THE EFFECT OF ONE-ON-ONE MUSIC EDUCATION ON A CHILD

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Dedication

I dedicate this work to

all of the children I have been blessed to teach

. . . and those I will teach in the future!

Abstract

Although many early childhood classrooms use music as a part of the daily routine, there is limited research on the effect of music on young children with speech and language delays. This research is a case study of the effect of one-on-one music lessons with a five-year-old child exhibiting a severe phonological delay in speech and a moderate expressive language delay. Through weekly music lessons conducted over a five month period, the child's speech and language goals were targeted through music, using the program, "Kids Express Train" developed by Speech-Language Pathologist Rachel Arnston and Chez Raginiak (2007d, 2007e, 2007f, 2007k) as a way to excite and create a desire in children to imitate and verbally participate through music. Some additional resources used were Silly Songs: For Phonological Awareness (Banker, 1998) which uses music and rhythm to help children hear sounds in words, match these sounds to their corresponding letters in the alphabet and produce the sounds accurately, and Phonemic Awareness Songs & Rhymes (Callella & Jordano, 1998a, 1998b, 1998c) which helps children listen to language and play with the sounds in the words through theme-based songs. A description of the progress throughout the weekly lessons and the pre- and post-assessment results are presented in addition to pre- and post- interviews with the child's mother and the speech-language pathologist who supports the child's programming. The child's diagnosis changed from a severe phonological delay and a moderate expressive language delay to a mild phonological delay and a mild expressive language delay.

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Introduction

Music has always been a part of my life. Some of my earliest childhood memories are singing around the Christmas tree with my family while my uncle played the guitar and my grandparents danced in the kitchen to Charlie Pride on the record player. I have a very musical family. My mother's father was a drummer and my father's father played both the banjo and the guitar. In addition to having musical grandfathers, I can say that my entire family has an appreciation and love of music and my childhood was filled with music. Needless to say, I myself have a great appreciation for music. I can associate a song with many significant experiences and memories in my life.

As a language learner, I know that music has affected my learning. Having taken Spanish as a third language in university and not having used it a lot since, I find that I cannot carry on a coherent conversation in a Spanish-speaking country, but I can sing *La Bamba* by Ritchie Valens from beginning to end with understandable pronunciation and I can translate it as well.

Music has not only been a part of my personal life but also a part of my teaching. Through my experiences teaching in kindergarten classrooms and working at childcare centres, I have noticed children's responses to music. Music demonstrates the rhythm of language just as poetry does. I have always used music as a way to transition children from one activity to the next, to teach rhyme, as a calming effect in the classroom, and to make the day more enjoyable. Children seem to enjoy music from a very early age. My students have always responded better to transitions with music than they would if I just said what I expected them to do next.

I am currently the Early Learning Lead teacher with Holy Spirit Catholic Schools. I have been in this position for just over two years now. In this position, I work with staff, parents, and children in the pre-kindergarten programs throughout the division. Many of these children have been diagnosed with having a speech or language delay. Alberta Education (2011) provides program unit funding (PUF) for children in early childhood with severe delays involving language (code 47) or mild/moderate funding (Code 30). This coding is based on a developmental profile and documentation, including an assessment completed by a speech-language pathologist (SLP) that includes the results of measures used and a description of the child's ability to communicate, and must be provided to Alberta Education to qualify for funding. There are specific guidelines for the qualification of program unit funding. In order to qualify, the language delay must impact language concepts, functional language, social use of language, vocabulary, mean length of utterance, grammar, and acquisition of early literacy. In the event that a child qualifies on the basis of a language delay that is combined with other delays, there must be an appropriate specialist involved to make that assessment and it must significantly impact the child's ability to function in an ECS environment. Children with a severe phonological delay may also qualify for program unit funding, however they must also demonstrate at least a moderate language delay in either receptive, expressive, or total language which must be measured on a formal language assessment. A child who has at least a moderate to severe language delay and at least a moderate to severe delay in either fine or gross motor, vision, or hearing, may also qualify for program unit funding under code 47.

My idea for this project began before I started working for Holy Spirit Schools. I was completing a course in creativity as part of my Master's degree. The idea of using one's creativity and talents as a springboard for learning seemed to make a lot of sense, and I started to think about how different talents can be used in different areas of learning. In January 2010, I took a literacy course with Robin Bright, and around the same time, I started my position with Holy Spirit Schools. Since language is such an important precursor to literacy, I decided to look at my own area of creativity, music, and how it can help children who experience difficulties with speech and language.

Purpose

The purpose of this research project is to determine the effect that one-on-one music education has on a child with speech and language delays. Through weekly one-on-one music lessons, focused on speech and language goals for this child, which have been determined by an interdisciplinary team including a speech-language pathologist (SLP), teachers, and parents, I wanted to determine if music education would be of benefit to a child with such delays.

Goal

My goal in this project is to find additional ways to support children who have speech and language difficulties through embedded programming that all of the children in the program can benefit from.

As part of my current position, I participated in the *Learning Language and Loving It* program offered through the Hanen Centre. This program looks at early language development and how teachers and early childhood educators can better prepare an environment that fosters language development. Many of the suggestions in *Learning*

Language and Loving It emphasize the importance of play when learning language. In my opinion, in many cases, music and play are synonymous. The Hanen program also suggests that music is a useful tool for learning a second language (Weitzman & Greenberg, 2002). I feel that music is an important tool in learning a mother tongue. If music is in fact a tool that can help with the oral language development of children with speech and language delays, then I have another strategy that I can use with these students to help them reach their full language potential.

For me, one of the most appealing reasons for using music to help children develop language skills is that music is enjoyable. It allows children to work on their speech and language skills in a setting that is comfortable and relaxed. Music is conducive to using gross motor skills through actions, facial expressions, and is a social activity. Aside from just learning new vocabulary and having fun, Arntson (2009) feels that, "There are many other benefits to using music to enhance your child's communication, including improving imitation of words and gestures, increasing eye contact, increasing interaction with adults and peers, and following directions" (p. 29). All of these activities are important when learning a language, as non-verbal communication is a vital component to language.

This project was conducted as a case study with one child. I was a participant in the project as the music teacher and the observer. The lessons that I implemented were based on the speech and language goals that had been set for the child by an interdisciplinary team of parents, teachers, and an SLP. I chose to conduct the project as a case study because I wanted to see the impact of music on an individual child. This child had an interest in music and I wanted to see how implementing a mode of creativity that

she was interested in would impact her speech and language. As music is a part of most early childhood classrooms, I wanted to see if using music would help benefit her speech and language skills.

Definitions

A speech sound disorder, according to the American Speech-Language-Hearing Association, occurs when mistakes occur in children's speech beyond a certain age. Producing sounds is developmental, and every sound has a range of ages in which the child should be able to produce it. Speech sound disorders include difficulties that children might experience with articulation and phonological processes. Articulation is actually making the sounds, while phonological processes are sound patterns. A phonological process disorder is when a child has difficulty with a pattern of sounds, substituting these sounds, or leaving them off of words entirely. For example, a child may experience difficulties with s-blends where a word like 'snake' would be pronounced like 'nake' and other words with that blend such as 'snow' and 'snack'. An articulation disorder is when a child has difficulty making a sound (American Speech-Language-Hearing Association, 2012).

According to Anthony and Francis, (2005), "phonological awareness is critical for learning to read in alphabetic languages like English" (p. 255). It is the ability that is most strongly related to literacy. Phoneme awareness is encompassed by phonological awareness, which is "one's degree of sensitivity to the sound structure of oral language". Phoneme awareness is the "ability to manipulate individual sounds (phonemes) in words" (p. 255). For example knowing that the letter 'l' makes the /l/ sound.

The Canadian Association for Music Therapy (2006) defines music therapy as,

> the skillful use of music and musical elements by an accredited music therapist to promote, maintain, and restore mental, physical, emotional, and spiritual health. Music has nonverbal, creative, structural, and emotional qualities. These are used in the therapeutic relationship to facilitate contact, interaction, self-awareness, learning, self-expression, communication, and personal development.

Overview of Child

The child I chose to work with for the case study was a five-year old that I met through my position as early learning lead teacher for Holy Spirit Catholic Schools. Hayley (not her real name) was a very happy child who was always eager to participate in new activities. Although she demonstrated a strong understanding of language and therefore had strong receptive language skills, it was difficult for her to express herself as she was diagnosed by an SLP as having a severe phonological delay and a moderate expressive language delay. I noticed one day while observing Hayley in her kindergarten program that she and I shared a love of music demonstrated through her interest in singing and dancing. She has many family members who are also musical, playing a variety of different instruments that Hayley enjoyed listening to and some which she herself was learning to play. Hayley also enjoyed sharing books and listening to stories, and although expressing herself was difficult, she always had a story to share.

Research Questions

My research question for this project was: What is the effect of one-on-one music education on a child with speech and language delays in Early Childhood Education?

Some accompanying questions I wanted answered through this study were:

- Does music help develop language skills?

- Will the repetitive nature of music help with the production of speech sounds?

Summary

This case study looked at the effect of one-on-one music education on one child with speech and language delays. I met the child who participated in the study in my role as the Early Learning Lead teacher for Holy Spirit Schools and I discovered her interest in music. Hayley was diagnosed with a severe phonological delay and a moderate expressive language delay and received program unit funding through Alberta Education. In the next chapters, I reviewed the literature in the field of music and language development, outlined my research methodologies for the case study, discussed my findings and provided my conclusions and recommendations about the effect of music on speech and language delays of one five-year-old child.

Chapter Two: Literature Review

Introduction

Although there is limited literature on the effect of music on speech and language delays, it can be said that the area of speech delays, language delays, literacy development and creativity have been researched. In this chapter, I review literature from these areas and discuss their relationship to the context of my paper in order to create a framework regarding how my research on music fits in to the field of speech, language, and literacy development.

