tr>
<td>Primary Investigator:</td>
<td>Melissa Heffner</td>
</tr>
<tr>
<td>Project Title:</td>
<td>The Development and Implementation of a Music Therapy and Speech-Language Therapy Collaborative Model</td>
</tr>
<tr>
<td>Level of Review:</td>
<td>EXPEDITED</td>
</tr>
</tbody>
</table>

The Social/Behavioral IRB reviewed and approved by expedited review the above referenced research. The Board was able to provide expedited approval under 45 CFR 46.1100(i) because the research meets the applicability criteria and one or more categories of research eligible for expedited review, as indicated below.

| IRB Approved:       | 02/23/2016 11:27:18 AM |
| Expired:            | 02/23/2017 |
| Review Category:    | 6,7 |

If applicable, informed consent (and HIPAA research authorization) must be obtained from subjects or their legally authorized representatives and documented prior to research involvement. In addition, FERPA, PPRA, and other authorizations must be obtained, if needed. The IRB-approved consent form and process must be used. Any changes in the research (e.g., recruitment procedures, advertisements, enrollment numbers, etc.) or informed consent process must be approved by the IRB before they are implemented (except where necessary to eliminate immediate hazards to subjects).

The approval will no longer be in effect on the date listed above as the IRB expiration date. A Periodic Review application must be approved within this interval to avoid expiration of the IRB approval and cessation of all research activities. All records relating to the research (including signed consent forms) must be retained and available for audit for at least three (3) years after the research has ended.

It is the responsibility of all investigators and research staff to promptly report to the Office of Research Compliance / IRB any serious, unexpected and related adverse and potential unanticipated problems involving risks to subjects or others.

This approval is issued under the Ohio University OHRP Federalwide Assurance #00000095. Please feel free to contact the Office of Research Compliance staff contact listed above with any questions or concerns.

Research Compliance  
117 Research and Technology Center 740.593.5664  
compliance@ohio.edu
Appendix B: Recruitment Email to SLP Graduate Students

Subject: Participants Wanted for a Music Therapy and Speech-Language Therapy Collaborative Study

Greetings SLP Graduate Student Clinicians,

My name is Melissa Heffner and I am a music therapy graduate student here at OU. I am looking for an SLP graduate student who is interested in collaboration to be a participant in my master’s thesis study. The candidate needs to be a practicing student clinician in the OU Hearing, Speech and Language Clinic who provides speech-language therapy services at least once per week to a child between the ages of 4 and 12.

The study will take place in the OU Hearing, Speech and Language Clinic. The purpose of the study is to develop and implement a music therapy and speech-language therapy collaborative model to apply toward the treatment of a child currently receiving speech-language therapy services. The child’s Plan of Care will not be altered or interrupted in any way. Rather, the addition of music therapy techniques to sessions will supplement the ongoing treatment of the child.

Your participation in this study is completely optional. Your clinical supervisor will not be informed if you decline to participate. Your grades and evaluations for your clinical experience will not be affected in any way, neither positively nor negatively, if you agree or decline to participate.

If you agree to participate, you will be asked to be involved in pre- and post-study interviews and weekly meetings. The pre- and post-study interviews and weekly meetings will be audio recorded for accurate data collection. The first speech-language therapy session to occur after the pre-study interview will be observed and video recorded by me. After this session, our first meeting will involve the development of the collaborative model that will include music-based interventions to be used in future speech-language therapy sessions. You will be expected to implement these music-based interventions in three subsequent sessions. These three sessions will be observed and video recorded by me. After each of these sessions will be post-session feedback meetings in which we will review the video recordings and discuss how the implementation of the music-based interventions went. Adjustments to the collaborative model and music-based interventions may occur as a result of these meetings. Following the final post-session meeting will be the post-study interview and post-study evaluation.

Your participation in the study will last four weeks.

Individuals interested in participating in this study may contact me at mc862407@ohio.edu and 509-948-1032.

Thank you for your consideration,

Melissa Heffner, MT-BC
Music Therapist-Board Certified
Ohio University Music Therapy Graduate Student
Appendix C: Interview Questions during Recruitment of SLP Graduate Students

1. Why are you interested in participating in a study about music therapy and speech-language therapy collaboration?

2. Have you collaborated with students or professionals from other healthcare fields in the past?

3. If so, please describe your experience. Was it a positive or negative experience?

4. Why do you think your client would benefit from a collaborative experience involving a music therapist? Do you already use music in sessions?

5. What is your availability like? Are you available to meet at extra times during a four-week period? Will you remain in the Athens area after spring semester?
Appendix D: Ohio University Adult Consent Form with Signature

Title of Research: The Development and Implementation of a Music Therapy and Speech-Language Therapy Collaborative Model

Researcher: Melissa Heffner

You are being asked to participate in research. For you to be able to decide whether you want to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to sign it. This will allow your participation in this study. You should receive a copy of this document to take with you.

Explanation of Study
The study will take place in the Ohio University Hearing, Speech and Language Clinic. The purpose of the study is to develop and implement a music therapy and speech-language therapy collaborative model to apply toward the treatment of a child currently receiving speech-language therapy services. The child’s Plan of Care will not be altered or interrupted in any way. Rather, the addition of music therapy techniques to sessions will supplement the ongoing treatment of the child.

Your participation in this study is completely optional. Your clinical supervisor will not be informed if you decline to participate. Your grades and evaluations for your clinical experience will not be affected in any way, neither positively nor negatively, if you agree or decline to participate.

If you agree to participate, you will be asked to be involved in pre- and post-study interviews and weekly meetings. The pre- and post-study interviews and weekly meetings will be audio recorded for accurate data collection. The first speech-language therapy session to occur after the pre-study interview will be observed and video recorded by the investigator. After this session, the first meeting will involve the development of the collaborative model that will include music-based interventions to be used in future speech-language therapy sessions. You will be expected to implement these music-based interventions in three subsequent sessions. These three sessions will be observed and video recorded by the investigator. After each of these sessions will be post-session feedback meetings in which you and the investigator will review the video recordings and discuss how the implementation of the music-based interventions went. Adjustments to the collaborative model and music-based interventions may occur as a result of these meetings. Following the final post-session meeting will be the post-study interview and post-study evaluation.
Your participation in the study will last four weeks.

You should not participate in this study if you are not interested in collaboration, do not have time in your schedule for additional meetings, do not want to add music-based interventions to speech-language therapy sessions, do not think any children on your caseload will benefit from the addition of music-based interventions, do not wish to be audio or video recorded, and are not available after spring semester.

**Risks and Discomforts**
Risks or discomforts that you might experience are breach of confidentiality and the expectation to perform musical tasks as part of the music-based interventions (e.g., sing, keep a steady beat, play simple percussion instruments). See Confidentiality and Records section below for information on how this risk will be minimized. Regarding discomfort when performing musical tasks, the investigator will adapt the musical expectations to meet your comfort level (e.g., having you chant rhythmically rather than sing).

**Benefits**
This study is important to society because the knowledge gained could inform other healthcare professionals on clinic-based interprofessional collaborations to use with their clients, clients could benefit from improved outcomes in speech-language therapy, the knowledge gained could add to the limited research on music therapy and speech-language therapy collaboration, and, if found effective, the knowledge gained could create jobs for music therapists in clinic-based speech-language therapy settings.

Individually, you may benefit by having the opportunity to participate in a positive collaborative experience, learning music-based techniques that can be used in your clinical work outside of this study, and having the opportunity to give presentations about the collaboration with the investigator at conferences or similar settings.