Prevalence and Intervention of Language Impairments

Talking is one of the most important skills that children develop in early childhood. It allows them to communicate their wants and needs more effectively and to interact in a variety of social situations. Children learn language, as they do most other

skills, developmentally, and providing early intervention for children who experience speech or language difficulties is beneficial. According to the Centre of Excellence for Early Childhood Development (2005), "Early language interventions during infancy or the preschool years can have a significant impact on child outcomes" (p. ii). For example, a child may demonstrate a reduced vocabulary size in which the intervention is as simple as repeated exposure to a set of vocabulary to help increase the child's vocabulary. An additional intervention is repeating a phrase a child has said using the correct pronouns if the child demonstrates delayed grammar skills in the area of pronouns. The Centre of Excellence for Early Childhood Development (2005) estimates that 8 to 12 percent of preschool children and 12 percent of school age children in Canada and the United States experience some form of language impairment and these children are at greater risk for other problems such as behaviour problems, and emotional and social difficulties because of their difficulty understanding others and expressing themselves. The Centre suggests that there are several contexts in which language intervention can be provided. These contexts include individual, classroom, small group, and caregiver training.

Early language intervention is becoming increasingly important as research is beginning to link difficulties with language skills in the early years with difficulties with reading later in life. The Centre of Excellence for Early Childhood Development (2008) explain that "studies show that 25% to 90% of children with language impairment experience reading disorder, usually defined as poor reading achievement occurring after sufficient opportunity to learn to read" (p. i). The Centre explains that by providing children with rich literacy and pre-literacy skills, we can help to support language learning for children in early childhood and beyond. Many of the early experiences for

children are taught in a musical or rhythmic way. For example, many children are exposed to nursery rhymes as infants and toddlers and parents often speak to these young children using a more 'musical' voice as through they were singing. Singing lullabies or other songs is also a popular activity with these young individuals.

In addition to children with only language difficulties experiencing difficulties with literacy in their school years, the results of a study by Raitano, Pennington, Tunick, Boada, and Shriberg (2004) conclude that there is a strong correlation between pre-literacy deficits and a history of a speech sound disorder (SSD) or a language impairment (LI). The study investigated the two dimensions of SSD- the presence of comorbid (coexisting) language impairment and the presence of speech-production errors and how these two related to pre-literacy skills. The results revealed that children with SSD performed less well than a control group for skills such as phonological awareness and letter knowledge skills. Those with normalized SSD also performed less well on phonological awareness tasks than a control group.

A study on Speech Sound Disorders (SSD) and Phonological Awareness (PA) by Rvachew and Grawburg (2006) suggests that "Children with SSD are at greater risk of delayed PA skills if they have poor speech perception abilities and/or relatively poor receptive vocabulary skills" (p. 74). They go on to say that "Children with SSD should receive assessments of their speech perception, receptive vocabulary, PA, and emergent literacy skills" (p. 74). Many children experience school for the first time in kindergarten when phonological awareness skills are being formally introduced for the first time. If the child has delayed speech or language skills that have gone unnoticed or unaddressed, that child may experience difficulties with early-literacy skills.

SLPs in preschool environments create interventions and strategies to support such language impairments. In learning, using the strategy of beginning with ones' own strengths and creative areas to support that individual's learning has been the focus of much research. Through my research, I investigated the link between using one area of creativity: music, and how it can be used as a strategy in supporting speech and language delays.

Creativity and Learning Processes

Creativity has come to the forefront of education in recent years. The necessity of creativity in classrooms has become very evident. Ken Robinson, in an interview with Amy Azzam (2009), reminds us of lessons that we experienced with certain teachers where we were provided with opportunities to do things that invigorated us. Robinson adds, "When you find things you're good at, you tend to get better at everything because your confidence is up and your attitude is different" (p. 23). Music is a medium of creativity that many individuals naturally gravitate to. Paquette and Reig (2008), note that "Many young children appear to be naturally inclined to hum or to sing a tune so it is beneficial to build upon their musical interests and enhance their literacy simultaneously" (p. 228).

Paquette and Rieg (2008) also advocate that "the value of fostering creativity and enhancing literacy instruction through music is vital in today's diverse early childhood classrooms" (p. 227). They go on to argue that "Music can transform classrooms into positive learning environments where children thrive academically, socially, and emotionally" (p. 227).

"According to Howard Gardner (2006), musical intelligence is the first intelligence to develop, and the use of music, soundtracks or soundscapes to learn is attributed to the individuals musical intelligence" (Salmon, 2010, p. 938). We experience these soundscapes or other natural connections to music when we get a song stuck in our head, or we associate a melody with a particular experience in our lives. According to Arnston (2007), studies have only begun to examine the effect of music on the brain, however, "there appears to be a consensus that music engages the entire brain and improves communication between the two hemisphere of the brain" (p. 1). Salmon (2010) notes that most language processes occur in the left hemisphere of the brain and most musical processes occur in the right hemisphere. Salmon goes on to suggest that as we use music as a part of literacy or language activities, we are creating a balance between these two hemispheres.

Music and Communication

Because of my experiences being sung to as a child, and my experiences in classrooms where my students have responded well to music, I have found that music is an effective means to encourage communication. It seems to be a sort of scaffolding that we provide for young children to introduce them to language. Through my research, I wanted to investigate how a child with speech and language delays would be affected by music lessons that focused on her goals.

In her article "Music and Language Development in Early Childhood: Integrating Past Research in the Two Domains," Chen-Hafteck (1997) explains that,

> Music and language are the two ways that humans communicate and express themselves through sound... music and language development proceed in close

> relationship with each other and there is a multi-faceted potential for both. The two domains are indistinguishable during the early years, and only until later stages that they become more diversified (p. 85).

If music and language are so closely related in the early years when children are first exposed to language and sound, it seems to follow that using the two together would make the process of learning language easier and more relaxed. Chen-Hafteck (1997) concludes that, "The close relationship between music and language development from early perception of sound to emergence of singing and speech is evident. This implies that learning can be enhanced if music and language are closely related in education" (p. 94).

Salmon (2010) suggests that using music in the classroom invites children to communicate because music is intrinsically motivating. This helps children "to establish connections with their world, thus enhancing their desire to communicate what they have in their minds" (p. 941). According to Saffran (2003),

> Music and language also share the distinction of being two of the stimuli that are most interesting to developing humans. Along with faces, young infants are most consistently engaged by speech and by music (making singing a particularly welcome combination of face, speech, and music) (p. 297).

Paquette and Reig (2008) continue to explain that songs have other benefits, "Cognitively, songs present opportunities for developing automaticity-knowing what to say and producing language without pauses-in the language process. The repetitive nature of many children's songs could also be of value to non-English speakers as they hear words and phrases repeated" (p. 228).

The results of a study by GroB, Linden, and Ostermann (2010), indicate that there was positive development indicated through increases in phonological capacity and understanding of speech for children who participated in the study. Other areas affected positively were cognitive structures, action patterns and level of intelligence (p. 1). The children involved in the study seemed to have rapid results as "Music therapy seems to stimulate the speech development of developmentally delayed children even after a few music therapy sessions" (p. 7).

Arnston (2007) submits that "music can be used to enhance speech and language skills" (p. 1). She argues that even children who are shy may prefer to sing songs in the privacy of their homes because they are in an environment where they feel most comfortable. Arnston suggests several techniques that make children want to sing and talk. Some of these techniques include singing whatever the child can already say, singing repetitively and in chains of three, taking turns, singing slowly, and using gestures while you are singing. By singing what the child can say, you are creating a singing opportunity for the child to be able to imitate, be it with sentences, words, or just sounds. Repetition is appealing to children. The children are encouraged to sing along because the repetition keeps their interest and it is simple. Taking turns in a song can be a duet, or just provide an opportunity for the child to vocalize. Singing slowly provides the child the opportunity to keep up. Furthermore, Arnston suggests using gestures can enhance a song and entice singing.

In her book, *We Can Talk,* Arnston explains that children with speech and language delays need practice, through repetition and daily rehearsal. Music is a strong tool for encouraging children to practice because most children are attentive to music and

will listen to favourite songs over and over, making speech and language practice contagious and stimulating (Arnston, 2009). Arnston encourages the use of music throughout the day by making up songs about what you are doing, or singing in the car.

According to Mizener (2008), there are several musical experiences such as singing, rhythmic speaking or chanting, and listening that support language development. "Activities involving chanting and rhythmic speaking are helpful in the practice of elements of speech that parallel musical elements and in the exploration of oral reading skills" (p. 11).

Music has also been used in treating patients who have experienced language difficulties because of damage to the brain. Melodic Intonation Therapy (MIT) is one of few accepted treatments used for aphasia, a disorder characterized by the loss of ability to produce and/or understand language. It is often caused by brain damage and can occur in children, although it is rare. MIT "uses the musical elements of speech (melody and rhythm) to improve expressive language by capitalizing on preserved function (singing) and engaging language capable regions in the undamaged right hemisphere" (Norton, Zipse, Marchina, & Schlaug, 2009, p. 431). They explain that it has several levels of difficulty, and uses intonation and tapping at all these different levels to bring the patients from humming while the therapist taps on the patients hand, to responding to a probe question using speech with various levels of singing, repetition and rehearsal in between.

Music and Early Literacy

Arnston (2009) explains that music is also related to reading. Children learn about phonemic awareness through songs that rhyme, and when they sing a song that emphasizes the words starting with the same beginning letter sounds. Phonemic

awareness is an important skill that children need in order to be good readers. When children clap to the beat of a song, they are learning about syllables in a word and through songs they are being exposed to new vocabulary.

Rvachew, Chiang, and Evans (2007) concluded that "Children who enter kindergarten with delayed articulation skills should be monitored to ensure age-appropriate acquisition of phonological awareness and literacy skills" (p. 60). In order to be a successful language reader, a child must develop attentive listening skills. Attentive listening skills are strengthened through the varied listening experiences that children experience in a music classroom (Wiggins, 2007, p. 56). According to a research study in support of Kindermusik's ABC Music & Me,

> Findings linking music training to verbal memory are important because verbal memory is essential for reading print words with comprehension. As reading progresses to sentences and texts of greater lengths, verbal memory allows a child to retain material in memory as it is being read so that syntactic and semantic analysis necessary to comprehension can be formed (The impact of music on language & early literacy: A research summary in support of Kindermusik's ABC music & me, p. 2).

Music and Second Language Acquisition

David Watts (n.d.) discusses music in terms of learning a second language. He argues that early childhood specialists and music specialists would agree that music is as integral as language to the learning process and vise versa (p. 29). Watts goes on to explain that if children are to completely appreciate music for the connective that it is, it must be a part of the enrichment of the entire curriculum, just as it permeates all of our

lives and although many classrooms have a specific music time, this should not be the only time that the children are exposed to music.

Bolduc and Fleuret (2009) contend that singing is one of the best activities for the acquisition of language. They suggest that ten to fifteen minutes of class time each day should be devoted to singing songs and that every teacher should put together a collection of songs set to familiar melodies with lyrics that relate to the topics covered in class. Bolduc and Fleuret (2009) also argue that "through musical activities, young learners are encouraged to focus their attention on various aspects of the sound structure of language which helps them to improve their listening skills and to develop metacognitive and metalinguistic skills" (p. 1).

Weitzman and Greenberg (2002) suggest using music to help a child learn a second language. Music can be used to make contact with a child, but can also help them communicate, as second language learners tend to imitate whole phrases or sentences. Music can help them learn these new phrases or sentences which can then be carried over to interactive situations which can in turn help them understand when the phrase can be used so that the children can later use the phrases themselves (p. 261).

Summary

Research suggests that children who experience communication difficulties are at greater risk for other factors such as behavioural, social, emotional and literacy difficulties. Some other researchers suggest that fostering an individual's creativity is vital in classrooms and as Gardner (2006) suggests, musical intelligence is one of the first to develop. Music is a way for individuals to express themselves, is intrinsically motivating, and according to Arnston, can be used to enhance skills in children such as

speech and language. Music is also a useful tool in early childhood classrooms for supporting pre-literacy skills as it helps develop phonemic awareness and encourages attentive listening skills. In the next chapter, I will discuss my research methodology and how I planned to use music to support a child with a speech and language delay.

Chapter Three: Methodology

This project was conducted as a case study with one child who had a diagnosis of a severe phonological delay and a moderate expressive language delay. Through weekly one-on-one music lessons, I chose music that focused on the goals on Hayley's Individualized Program Plan (IPP). As her difficulties with communication stemmed from her difficulties producing specific groups of sounds, we sang songs that contained those sounds and she was also exposed to other language goals such as grammar throughout all of the songs. Each weekly lesson was video taped for my review later.

In several articles written by Yin in 1981, he defines a case study as an empirical inquiry that,

- investigates a contemporary phenomenon within its real-life context; when
- the boundaries between a phenomenon and context are not clearly evident; and in which
- multiple sources of evidence are used (Yin, 1989, p. 24).

I chose to use a case study for my project because I wanted to investigate changes in Hayley's speech and language in a real life situation using music, a universal phenomenon. Initially, I was uncertain as to how music would be used and a program was not clearly set. I determined which songs I would use and how I would use them upon video review after each lesson. Throughout the case study, multiple sources of

evidence were used including pre- and post- interviews with Hayley's mother and the speech language pathologist, pre- and post- assessments conducted by the speech language pathologist, and videos of the lessons. The purpose of the case study was to determine how music lessons would affect Hayley's speech and language skills.

Prior to commencing the case study, consent was gained from Hayley's mother for both Hayley and her mother to participate in the study. Both the adult and child consent outlined that they were invited to participate in the study because Hayley had been diagnosed with a speech and language delay and that the purpose of the study was to determine the effect of music on a child with speech and language delays. The consent explained that the child's IPP goals would be the focus of the weekly one-on-one music lessons and that participation was completely voluntary and that they would remain anonymous. Daryl Graham, SLP also signed a similar consent to participate in the study. His consent also outlined the purpose of the study, how the information would be used, and how the documents would be handled.

Hayley turned five just before we started the music lessons. She was completing her first year in a pre-kindergarten classroom where she and I first met, and where she had been receiving supports for speech and language. Hayley was a happy child who was always eager to participate, liked sharing her ideas and stories, and enjoyed singing and dancing. Hayley's difficulties with communication, particularly her speech errors, made her difficult to understand, and she would often have to repeat herself numerous times, or try to explain what she was talking about with other words in order to be understood. She had some favourite songs which she would request upon my arrival. Although I provided lots of choice for Hayley, she was always cooperative if I insisted on doing a different

song. Hayley's mother indicated that Hayley would ask during the week when Ms. Tanya was going to return so we could do more singing. Hayley was also eager to share experiences she had had outside of music lessons, particularly those when she had the opportunity to share her favourite songs from the lessons with others.

The music lessons were provided at Hayley's home as per her mother's request. This provided Hayley with an environment in which she was most comfortable and her other family members would often hear or see the materials for the songs we were working on. Each week, Hayley and I would meet in the living room with a stereo, CDs, instruments and/or visuals necessary for the songs. Hayley participated in twenty-one of the lessons over a five month period. Each of the lessons would last for about thirty minutes. At the beginning of each lesson, I would place my iPad on a table in front of where we were practicing and Hayley would often help me press the red button the screen and check to see if the numbers on the screen started counting up to let us know that it was recording.

Hayley responded well to the resources. Each of the songs had a corresponding visual to support the song. Some of these visuals were the lyrics to the song accompanied by an illustration as a visual cue to help Hayley 'read' or followed along with the words to the song. Other songs had pieces that Hayley would manipulate to describe different parts of the song. For example, *Snowman* was accompanied by a picture of a snowman and the parts of the snowman to be added as Hayley sang about that part. The visuals were beneficial in providing Hayley with choices as she was able to choose both physically and verbally. She responded very well to the visuals that she was able to manipulate but also enjoyed 'reading' the lyrics to some other songs. She was always

eager to participate and try new songs. Some of the music that we learned had lyrics that were based on tunes of familiar songs, such as *Muffin Man,* however the *Kids' Express Train* songs had original melodies or were based on the melodies of old rock songs. Hayley tended to enjoy these songs more, but was quite happy to sing any of the new songs that I brought with me. Even if she didn't love a song, she would still participate if I promised that she would get to choose the next song.

Music has been my passion since I was a child. My family recognized early that I had musical talent, and I was in private voice and piano lessons. I also participated in a violin quintet, orchestra, girl's choir, concert choir, chamber choir, and triple trio throughout my school years in addition to directing the children's choir in my community in my later high school and university years. As the early learning lead teacher, I work closely with speech language pathologists within the Holy Spirit School Division. Speech and language training is provided by the SLPs to the staff that will be working with children with speech and language delays.

Goals

My goal in this project was to help identify alternative ways to support children with speech and language difficulties in the early childhood classroom. The musical focus of the lessons was on singing as my goal was to support oral language. In the weekly lessons, I focused on goals that had been set up for the child by an interdisciplinary team of speech-language pathologists, teachers, and support staff. These goals were written as a part of the child's IPP.

All of her IPP goals are focused on speech and language. Her speech goals focus on the production of /f/ and /l/ in the initial position, and s-blends in the initial position.

An s-blend is a consonant blend or a consonant cluster which means that the ‘s’ is combined with another consonant as in /sn/ in snake. In consultation with the speech language pathologist, I was assured that I could also begin to focus on /sh/ as she was able to produce that sound in isolation and was beginning to use the sound during structured activities at the beginning or words.

Her language goals are using the present progressive tense (is –ing) during structured activities. She is also working on using the pronouns he, she, and I correctly in sentences. Children in pre-kindergarten are continuously adding to their vocabulary. Some of the songs and activities that I introduced served the purpose of increasing vocabulary or being a receptive language task. During the weekly music lessons, I focused on several Specific Learner Expectations in the Alberta kindergarten program statement and the Alberta Program of Studies for music. She participated in a variety of songs, singing games, and poems such as chants and through these experiences, explored and experimented with patterns, movement, rhythm, and different sounds in the music. Hayley responded to the beat in music through a variety of movements such as tapping, clapping, or doing actions to the beat (Alberta Education, 2008).

As recommended by Alberta Education (1989) some of the songs that we sang were organized with a chorus and several verses. Hayley learned that music can be organized into sections that are sometimes the same and sometimes different in regards to the lyrics or the melody and that these sections may be repeated. For some of the songs that focused on speech sounds that were difficult for Hayley to produce, I often asked Hayley to sing more slowly demonstrating that the beat in music may be fast or slow (tempo). We used a variety of songs that had sounds produced by different animals or

individuals in which Hayley was expected to distinguish between environmental sounds and speaking and singing voices.

When we introduced new songs, I would have Hayley listen first to the song to familiarize herself with the melody. Depending on the complexity of the song, or if there was not a digital version of the song to listen to, I would have Hayley copy after me as I sang a phrase of the song at a time. She responded to tone matching and echo games in singing and would respond to the music through movement in an individual manner, often creating her own actions as suggested by Alberta Education (1989). We participated in many singing activities, which demonstrated rhythm and a variety of melodies through singing and action games. Hayley sang both with me to form a duet and solo. She was able to sing accurately when we sang together. She was also able to follow a story that was told by music.

We would vary the songs each week. Through singing a song, I drew her attention to the production of specific sounds as pronunciation is an integral part of singing. We practiced a song for several weeks in a row, and then I gradually added new material. We revisited songs often to do a review and to provide me with an opportunity to see if she was continuing to produce the target sounds in the songs. We also sang songs that did not have a specific target sound goal, but that contained some of the target sounds to see if she was generalizing the sound production.

Data Collection

I tracked Hayley's progress with the speech and language goals through music over a five-month period, from the beginning of May until the beginning of October, 2011. There were twenty-one lessons in all. Several types of data tracking were used.