**Confidentiality and Records**
Your study information will be kept confidential by locked storage. Audio and video recordings containing identifiable information will be stored in a safe in the OU Hearing, Speech and Language Clinic. All other data will not contain identifiable information and, when not in the possession of the investigator, will be stored in a locked office to which only the investigator has the key. The investigator’s thesis advisor, Kamile Geist, will need access to the data. She will have access to the clinic as well as the locked office. These data will be deleted at the end of the study, expected December 2016.

Additionally, while every effort will be made to keep your study-related information confidential, there may be circumstances where this information must be shared with:
• Federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research;
• Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU.

Compensation
As compensation for your time and effort, you will receive resources for continuing to use music-based techniques in sessions and the results of the study.

Contact Information
If you have any questions regarding this study, please contact the investigator, Melissa Heffner, mc862407@ohio.edu, 509-948-1032, or the advisor, Kamile Geist, geistk@ohio.edu, 740-593-4249.

If you have any questions regarding your rights as a research participant, please contact Dr. Chris Hayhow, Director of Research Compliance, Ohio University, (740)593-0664 or hayhow@ohio.edu.

By signing below, you are agreeing that:
• you have read this consent form (or it has been read to you) and have been given the opportunity to ask questions and have them answered;
• you have been informed of potential risks and they have been explained to your satisfaction;
• you understand Ohio University has no funds set aside for any injuries you might receive as a result of participating in this study;
• you are 18 years of age or older;
• your participation in this research is completely voluntary;
• you may leave the study at any time; if you decide to stop participating in the study, there will be no penalty to you and you will not lose any benefits to which you are otherwise entitled.

Signature_________________________________________ Date____________________

Printed Name__________________________________________

Version Date: [2/23/2016]
Appendix E: Flyer for Parents

Are you interested in having music be a part of your child’s therapy sessions?

An opportunity to be involved in a study is available. Your child’s clinician will be working with a music therapy graduate student.

- No music skills needed
- Your child’s Plan of Care will not change
- Sessions will involve the addition of music-based techniques

Participation is completely optional. If you decline, your child’s Plan of Care will not change.

If interested, please contact Melissa Heffner at mc862407@ohio.edu or 509-948-1032.
Appendix F: Recruitment Script for SLP Graduate Students

“I have the opportunity to be in a study with a music therapy graduate student here on campus. This flyer explains more about it. If you have questions, you are welcome to contact Melissa Heffner, who is doing the study. It is okay if you’re not interested. You are not obligated at all to have your child participate, and if you decline there will be no change to your child’s current Plan of Care. If you are interested, please contact Melissa within the week and she will let you know how to move forward.”
Appendix G: Ohio University Parental Consent Form

Title of Research: Collaboration Between a Music Therapist and Speech-Language Pathology Graduate Student
Researcher: Melissa Heffner

You are being asked permission for your child to participate in research. For you to be able to decide whether you want your child to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your child’s personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to sign it. This will allow your child’s participation in this study. You should receive a copy of this document to take with you.

Explanation of Study
This study is being done to investigate how a music therapist and graduate student studying to be a speech-language pathologist (SLP) work together in the treatment of a child already receiving speech-language therapy services. The study will take place in the Ohio University Hearing, Speech and Language Clinic.

If you agree to allow your child to participate, your child will be asked to continue to attend his/her speech-language therapy sessions. His/her Plan of Care will not be interrupted or altered in any way. Your child will be observed and video recorded by the investigator during sessions. The investigator may directly interact with your child during sessions if she needs to show the SLP graduate student (your child’s clinician) how to use music-based techniques.

Your child’s participation in the study will last four sessions.

Your child should not participate in this study if he/she is not between the ages of 4 and 12.

Risks and Discomforts
A risk or discomfort that your child might experience is overstimulation from the addition of music in his/her speech-language therapy sessions. The following will be done to minimize the risk:

- Music and musical instruments that your child likes and is familiar with will be used.
- If overstimulation is observed, the music will be stopped.
- The investigator will teach your child’s clinician alternative ways of delivering music to calm your child if overstimulation occurs.