Each music lesson was videotaped. After each lesson, the video was reviewed. Depending on what the focus of the lesson or song was, I documented accordingly. For example, if the focus of the song was producing s-blends in the initial position, I tallied the total number of occurrences of s-blends in the song, and then the number to times that the s-blends were accurately pronounced in the song. These numbers were then turned into a ratio to describe the child's ability to produce s-blends in that song. Alternatively, if the focus of the song was on phonological awareness, I wrote anecdotal records of her ability to substitute initial sounds or identify sounds within the song. The notes from my weekly tracking were then summarized. When Hayley had mastered a sound, we would revisit the song and begin to focus on other sounds that she was gaining success with.

Assessments

In addition to my own tracking, formal assessments were conducted by a speech-language pathologist. These assessments measured both speech and language skills. The two assessments that were conducted before the lessons began, and again six months later were the Hodson Computerized Analysis of Phonological Patterns (HCAPP) and the Clinical Evaluation of Language Proficiency for Preschool (CELF-P2).

Hodson Computerized Analysis of Phonological Patterns. The HCAPP was created by Barbara Hodson. In an interview with Linda Schreiber, Hodson described the HCAPP as a "software program that helps speech-language pathologists analyze children's disordered phonological systems" (as cited in Schreiber, 2008) The children are shown a series of pictures which they need to label while a speech-language pathologist transcribes the pronunciation of the words. This is then entered into the HCAPP software. The software then provides a phonological analysis summary that

provides valuable information for the SLP including the total occurrences of major phonological deviations, which then yields a severity rating of the child's phonological system. These severity ratings are mild, moderate, severe, or profound (as cited in Schreiber, 2008). The HCAPP is one of the approved assessments by Alberta Education that can identify a phonological delay.

Clinical Evaluation of Language Proficiency for Preschool. The CELF-P2 "is a practical and efficient clinical tool for identifying, diagnosing, and performing follow-up evaluation of language deficits in children ages 3-6 years" (Wiig et al., 2004, p. 1). The test is administered one-on-one by a speech-language pathologist and evaluates a child's general language ability and determines whether a language disorder is present via only three subtests, collectively administered in fifteen to twenty minutes, in order to obtain a score for core language. These subtests assess sentence structure, word structure, and expressive vocabulary. The assessment is flexible and provides multiple perspectives for pinpointing a child's strengths and weaknesses in respect to language and communication. It also provides recommendations for intervention and accommodations. The CELF-P2 assessment process has four levels. Level one identifies whether or not there exists a language disorder. Level two describes the nature of the disorder. Level three evaluates early classroom and literacy fundamentals, and level four evaluates language and communication in context (Wiig et al., 2004, p. 4). The CELF-P2 has two stimulus books. These books have the directions necessary to administer the assessment. The children are able to see the picture stimulus on one side of the spiral bound book while the administer is able to see the questions on the other side. The child's responses are then recorded on the record form for later review.

The three subtests that examined receptive language skills were sentence structure, concepts and following directions, and basic concepts (before she turned five years old) or word classes-receptive (after she turned five years old). The three subtests that examined expressive language skills were word structure, expressive vocabulary, and recalling sentences.

Program

I used a variety of resources in creating my music lessons. These were music resources that also targeted speech, language, or phonological awareness goals in addition to providing musical experiences. These are described below.

Kids' Express Train. I was introduced to the Kids' Express Train at a professional development opportunity with Rachel Arnston, SLP. Arnston is a co-founder of Kids' Express Train whose slogan is "simple songs that kids can simply sing". The Kids' Express Train Key Sets are a collection of CDs that focus on speech and language goals. The key sets also include a CD with printable visuals to support each song. As a part of my music lessons, I used many songs from the Kids' Express Train key sets, which are described below.

Cheese and Macaroni: This song teaches many things like food vocabulary, using conjunctions, and teaching early verbal jokes. I used this song because of its repetitive nature, good rhythm, and to practice some of the focused sounds in the medial position. One of the "chains of three" (Arnston, 2009) in this song was "cookies and ice cream" (repeated three times). When we sing these words together, the /scr/ in ice cream is one of the blends that we were working on in the initial position. This provided me an

opportunity to work on this sound in the medial position (Arnston & Raginiak, 2007c, track 1).

I Love: We used this song from Kids' Express Train to work on the /l/ sound. The song is also repetitive in that it repeats the phrase 'I love' followed by an item. The song also has a chorus which repeats a few times. The chorus has a series of the word la which was a good practice opportunity to produce the /l/ sound (Arnston & Raginiak, 2007j, track 8).

Alphabeat: This song introduces phonemic awareness. The children have to determine the first sound that words make. I used this as a focus because children with speech and language delays sometimes experience difficulty with phonemic awareness (Arnston & Raginiak, 2007a, track 5).

Help Me Mama: This song is set to the same melody as *Help Me Rhonda* by the Beach Boys. It encourages movement to the beat. I also used this song because of its use of pronouns; a focus for Hayley (Arnston & Raginiak, 2007h, track 6).

Snowman: This song is also set to well known song by the Blues Brothers: *Soulman*. This is one of the first songs Hayley and I sang together. This song provides many opportunities to practice s-blends such as in the words snowman, stick, smiley, and scarf. This song also demonstrates the proper use of the pronoun I in the phrase "Snowman". The visuals provide an opportunity for the child to create the snowman as they sing the song which provides motivation to produce the words (Arnston & Raginiak, 2007m, track 9).

A Monkey, A Moose, A Mouse: I used this song as a way to practice /sm/ blends. This song uses chains of three. When singing my moose, moose, moose, the /sm/ blend is

created between the last consonant of one word and the first consonant of the next (Arnston & Raginiak, 2007b, track 5).

Hissing Snake: We sang this song as a focus on the /s/ sound in isolation and in blends. This song has a slower tempo, whereas most of the songs we used had faster tempos. It provided us an opportunity to experience a different speed in a song (Arnston & Raginiak, 2007i, track 10).

Shake and Wave: This song worked on some directional concepts. The tempo of this song was also slower and provided us an opportunity to have some individual movement following the directions in the song (Arnston & Raginiak, 2007l, track 8).

Fish, Sharks, and Shells: This song focused on the /f/ and /sh/ sounds. It also provided an opportunity for movement as we got to "swim" between verses to practice the /sh/ sound (Arnston & Raginiak, 2007g, track 9).

Silly Songs: For Phonemic and Sound Awareness. I also used many songs from *Silly Songs: For Phonology and Sound Awareness*. These songs focus on one particular sound or blend. Each of the songs has illustrations to go with the verse which are intended to be humorous for the child. The songs are also set to a familiar melody such as "Muffin Man" or "The Farmer in the Dell". The front cover of the song also has a list of target words.

Funny Farmer: This song focuses on the /f/ sound in the initial position. The song also mixes in some other sounds such as /s/ which have to be produced in the same sentence as the /f/ sound making the production a little more challenging. The lyrics and illustrations for this song provided some comic relief to accompany the speech production (Banker, 1998, pp. 175-185).

Spider Spin: This song focuses on a variety of s-blends including /sp/, /sn/, /sp/, /sk/, /sw/, and /st/. Like many of the Silly Songs, is very repetitive in nature and the illustrations provided a clear explanation of the lyrics allowing the child to sing independently (Banker, 1998, pp. 201-211).

Lion Makes a List: This song focuses on /l/ in the initial position. It also provides opportunities to practice other sounds such as /s/ in the medial position (Banker, 1998, pp. 333-343).

Show Me a Shark: This song allowed us to hear and practice the /sh/ sound in the initial and medial positions. The illustrations allowed us to revisit a song after several weeks and sing the lyrics without reminders (Banker, 1998, pp. 227-237).

Phonemic Awareness Songs & Rhymes. I used several songs from the Phonemic Awareness Songs and Rhymes collection. Callella and Jordano (1998) have collections of songs based on seasons. These songs provide phonemic awareness opportunities and in doing so, provide opportunities to practice sounds.

Silly Sally Squirrel: This song provides an opportunity to practice the /s/ sound. The last line of the song is "Can you think of more? Let's try," encouraging the children to think of other words that start with the /s/ sound. This gave Hayley an opportunity to take ownership of the sounds that she was producing and to decide on some other /s/ words, which were often s-blend words that she was using in other songs. Having become very familiar with this song, we also began to add other consonant sounds (Callella & Jordano, 1998a, p. 76).

Animals Talk: This song is a playful song that changes the /l/ in "Here were go Looby Loo" to another consonant sound that matches the first consonant of the animals

name. For example, the reindeer say, “Here were go rooby roo”. This song not only provided an opportunity for Hayley to participated in phonemic awareness activities, but when I chose animals such as snakes, or llamas, she was also given an opportunity to practice targeted speech sounds (Callella & Jordano, 1998b, p. 36).

First and Last Sound: This song asks musically what the first and last sounds in names were. This provided us an opportunity to choose names and talk and sing about their sounds. We were able to target several speech sounds in this song (Callella & Jordano, 1998b, p. 22).

Fishing for a Rhyme: This song allowed us to discuss rhymes, but also focus on some of our target sounds within the song. The /f/ was also a targeted sound that should be examined through the lyrics of this song (Callella & Jordano, 1998c).

Chapter Four: Findings and Discussion

This case study was conducted with one five-year old child. Each week, she and I participated in a thirty-minute music less where I chose songs that focused on her IPP speech and language goals. Each of the weekly lessons was recorded on video, which I reviewed after each weekly lesson. Data pertaining to the child's success with working the goals was gathered during the reviewing of each lesson. Pre- and post-speech and language assessments were conducted by Daryl Graham, SLP. Pre- and post-interviews were also conducted with Mr. Graham and the child’s mother.

Pre-Lesson Interview with Mother

Before the music lessons started, Hayley’s mother was interviewed. She was first asked about the speech and language supports that Hayley received prior to the commencement of the project. She noted that, at school, she (Hayley) met with Mr.

Graham, one of the speech-language pathologists with Holy Spirit School Division, and other staff within the pre-kindergarten program. She received supports at school for language and speech. At home whenever they read a book or Hayley mispronounces or misuses a word, her mother has her repeat any word that was pronounced incorrectly in order that she pronounces it the right way. For example, if she says "nake" in lieu of "snake" the family models the correct pronunciation for her to repeat it with an s-blend. The family tries to reinforce good speech sounds at home and provide good modeling. If someone at home cannot understand what she is saying, her mother will interpret, suggest what she thinks was said to confirm with Hayley, and then have Hayley repeat the phrase.

I asked Hayley's mother about Hayley's experiences with music. She said that the family listens to music all the time at home. Hayley's brother plays the guitar so she usually sits around him while he plays. Hayley also has a karaoke machine in her room with her sister so she likes to listen to that and tries to participate. The family always listens to music and they have the radio on during the day. When they go out to their grandparents' farm, grandma plays the piano and grandpa plays the guitar and the drums and she likes that. She is beginning to play some simple songs and has good rhythm.

Hayley's mother was asked if there was anything else that she felt was important to know about Hayley in relation to the project. Her mother stated that Hayley likes to read and have her mother read to her. She likes to read Dr. Seuss books which she is starting to memorize. She also likes to draw pictures.

Pre-Lesson Assessments

The formal assessments used to assess Hayley's speech and language were the H-CAPP and the CELF-P2. Hayley's pre-HCAPP score was 112, placing her in the severe

range. For core language on the CELF-P2 pre-lesson Hayley was in the eighty-eighth percentile for receptive language. Her expressive language skills put Hayley in the third percentile while demonstrating a moderate expressive language delay.

Pre-Lesson Interview with Speech-Language Pathologist

Before the study began, the speech-language pathologist for Holy Spirit School Division, who also works with Hayley, was interviewed. Mr. Graham was asked what strategies or interventions have been tried with the child in her first year of Program Unit Funding. I was informed that there have been several programs set up to meet her needs in terms of speech and language. For the speech, there are three sounds that have been targeted, and there are blocks of a week to two when that sound is worked on. They then work on another sound, until all three sounds have been covered, and then they cycle back to the first sound again. The supports for speech sounds continue over into Hayley's play, and other activities that she participates in in the classroom. The language piece is being integrated as much as possible in the classroom to work on things such as pronouns, and some of the grammar markers in her sentences. Some of the language goals are also built into the speech activities that they are doing.

Mr. Graham was asked about Hayley's progress thus far through receiving the supports in the classroom. He noted that in terms of language, she had done quite well with the pronouns and some of the grammar structures. At the time of this initial interview, Mr. Graham noted Hayley had an understanding of these markers, but she was not able to mark them because they might contain a sound or a combination of sounds that she is having difficulty with. In terms of her speech sounds, he was seeing some progress in her structured one-on-one work, and she would use sounds in conversation

with a reminder, but the sounds would often slip back without that reminder. Her correct pronunciation of the targeted sounds had not yet carried over consistently in conversation.

Mr. Graham was asked to describe the assessments that were conducted with Hayley. The two assessments conducted with Hayley were the HCAPP and the CELF-P2. The HCAPP is a phonological assessment instrument. The child is asked about fifty words and the HCAPP does an analysis of exactly what the child is doing with the individual sounds in words and then gives an indication of severity. The CELF-P2 looks at both receptive and expressive language. The receptive language portion examines how the child is able to follow directions, her understanding of the grammatical structure of sentences, and her understanding of basic concepts. The expressive language portion of the assessment is more structured and most responses are only one-word answers, which is not the way we talk in normal conversation. This section asks the child to fill in the blank to form a grammatical sentence, to repeat back sentences that she has heard, starting with short sentences that get longer and more complex, and naming or labeling items to examine expressive vocabulary.

The assessments were conducted at the beginning of the school year. The assessments indicated a severe phonological delay and a moderate expressive language delay. Her receptive language skills were quite strong. In April, just before Hayley turned five, although she had shown some good gains in structured activities, she continued to demonstrate some difficulties with production of speech sounds in an assessment setting. Again, in terms of her language, her receptive skills were quite strong, and her speech

was continuing to impact her expressive language. Her assessment results were again, demonstrating a severe phonological delay and a moderate expressive language delay.

Mr. Graham was then asked about the natural developmental progression of speech sounds and which sounds Hayley should be expected to produce at this point. He explained the phonological approach that has been taken with Hayley. She was being supported in producing sounds that would also help with other sounds that she has difficulty with. By focusing on one sound from a group of sounds that are formed in a similar way or area of the mouth, improvements are expected across that group of sounds. Currently, the focus is on s-blends, /f/, and /l/. Although /l/ is a sound that typically develops a little later, Hayley was having some success with it.

Video Reviews

Lesson One. The focus of the first thirty-minute music lesson was on s-blends and the /l/ sound. The two songs presented that focus on these sounds were *Snowman* and *I Love* both from the *Kids Express Train Series* by Speech-language pathologist Rachel Arnston. For each song, we first listened to it to learn both the melody and the lyrics. We would then try to sing the song with her copying me. Hayley was thereby provided with two models for speech production; the recording and my example. When copying a model, Hayley was able to produce s-blends in this song with 64% accuracy the first time, and 68% accuracy the second time through. When asked to sing along only to the CD, Hayley correctly produced the s-blends 27% of the time. She was able to produce /l/ with 73% accuracy following an adult model.

Before singing the song, Hayley was asked to label the parts of the snowman in a talking voice. She was able to correctly identify all of the items saying, “hnowman”, “tick

arms", "kars", "hmiley mouse" for "snowman", "stick arms", Scarf" and "smiley mouth". In the song, when there was a model and there was more focus on the sounds, Hayley was more successful with producing s-blends.

In the *I Love* song, Hayley often produced "waf" for "love". The lyrics in this song move quickly as the emphasis was placed on the word after love in each line. It was difficult for her to produce the /l/ in these instances. In other situations, she was able to correctly place her tongue to produce the /l/ sound, however this was not the case in this song given the pace and emphasis. The chorus of the song had the word 'la' repeated several times. Hayley was able to produce the word la in succession successfully in this instance. She was provided with the visual support of being shown where to place the tongue when producing /l/.

Lesson Two. The focus of lesson two was s-blends. The two songs we did were *Snowman* and *Spider Spin*. The first time through *Snowman,* Hayley sang with me. I provided a model and she sang afterwards. She was able to produce the s-blends 81% of the time. The second time through the song, we took turns placing the pieces of the snowman on the body. She was able to produce the sounds correctly 75% of the time, for an average of 78% between these two attempts. I then introduced a new song called *Spider Spin*. Before singing the song, we examined the illustrations and talked about the vocabulary present in the song. We went through this song twice, the first time with her copying me, the second time with her patting her knees whenever she heard an s-blend in the song. When she copied a small portion of the song at a time after me, she was able to produce the sound correctly 53% of the time. She then did a portion of the *Spider Spin* song tapping her knees when there was an s-blend. She was able to identify when that

sound was present, and was able to produce the s-blends 18 out of 25 times with an accuracy of 72%. This song has many phrases where two consecutive words begin with an s-blend of which she was able to produce one. For example “swimming swan” was pronounced “swimming hwan” with the s-blend produced in the first word but not the second. This omission of one s-blend per phrase occurred in many of the verses.

We then revisited the *Snowman* using the same tapping technique. She was able to produce the s-blends with 78% accuracy. We did this same song once more without tapping with 89% accuracy. The focus for this lesson was s-blends, but Hayley continues to say “I a snowman”. This grammatical piece will be focused on more in later lessons. We concluded the lesson with an introduction of a new song *Lion Makes a List*, which will be sung the following week, through my singing the song.

Lesson Three. The focus of the lesson was on /l/ and s-blends. The songs were *I Love*, *Lion Makes a List*, and *Snowman*. Including the ‘la’ section of *I Love*, Hayley was able to produce the /l/ with 74 % accuracy. Hayley required some reminders of where to place her tongue to produce this sound. The song repeats many lines of “I love___”. The focus is placed on the item name, not on the word love, and Hayley often left out the word love altogether to fill in the blank that comes afterwards.

The lesson continued with *Lion Makes a List*. I introduced maracas. Hayley repeated one verse of the song at a time after me. We each shook the maraca each time we heard the /l/ sound. She was able to identify when the /l/ sound occurred and shook the maraca accordingly. Repeating after me, she was able to produce the /l/ in this song with 65% accuracy. Similar to *Spider Spin*, this song has many /l/ words that occur

consecutively, or that are separated with a one syllable word. Hayley often produced the /l/ for the first word but not the second, where the /l/ was usually substituted with a /w/.

We followed the /l/ sound with s-blends. We sang *Snowman* several times with the recording but without my support. Overall, Hayley was able to produce the s-blends with 66% accuracy.

Lesson Four. The focus of the lesson again was s-blends and /l/. The first time through *Snowman,* I let her lead, while I repeated after her and then she sang independently the second time. She was able to produce the s-blend independently 70% the first time and 83% the second time through.

We next sang *I Love*. We sang it without the recording so that we could significantly reduce the tempo. She was able to produce the /l/ with 73% accuracy including the predictable 'la' part.

We changed sounds again to work on *Spider Spin*. When I showed her the booklet with the song and asked if she remembered it, she said no. However when I sang the first line as an introduction, she immediately remembered. She sang it while I played along with my guitar. She produced the s-blends in this song with 88% accuracy. Throughout the song, she often slowed the tempo herself to get the correct mouth placement to produce the s-blends and often self-corrected. Upon completion of this song, she informed me that she liked to practice it when I was not there.

Our next song, sung with the guitar, was *Lion Makes a List*. Before we sang the song, we reviewed the vocabulary. She produced the /l/ with 92% accuracy. This time through, I sang the verse and she repeated it after me. Her errors with replacing /w/ for /l/ continued for the second consecutive word with the /l/.