The investigator does not anticipate any adverse effects of the music and speech treatment. However, if any occur, the music and speech treatment will cease and typical speech-language therapy will continue.
Benefits
This study is important to society because the knowledge gained could inform other healthcare professionals of ways to collaborate with colleagues when working with their clients, add to the limited research on music therapy and speech-language therapy collaboration, and, if found useful, create jobs for music therapists in other similar clinic settings. In addition, clients could benefit from improved outcomes in speech-language therapy.

Individually, your child may benefit by experiencing a multisensory approach in his/her therapy sessions that involves interventions and techniques created and used by graduate students from two healthcare fields collaborating together.

Confidentiality and Records
Your child’s study information will be kept confidential by locked storage. Video and audio recordings containing identifiable information will be stored in a safe in the OU Hearing, Speech and Language Clinic. All other data will not contain identifiable information and, when not in the possession of the investigator, will be stored in a locked office to which only the investigator has the key. The investigator’s thesis advisor, Kamile Geist, will need access to the data. She will have access to the clinic as well as the locked office. These data will be deleted at the end of the study, expected December 2016.

Additionally, while every effort will be made to keep your child’s study-related information confidential, there may be circumstances where this information must be shared with:

- Federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research;
- Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU.

Compensation
As compensation for your child’s time and effort, your child will receive a video of his/her participation in the speech-language therapy and music therapy collaborative sessions, resources for using music-based techniques at home, and the results of the study.

Contact Information
If you have any questions regarding this study, please contact the investigator, Melissa Heffner, mc862407@ohio.edu, 509-948-1032, or the advisor, Kamile Geist, geistk@ohio.edu, 740-593-4249.

If you have any questions regarding your child’s rights as a research participant, please contact Dr. Chris Hayhow, Director of Research Compliance, Ohio University, (740)593-0664 or hayhow@ohio.edu.
By signing below, you are agreeing that:

- you have read this consent form (or it has been read to you) and have been given the opportunity to ask questions and have them answered;
- you have been informed of potential risks to your child and they have been explained to your satisfaction;
- you understand Ohio University has no funds set aside for any injuries your child might receive as a result of participating in this study;
- you are 18 years of age or older;
- your child’s participation in this research is completely voluntary;
- your child may leave the study at any time; if your child decides to stop participating in the study, there will be no penalty to your child and he/she will not lose any benefits to which he/she is otherwise entitled.

Parent Signature____________________________________ Date____________

Printed Name________________________________________

Child’s Name________________________________________

Version Date: [2/23/2016]
Appendix H: Minor Assent Form

You are being asked if you want to be in a study. This is what it is about:

- The person doing the study is a music therapist. She and your speech therapist are working together so you have music in your sessions.
- The music therapist might play music with you.
- You will be watched and videotaped by the music therapist during your sessions.
- This study will be for 4 of your speech sessions.
- Keep coming to your speech sessions at the regular time. That won’t change.
- If you ever feel bad while the music therapist is in the room or during any of the music, we can stop so that you feel better.
- When the study is over, you will get a video of yourself doing music in these sessions and things you can do at home that use music.

- **You can stop being in this study at any time.** Nothing bad will happen to you if you want to stop.

Do you want to be in this study?

    YES          NO

Sign your name ________________________________

Write your name ________________________________

Date ________________

Version Date: [2/9/2016]
Appendix I: Data Collection Form Evaluating Researcher Performance in Following Study Protocol

SLP Graduate Student:   ☐ #1   ☐ #2

Study Protocol
Did the MT Researcher:

☐ Gain consent from the SLP graduate student
☐ Gain consent from the parent/guardian of the child
☐ Gain consent from the child participant
☐ Gather all materials for study (memory cards, recording equipment, data collection forms, etc.)
☐ Conduct the pre-study interview
☐ Observe the 1st session
☐ Hold the 1st post-session meeting
☐ Observe/participate in the following intervention sessions:
  ☐ 2nd session
  ☐ 3rd session
  ☐ 4th session (final)
☐ Hold the following post-session meetings:
  ☐ 2nd
  ☐ 3rd
  ☐ 4th
☐ Conduct the post-study interview
☐ Conduct the post-study evaluation