We concluded the lesson with my asking her to choose a song that she likes that we had not yet sung together. I did this to see if the sounds would carry over in to other songs. She chose *Twinkle Twinkle Little Star*, which we sang twice. With the exception of pronouncing 'star' as 'dar' once, the s-blends were present in all other words. The /l/ however did not carry over.

Lesson Five. The lesson focuses on that day were /f/, s-blends and /l/. We began with a new song *Fish, Sharks, and Shells*, which she repeated after me a line at a time to begin. She produced the /f/ 23% of the time often substituting /s/ for /f/. The /sh/ was not a focus sound, however, when we reached that part of the song she produced the /sh/ as a /h/. I reminded her of a visual cue to pinch her cheeks together to make that sound, and she was better able to produce the /sh/. For this song, she really slowed the tempo to focus on what she was singing. The second time through the song, Hayley led. She had difficulty with chains of three. There is a portion of the song that says, "Fish, fish, fishy" which she pronounced "sis, sis, sissy" the first time through and "Fis, his, sissy" the third time. We discussed some ocean vocabulary after singing where she identified some other things that might live in the ocean.

For the *I Love* song this day, I did not cue Hayley. With the exception of the 'la' portion, she only produced the /l/ once out of a possible 31 times using the /w/ for /l/ almost exclusively. When I did cue her, she was able to make the /l/ sound in the word.

We sang *Snowman* twice. The first time through, she made her s-blends with 91% accuracy, missing only one blend. The second time through, she sang it with 100% accuracy. I drew attention to "I'm a" as opposed to "I a" because of her success with the s-blends and also the pronunciation of "fat" using the /f/ sound.

We then sang *Lion Makes a List*. We played with the tempo for this song, speeding up some parts and slowing others. For “lamb lacing”, she would not change the tempo and it was produced “lamb wacing”. For other parts of the song where I encouraged a quicker tempo, she would speed up, but would slow herself down for the production of /l/. She produced the /l/ with 94% accuracy.

We concluded with *Spider Spin* in which she produced s-blends with 93% accuracy. She decided to change some of the lyrics today to “melting snowman” but she overgeneralized and said “smelting snowman”. She was able to self-correct when I said, “What kind of a snowman?” I also drew her attention to the word “starfish”, specifically the /f/ in the middle of the word.

Lesson Six. We practiced all of Hayley’s focus sounds during lesson six. We began with *Snowman*. She was able to sing the entire song with 100% accuracy for her s-blends without cues. She also sang “*Snowman*” and not “I a Snowman”.

Similarly to the last time we sang the *I Love* song, Hayley was able to produce the /l/ for the ‘la’ section, but only produced it once throughout the rest of the song as the focus for her continues to be on the vocabulary that follows the word love.

We then sang through *Fish, Sharks, and Shells* together with me providing cues. Her accuracy for /f/ was 94% while singing with me and 56% the second time through singing only with the recording and not with me.

We concluded with *Spider Spin* in which she sang all of the s-blends correctly. Because of her success with the s-blends, I drew her attention to the word ‘like’ in the song. She would begin to pronounce it ‘wike’ but would correct with a cue.

Lesson Seven. This lesson, while still focusing on individual sounds, showed greater attention to developing phonological awareness. The songs rehearsed were *Silly Sally Squirrel*, *Animals Talk,* and *Fishing For a Rhyme*. In *Silly Sally Squirrel*, she was able to identify other words that started with the /s/ sound, and she was able to produce those words that began with /s/ and s-blends. In *Animals Talk*, she quickly demonstrated an awareness of what the song did: it took the first consonant of the animals name and created a verse with other words that started with that sound. For example, the moose says "Here we go mooby moo" but the Deer says, "Here we go dooby doo". She was able to produce her target sounds within the song. In *Fishing for a Rhyme,* I helped Hayley identify the rhymes. She was able to produce the /f/ 57% of the time.

We focused on /f/ again in *Fish, Sharks, and Shells*. She was left to do the song independently with only the recording to sing along to. She experienced some difficulty making the /f/ sound consistently with 8 out of 28 possible occurrences. She found it difficult at the end of the song when the initial sound changes from /sh/ to /f/, to switch back to the /f/ sound. She seemed less familiar with the lyrics and stopped several times to listen to the recording to get cues.

We concluded with the *I Love* Song. She was able to produce the /l/ 88% including the 'la' section.

Lesson Eight. We began with *Silly Sally Squirrel* again, and Hayley was able to identify /s/ words and was able to produce the /s/ and s-blends in most of the words that she chose with 93% accuracy. For *Animals Talk,* we chose a snake as one of the animals and she was able to produce the sn-blend with 100% accuracy.

I then introduced a new song called *Cheese and Macaroni*. This song has some s-blends and the /l/ sound in the medial position. We listened to the song the first time through. The second time through, we sang along. She was able to produce the s-blends with 100% accuracy and the medial /l/ with 20% accuracy.

In the *I Love* song without the recording, she was able to produce the /l/ with 95% accuracy the first time through. She was responsible for making the first two words in each line "I love" and I would finish the line for her. We sang through the song a second time slowly using only the visual. This time she produced the /l/ with 99% accuracy missing only one occurrence of the /l/.

We followed this song with *Fish, Sharks, and Shells*. She was able to produce the /f/ 78% of the time. We concluded with *Snowman* where she continued to produce all of the s-blends present.

Lesson Nine. We introduced a song that had a slower tempo. The song used a scarf and we had to listen to follow the directions that were provided through the lyrics to tell us what to do with the scarf. Hayley was able to follow the directions in the song, and was able to produce all of the s-blends in the song.

We followed this song with *Cheese and Macaroni*. Hayley was able to produce all of the medial s-blends independently without cues and 20% of the medial /l/. I drew her attention to the medial /l/.

We then sang *Spider Spin*. She sang the song with 98% of the s-blends present. We also focused on the word 'starfish' which she was able to produce if she sang it slowly.

We concluded with *Silly Sally Squirrel* and *Animals Talk* to focus on phonemic awareness. In Silly *Sally Squirrel*, she was often substituting /s/ for the /sh/ sound, but was able to identify words that started with the targeted sound in each of these two songs.

Lesson Ten. We began with the *I Love* song, which was sung without the recording. Hayley produced the /l/ in the initial position with 99% accuracy. We continued with the *Cheese and Macaroni* song. The s-blends are present 100% of the time. Without cuing, the medial /l/ reverted back to a /w/. All of the possible s-blends to be produced in the *Spider Spin* song were produced with 100% accuracy and Hayley also had 100% accuracy for /f/ in *Fish, Sharks, and Shells*. Hayley was able to produce /l/ in Lion Makes a list with 67% accuracy without cues from me. We concluded with phonological awareness games. She was able to substitute /s/ sounds in *Silly Sally Squirrel*, and was able to identify first and last sounds in people's names in the song *First and Last Sounds*.

Lesson Eleven. We revisited *Lion Makes a List* first as Hayley had experienced some difficulties with the initial /l/ in this song during lesson ten. She was able to use the /l/ correctly 67% of the time again. The /l/ tended to drop off in words that occur later in the phrase and were present in words that occur closer to the beginning of the phrase.

In the songs *Silly Sally Squirrel, Spider Spin*, and Cheese & Macaroni, Hayley was able to produce all of the necessary s-blends in the necessary positions. A great success was the production of the word 'starfish' with the initial /st/ and the medial /f/. The medial /l/ in *Cheese and Macaroni* was occurring in some of the words with 40% accuracy. We played a game with the vocabulary in *Cheese and Macaroni*, where I gave clues and she had to guess the word. We then switched roles and she gave me the clues.

At first the clues were similar to mine, but she started to develop some of her own descriptors. We played the same game for *Fish, Sharks, and Shells* before singing the song. The /f/ in *Fish, Sharks, and Shells* was 80% accurate.

Lesson Twelve. We began a new song called *Monkey Swinging in a Tree* which had some chains of three containing s-blends when the words moose and mouse were repeated consecutively. The first time through, we listened to the song. The second time through, Hayley listened to the song and placed the animal cards based on the lyrics she heard. She sang through the third time and had 86% accuracy with the s-blends hidden in the song. The medial s-blends in *Cheese and Macaroni* were produced 100% of the time while the medial /l/ was produced 10% of the time. The /l/ in *Animals Talk* was emerging most of the time but Hayley required cues when presented with an animal that started with the /l/ sound. We sang though the *Silly Sally Squirrel* song drawing attention to the /l/ in the word lots in that song. Hayley was able to produce /f/ with 100% accuracy in *Fish, Sharks, and Shells* without using the visual supports of the book. The /sh/ in this song was sometimes produced as /s/. She will sometimes cue herself and pinch her cheeks to make the /sh/ sound.

Lesson Thirteen. We began with *Cheese and Macaroni*. Hayley was able to produce 100% of the s-blends AND 100% of the medial /l/ in the song today. Her mother informed me that she had practiced that song a lot.

We began a new song called the *Alphabeat* which focuses on phonemic awareness. We listened to the song the first time through. We discussed the vocabulary in the song. She experienced some difficulty with foods that are not eaten regularly, like turkey, cherries, and sausage. We played a game where I said a food item from the song,

and she told me the sound it started with. She was easily able to identify all of the initial sounds. We sang through it the second time with her copying me, and then a third time with the recording. My focus was on her identifying the initial sounds, rather than on remembering all of the lyrics. She was able to identify and sing the initial sounds in the song.

We concluded with *Snowman* where Hayley was easily able to produce all of the s-blends. We began to focus on some of the other sounds present in that song like the initial /f/ in fat, the initial /l/ and final /f/ in long scarf and the medial /l/ in smiley.

Lesson Fourteen. We began with *Cheese and Macaroni* where all of the targeted sounds (medial s-blends and /l/) were produced. The /f/ was also present 100% of the time in *Fish, Sharks, and Shells*. We spent some time on *Silly Sally Squirrel* and *Animals Talk* for phonemic awareness. Her ability to choose different words to match sounds continues to be good. We did spend some time talking about the /l/ in these songs in words such as ‘let’s’ and ‘like’.