Comments:
Appendix J: Pre-Study Interview, Post-Study Interview, and Post-Study Evaluation Questions

Pre-Study Interview Questions

1. What are your expectations of the possible outcomes of this study for yourself?

2. What are your expectations of the possible outcomes for the child participant?

3. Please give any other expectations, perceptions, or comments regarding how you think this study will transpire.

Post-Study Interview Questions

1. Were your expectations of the outcomes of this study for yourself met? If so, how? If not, how did the actual outcomes compare to your previous expectations?

2. Were your expectations of the outcomes for the child participant met? If so, how? If not, how did the actual outcomes compare to your previous expectations?

3. Please give any other perceptions or comments regarding how you think the collaboration in this study transpired.

Post-Study Evaluation Questions

1. Please provide feedback on the collaboration that occurred in this study. What do you think went well? Do you have suggestions for improvements for similar future studies?
Appendix K: Data Collection Form Evaluating Researcher Performance on Music-Based Interventions, Version 1

SLP Graduate Student:  ☐ #1  ☐ #2

Date of Post-Session Meeting: ________ Time of Meeting: _______ Meeting #__/4

For Intervention Session on: _________ Time of Session: _______ Session #__/4

Did the MT Researcher:

☐ Teach the SLP graduate student a fill-in-the-blank song that targets session goals

☐ Provide strategies for when to pause in above song to elicit desired response from the child

☐ Teach a melody to use during memory recall tasks

☐ Teach a song to use to maintain attention during repeated tasks

☐ Provide strategies for when to use rhythm and/or body percussion to elicit targeted expressive language from the child in the session

☐ Provide a recorded movement song to use between tasks in the session that targets session goals

☐ Provide suggestions for interaction with the child during above movement song

Comments:
Appendix L: Data Collection Form Evaluating Researcher Performance on Music-Based Interventions, Version 2

SLP Graduate Student:  ☐ #1  ☐ #2

Date of Post-Session Meeting: ________  Time of Meeting: ________  Meeting #__/4

For Intervention Session on: _________  Time of Session: ________  Session #__/4

Did the MT Researcher:

☐ Teach the SLP graduate student a fill-in-the-blank song that targets session goals

☐ Provide strategies for when to pause in above song to elicit desired response from the child

☐ Teach a melody to use during memory recall tasks

☐ Teach a song to use to maintain attention during repeated tasks

☐ Provide strategies for when to use rhythm and/or body percussion to elicit targeted expressive language from the child in the session

☐ Provide a recorded movement song to use in the session that targets session goals

☐ Provide suggestions for interaction with the child during above movement song

☐ Have the SLP graduate student practice the music

☐ Record music for the SLP graduate student to practice on her own

☐ Ask if enough support was provided for the following session

Comments:
Appendix M: Data Collection Form Evaluating SLP Graduate Student Performance, Version 1

Music-Based Interventions Used in Speech-Language Therapy Sessions

SLP Graduate Student:  ☐ #1  ☐ #2

Date of Intervention Session: ________  Time of Session: ________  Session #__/4

Were the music-based interventions implemented in the session?

Intervention 1:  ☐ Yes  ☐ No
Intervention 2:  ☐ Yes  ☐ No
Intervention 3:  ☐ Yes  ☐ No

Were the interventions used at appropriate times in the session?

Intervention 1:  ☐ Yes  ☐ No
Intervention 2:  ☐ Yes  ☐ No
Intervention 3:  ☐ Yes  ☐ No

How well were the interventions implemented? Did the SLP graduate student:

☐ Use the pre-composed fill-in-the-blank song that targets session goals

☐ Pause appropriately in above song to elicit desired response from the child

☐ Use the pre-composed melody during memory recall tasks

☐ Use the song designated for maintaining attention during repeated tasks

☐ Use rhythm and/or body percussion to elicit targeted expressive language from the child

☐ Play the recorded movement song between tasks in the session that targets session goals

☐ Interact with the child during the above movement song

Comments:
Appendix N: Data Collection Form Evaluating SLP Graduate Student Performance, Version 2

Music-Based Interventions Used in Speech-Language Therapy Sessions

SLP Graduate Student: ☐ #1 ☐ #2

Date of Intervention Session: __________ Time of Session: __________ Session #__/4

Were the music-based interventions implemented in the session?

Intervention 1: ☐ Yes ☐ No Description: _______________

Intervention 2: ☐ Yes ☐ No Description: _______________

Intervention 3: ☐ Yes ☐ No Description: _______________

Intervention 4: ☐ Yes ☐ No Description: _______________

Intervention 5: ☐ Yes ☐ No Description: _______________

Were the interventions used at appropriate times in the session?

Intervention 1: ☐ Yes ☐ No

Intervention 2: ☐ Yes ☐ No

Intervention 3: ☐ Yes ☐ No

Intervention 4: ☐ Yes ☐ No

Intervention 5: ☐ Yes ☐ No

How well were the interventions implemented? Did the SLP graduate student:

☐ Use the pre-composed fill-in-the-blank song that targets session goals

☐ Pause appropriately/use a fill-in-the-blank technique to elicit desired response from the child

☐ Use the pre-composed melody during memory recall tasks

☐ Use the song designated for maintaining attention during repeated tasks

☐ Use rhythm and/or body percussion to elicit targeted expressive language from the child

☐ Play the recorded movement song in the session that targets session goals

☐ Interact with the child during the above movement song

Comments:
Appendix O: You Gotta Sing Movement Song

Music by Raffi, Lyrics adapted by Melissa Heffner, MT-BC
Key: A minor

Am E7 Am
You gotta sing when Yoda says sing

E7
You gotta sing when Yoda says sing

Am Dm
When Yoda says sing, you gotta sing right along

Am E7 Am
You gotta sing when Yoda says sing

You gotta clap...
You gotta hum...
You gotta stomp...
You gotta yell...
You gotta hush...
You gotta sing...
Appendix P: Let’s Reach Movement Song

Music: The Ants Go Marching One by One, Lyrics by Melissa Heffner
Key: Am shape, capo on 3\textsuperscript{rd} fret

Am \hspace{1cm} C
Let’s reach our arms up to the sky, hurrah, hurrah

Am \hspace{1cm} C \hspace{1cm} E7
Let’s reach our arms up to the sky, hurrah, hurrah

Am \hspace{1cm} E7
Let’s reach our arms up to the sky

Am \hspace{1cm} E7
Reach so high like we’re going to fly

Am \hspace{1cm} E7 \hspace{1cm} Am \hspace{1cm} E7
And now let’s march to see what’s next

Let’s reach our arms down low to our toes, hurrah, hurrah
Let’s reach our arms down low to our toes, hurrah, hurrah
Let’s reach our arms down low to our toes
Reach so low and touch your nose
And now let’s march to see what’s next

Let’s reach our arms out to the side, hurrah, hurrah
Let’s reach our arms out to the side, hurrah, hurrah
Let’s reach our arms out to the side
Reach so far and reach so wide
And now let’s march to see what’s next

Let’s sound like a lion and “roar!” “Roar! Roar!”
Let’s sound like a lion and “roar!” “Roar! Roar!”
Let’s sound like a lion and “roar!”
“Roar! Roar!”
And now let’s march and go back to our seats
Appendix Q: Music-Based Interventions for SLP #1, Speech Therapy Session #2

Materials: 2 CDs, rhythm instruments, xylophone

Yakkity Yak’s Yodel Yes or No Yodel Game
- **Song** for rolling the dice
  - Melody – last 2 lines of Skip to My Lou: “Now it’s time to roll the dice, what will you get?”
- Say word on card: Child says with **body percussion** (clap, tap legs, etc.)
- When landing on space with words: “**Which one starts with /j/?**” – melody for SLP (last line of Skip to My Lou)
  - Child responds with saying word with **body percussion** (clap, tap legs, etc.)