We began a new song called *Monkey, Moose, and Mouse*. We listened to the song the first time through, and sang along the second time through with all of the targeted sounds produced. We then played a memory game with the animal cards for this song. When she found three of the animals, we would sing its name. For example, “my moose, moose, moose”. This chain of three produces the sm-blend between the words. She was able to carry over her production of s-blends to this song.

Lesson Fifteen. We began with *Cheese and Macaroni* where Hayley continued to have 100% accuracy with the s-blends and /l/ in the medial position. The *Alphabeat* song was sung again where she was able to identify all of the initial sounds in the vocabulary.

We began singing *Help Me Mama*. The focus of this song was for Hayley to hear the correct use of the pronouns ‘me’ and ‘I’. She was able to sing along to the chorus of this song with some support from me for the verses. We finished with *Snowman*, which we sang twice. The s-blends were all present. The initial /f/ was present each time we sang the song. The initial /l/ was not present the first time through the song but was the second time. Hayley produced the final /f/ in scarf 50% of the time and the medial /l/ in smiley 100% of the time.

Lesson Sixteen. We began with the additional target sounds in *Snowman*. We sang through the song the first time. Hayley produced the initial and final /f/ but did not produce the initial or medial /l/ the first time through the song. We discussed the vocabulary after singing the first time. The second time, the /f/ continued to be present, the /l/ was present for one of the four possible times. We followed this song with *Cheese and Macaroni* and *Fish, Sharks, and Shells*. All of the target sounds were present for both of these songs. We reviewed the vocabulary in the *Alphabeat* before singing the song, where she was able to identify all of the initial sounds. We concluded with *Hissing Snake* which focuses on the /s/ sound to check for carry over into a new song. Part way though the song, Hayley determined the pattern of the verses and began to sing along producing the necessary sounds.

Lesson Seventeen. We began with the phonemic awareness songs *Silly Sally Squirrel* and *Animals Talk*. Hayley continued to be successful with identifying and choosing appropriate words that begin with the same sound. I began to focus on the medial /l/ in “Silly Sally”. Hayley was able to produce the sound with cues. We revisited the *I Love* song after a few weeks away from it. She was able to produce /l/ in the song

with 91% accuracy. Hayley demonstrated 100% accuracy with all of the target sounds in *Cheese and Macaroni* and *Spider Spin*, including the word "starfish" with the combination of the s-blend and medial /f/. We returned to developing phonemic awareness in *Alphabeat* where Hayley was able to sing along and identify the necessary sounds. Hayley experienced some difficulty with the *Lion Makes a List* which had not been sung in a few weeks scoring only 74% accuracy. This suggested to me that this was not one of Hayley's favourite songs, so she probably was not practicing this one on her own time and therefore the /l/ was not carrying over to the next time we sang it when there was a period of time without rehearsing the song. Also, may of the words in this song were higher frequency words that Hayley had been mispronouncing. Without the continued rehearsal, she was reverting back to the original way that she had learned the word.

Lesson Eighteen. To check for carryover of the initial /f/, I introduced a new song called *Funny Farmer*. The first time through, Hayley copied after me. She was overgeneralizing for some words. For example, she said "fitting farmer" for "sitting farmer", but corrected with cues. Hayley was able to use the /f/ with 92% accuracy. I also introduced a song called *Show Me a Shark*. Most of the /sh/ opportunities in the song were produced as a /s/ unless she is pinching her cheeks. We revisited *Lion Makes a List* again this week. Hayley produced the initial /l/ with 92% accuracy. Hayley continued to produce all of the sounds in Spider Spin and *Cheese and Macaroni* with 100% accuracy.

Lesson Nineteen. We began with *Lion Makes a List*. Hayley produced 100% of the initial /l/ in the song. Several times, she started to produce the words with /w/ but self corrected to produce the /l/. In *Funny Farmer*, Hayley produced the initial /f/ with 98%

accuracy. She continued to overgeneralize for /f/ in some verses saying “fitting” for “sitting”. Hayley sang *Show Me a Shark* independently. Many of the /sh/ opportunities continued to present as /s/. *Cheese and Macaroni* was sung with all of the necessary s-blends and /l/ sounds produced in the medial positions. Hayley sang the *Alphabeat* song again identifying all of the sounds for phonemic awareness. Hayley sang *Help Me Mama* using the pronouns ‘me’ and ‘I’ correctly.

Lesson Twenty. Hayley was able to produce 100% of the initial s-blends in *Spider Spin*, and 100% of the initial /f/ in *Funny Farmer*. The /l/ in *Lion Makes a List* was produced with 97% accuracy. We sang *Show Me a Shark* using the visual cue to pinch her cheeks. Hayley was much more successful producing the /s/ with the gesture to support. She was able to produce the medial /l/ in *Silly Sally Squirrel* with a reminder and continued to demonstrate her understanding of phonemic awareness in the song. She was able to sing *Cheese and Macaroni* completely independently producing the s-blends and /l/ in the medial positions correctly.

Lesson Twenty-One. Hayley was able to produce 100% of the target sounds in *Lion Makes a List*, *Funny Farmer*, and *Snowman*. If Hayley began a word with an incorrect sound, she immediately self corrected. The medial /l/ was present when she sang *Silly Sally Squirrel* but she still required some reminders for the initial /l/ in ‘lots’. She decided to add other sounds like /b/ and /l/ for phonemic awareness and was able to choose some words with some support from her mother.

Post-Lesson Parent Interview

After the lessons, an additional interview was conducted with Hayley’s mother. She was asked to describe Hayley’s experience with the music lessons. Her mother

described the experience as fun and entertaining. She said that Hayley looked forward to it every week. She added that she thought the experience had helped her. When the family went out walking or driving, Hayley would sing the songs. Because it was music, she was always singing the songs and practicing.

Hayley's mother was asked about Hayley's current intelligibility. Her mother noted that they have had friends of the family comment on how they are better able to understand her. She is now able to have telephone conversations where people can understand what she is saying. Before, Hayley would become frustrated on the telephone because she was not being understood.

In terms of speech improvement, Hayley's mother noted that Hayley is slowing down to think about how she has to say something. She continues to work on some grammar areas like pronouns such as 'I' and 'me'. Hayley's mother noted that overall, she feels that she has improved quite a bit since last year and they want to keep working on the other areas. As a closing statement, Hayley's mother concluded that Hayley had really enjoyed the experience, and she felt that Hayley has improved a lot.

Post-Lesson Speech and Language Assessments

The H-CAPP (Figure 1) and CELF-P2 (Figure 2) were re-administered after the course of music lessons. Assessment results follow. Hayley's score on the post-HCAPP was 32, which put her in the mild range. On the CELF-P2, Hayley was in the forty-fifth percentile for receptive language. Hayley was in the tenth percentile for expressive language demonstrating a mild expressive language delay.

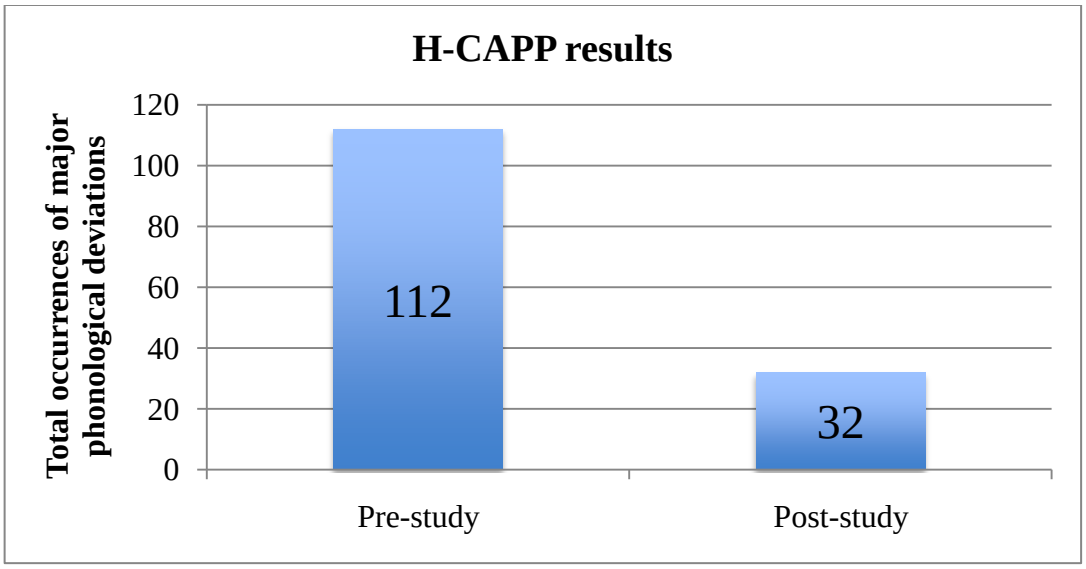

Figure 1. H-CAPP Results

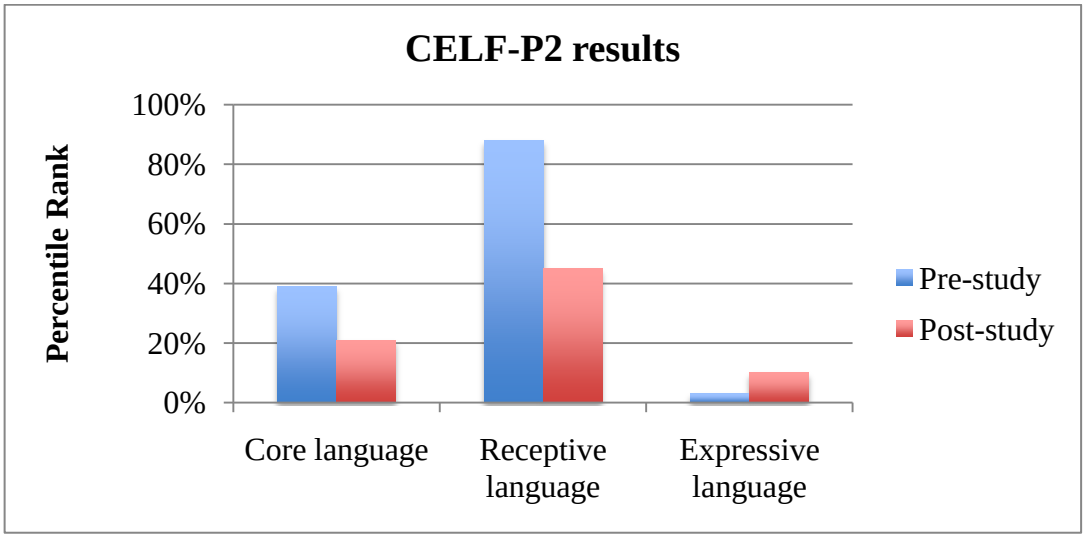

Figure 2. CELF-P2 Results

Post-Lesson Speech-Language Pathologist Interview

A follow up interview was conducted with Daryl Graham, SLP. Mr. Graham was asked to discuss the pre- and post- assessments. He explained that on her pre- lesson assessment, conducted in April, Hayley's HCAPP score was 112, placing her in the severe range. She was experiencing difficulty with a variety of speech sounds. Hayley's post score was 32 placing her in the mild range. Mr. Graham explained that in the formal

setting, Hayley's score was mild, but in conversation, his judgment would be to place her in to the mild-moderate range, as some sounds were not consistently carried over into conversation.