Movement song – recording of You Gotta Sing (adapted)
- 2 CDs

Extra activity: Fill-in-the-blank I Spy song for Yellow
- Melody: Yo-ho, yo-ho, a pirate’s life for me
- I spy with my little eye something **yellow** (repeat)
  - Apples are **yellow** and lemons are **yellow**
  - School buses are **yellow**, too
  - Umbrellas are **yellow** and cheese is **yellow**
  - Smiley faces are **yellow**, too
  - I spy with my little eye something **yellow**

Last 5 minutes – Interactive Instrument Playing
- Rhythm instruments, xylophone
- Let him explore
- Say color of **yellow** instruments before he plays them

For Session #3
Yummy vs. Yucky Rap – fill-in-the-blank
- SLP raps phrase/item/etc., child response is “yummy” or “yucky” in rhythm

Feed the Shark – rhythm
Melody: Baby Shark camp song
Appendix R: Music-Based Interventions for SLP #1, Speech Therapy Session #3

**Materials:** ocean drum, djembe

**You Gotta Sing (adapted) – recorded movement song**

**Book: Yummy Yummy! Food for My Tummy! – repeated task**
- Any reference to water (“deep blue sea,” “under the sea,” “flooded,” “across the water,” “he fell in!” “swam faster and faster”) – play ocean drum
- Yummy, yummy! Food for my tummy! – melody each time
  - Melody: Star Wars Darth Vader theme

**Yummy vs. Yucky rap – fill in the blank**
- Rap a phrase, child responds with “yummy” or “yucky” in rhythm, alternating each time
  - SLP: Eating ice cream
    - Child: Yummy!
  - SLP: Eating bugs
    - Child: Yucky!

**Feed the shark – chanting/using rhythm/body percussion**
- Chant: Baby Shark camp song
  - Feed the shark, do do do do do do...
  - With [/j/ word], do do do do do do...
- Can add clapping or other body percussion to it

**I Spy song for Yellow – fill in the blank**
- Melody: Yo-ho, yo-ho, a pirate’s life for me
- **I spy with my little eye something yellow** (repeat)
  - Apples are yellow and lemons are yellow
  - School buses are yellow, too
  - Umbrellas are yellow and cheese is yellow
  - Smiley faces are yellow, too
  - I spy with my little eye something yellow

**Last 5 minutes with Miss Melissa**
- Djembe – play a steady beat and chant sentences of yellow objects around room for him to repeat
  - “I see the yellow duck in the water.”
Appendix S: Music-Based Interventions for SLP #1, Speech Therapy Session #4

**Materials:** 2 CDs, guitar, egg shakers

Introduction to /r/ – no music added

Let’s Reach – recorded movement song, lyrics by Melissa Heffner

Book: The Little Mouse, the Red Ripe Strawberry and the Big Hungry Bear – rhythm/chant/body percussion

- “red, ripe strawberry” – chant in rhythm and tap on lap or table
- BOOM! BOOM! BOOM! – bang on the table
- SNIFF! SNIFF! SNIFF! – scratch nails on the table

Life Cycle of a Strawberry

- Read the card and match it to the picture – repeated task
  - Use a melody when saying: “Match it to the picture”
  - Melody: “Ring around the rosie”

Rainy Day game – repeated task & fill-in-the-blank song

- When dropping rain drops, sing “Rain, rain, go away, come again another day.”
- Continue melody during “It(’s) raining/rained on the ____” and repeat for final line of melody

Last 5 minutes with Miss Melissa

- I Know a Chicken – guitar and egg shakers
  - “pl” cluster – change “shake” to “play” in song