He noted that Hayley continues to have strong receptive language skills. Although some of her scores dropped for receptive language, Mr. Graham was not concerned as Hayley was now in a different age category and some of the tasks for that age category did not exist in the previous age category. He noted, as he had in the pre-lesson interview that Hayley's expressive language skills pre-lesson were impacted by her speech sounds. For example, if Hayley was shown a picture of a flag and labeled it as a 'wad', he would not give credit for it, although he knew that she often replaced /w/ for /l/, dropped the /f/ when it was with a /l/ and that she substituted a /d/ for a /g/. In context, he could determine what she was saying, however an individual who was not familiar with Hayley would not associate 'wad' with 'flag'. Therefore, Hayley would have not gotten credit for correctly labeling that object. Mr. Graham indicated that he has seen "awesome results" with Hayley. She is still "cleaning up some of the sounds in her day-to-day conversation", but has shown some great progress. For expressive language, she has moved from the 16th to the 37th percentile. For expressive vocabulary, she has moved from the moderate range to the well-above average range, which clearly expresses where she is, now that she can produce more of those sounds. She is now in the tenth percentile for expressive language placing her in mild range again. This is a reflection of what was seen in the HCAPP. The improvement in the speech sounds helped with the improvement in expressive language.

In terms of carryover, Mr. Graham had seen some definite improvement with some sounds starting to carry over into conversation. Even with sounds that she continues to have some difficulty with, because of the consistency with her other sounds, it is easier to get context. Hayley continues to pronounce some words incorrectly even though she has mastered the sounds in that position in other words. For example she continues to pronounce 'sister' as "hiha". Mr. Graham indicated that this may be because this is the way that she first learned to pronounce this high frequency word. She is also continuing to work on some of her sounds in the medial position. Usually, if children learn the sounds in the initial and final position of words, they automatically happen in the medial position, however Hayley requires some more support in the medial position of words.

Before the music lessons, Hayley was not a child who would self-correct or correct an adult if they pronounced something incorrectly, indicating that she was not always conscious of the sounds. It appears that music is what she needed to begin to do that.

Hayley currently has a diagnosis of a mild phonological delay and a mild expressive language delay. Mr. Graham indicated that Hayley was "a real success story". She is participating at circle time in her kindergarten classroom and is being understood. She does not need adults to translate for her. The carryover was really starting to happen. Although Hayley would not qualify for Program Unit Funding for the 2012-2013 school year because of her age, Mr. Graham predicts that she would not require that support anymore anyway.

Summary

This project was conducted as a case study where one child received one-on-one weekly music lessons. Each thirty-minute lesson focused on the speech and language goals in the child's IPP. Pre- and post-interviews were conducted in addition to formal speech and language assessments by an SLP. Both the SLP and the mother noted improvement in the child's speech and expressive language. The assessments also indicated improvements in the child's expressive language and speech sound production.

Chapter Five: Conclusion and Recommendations

This case study was conducted with one child who was receiving Program Unit Funding (PUF) based on a diagnosis of a severe phonological delay and a moderate expressive language delay. Twenty-one one-on-one music lessons were conducted on a weekly basis over five months. The child's individualized program plan goals were the focus of the music lesson. Interviews were conducted with the child's mother and with the SLP before and after the lessons, and formal assessments were conducted by an SLP before and after the music lessons. The goal of the project was to determine the effect of one-on-one music lesson on this child's speech and language delays.

Review of Assessment Results

Hayley's speech and language were assessed before and after the music lessons were introduced. Her scores on the HCAPP and the expressive language of the CELF-P2 improved from the severe to mild range and moderate to mild range receptively. Her scores in receptive language did decrease from on onset of the music lessons and after from the eighty-eighth to the forty-fifth percentile. I was concerned about this change which I discussed with Mr. Graham. He explained the format of the CELF-P2 and

suggested some reasons for that difference. When Hayley completed the first assessment, she was 4 years 11 months (4:11). Her chronological age for the pre-assessment was compared to a group of children age 4:6 to 4:11, so she was at the top of the age range for the group she was compared to. For the post-test, she was compared to children 5:6 to 5:11, placing her at the lower end of the comparison group. In addition, there are additional sections of the CELF-P2 assessment that children complete once they turn five years old. These sections require completion of some more difficult tasks including grouping items, and explaining why they were grouped that way. These skills were not assessed as part of the receptive language section when Hayley was only four.

Significance

This research is important in providing parents and professionals with alternative tools to provide support for children with speech and language delays that can be implemented into these children's programs. I have noticed through my research in preparation for this project that there is limited published research on the effect of music on language and speech skills. My hope is that this project will add to that knowledge base.

Production of Target Sounds

Hayley often reverted back to pronouncing some words the way that she did before the music lessons began if a song had not been visited in some time. For example, in *Lion Makes A List*, Hayley would revert to pronouncing ladybug with a /w/ sound at the beginning of the word as opposed to the /l/, however, in words that were less commonly used like 'llama' she would continue to use the initial /l/ sound. Mr. Graham suggested that sometimes children in speech therapy will revert back to pronouncing

words the way that they learned them before the therapy started. Words like ‘ladybug’ that she pronounced more often were learned as ‘wadybug’ so she would revert back to pronouncing the word that way without reminders. Since many of the words in the songs were low-frequency words in daily conversation, a large portion of her practice for these words was from the lessons where she practiced the word with the correct sounds.

Because of Hayley’s interest in music and the repetitive nature of music, Hayley was practicing her speech sounds throughout her day. She developed a few favourite songs throughout the lessons such as *Snowman, Spider Spin* and *Cheese and Macaroni*, which she requested when given the choice. Hayley would sing these songs as she went through her routines and activities, and according to her family took the opportunity to teach these songs to people she met, including individuals around the campfire during a camping trip and she sang in the car during commutes. When Hayley had chosen a favourite song, I could recognize the carry over into conversation for the target sound in that song. For example, Hayley was experiencing some difficulty with the medial /l/ in broccoli usually producing it less than 50% of the time. One week when I returned for a music lesson Hayley independently produced the medial /l/ 100% of the time. Her mother informed me that she practiced that song a lot that week. I believe that the repetitive nature of music combined with Hayley’s love of music provided opportunities for her to practice speech sounds outside of the music lessons without having to be asked to sit down and practice sounds. Additionally, music is something that people love to share together, so as others sang along with Hayley, particularly when she was teaching them the song, she received auditory feedback with the correct pronunciation of words from those individuals.

Very few of the language goals were focused on directly. They were focused on through the songs as the lyrics provided a model for language and grammar. Some of the songs allowed for direct practice of language parts such as pronouns, for example in *Help Me Mama.*

Limitations

One of the limitations of this project is that the child in the study had already received a year of programming before the music lessons began. According to Daryl Graham, SLP, children who receive speech and language supports are exposed to lots of different sounds in their first year, and don't necessary show a lot of progress in carryover to daily conversation. It is in the second year that some more evident gains begin to show which flourished even more in the third year. Hayley had received supports for the 2010-2011 school year before the music lessons began. She also received supports within the school program for the first six weeks and the last three weeks of the music lessons also. Some of Hayley's improvements can also be attributed to maturation. Hayley was exposed to additional language-rich experiences such as family gatherings and outings, and activities at the library that also could have aided in developing her expressive language skills.

An additional limitation is that because this project was conducted as a case study with a single participant, there was no control group. If I were to conduct the study again, I would like to look at the assessment results of two groups of children. One group who received the music lessons and the other group who did not. I would conduct the lessons more like a music class with a small group of children so that all of the children are learning from each other. I predict that the songs would be carried over into the rest of the

daily routine where more practice would take place. Ideally, these children would be at the beginning of their supports for program unit funding so that the progress noted could be attributed to the music lessons.

I would also like to take the opportunity to write some songs that directly target some language goals. For example, if a child is working on pronouns, I would like to write a song that is set up in a repetitive nature like many of the Silly Songs, but that focuses on which pronoun to use for specific individuals in the child's life. For example, a verse about 'my brother' substituting he, and 'my sister' substituting she. A song could also be written using the pronouns 'I' and 'me' in high frequency phrases where they are grammatically correct to see if that would help carry over into conversation.

Implications and Suggestions for Early Childhood Classrooms

Music can be used in a variety of ways in an early childhood classroom. Most early childhood classrooms use music for some part of the daily routine. It is beneficial to have supports provided for children with speech and language delays embedded into the daily routine of the pre-kindergarten or kindergarten program. There are many resources available for teachers to teach phonological awareness. Many of these resources can also be used to support the speech sounds that some of the children in the classroom may be working on. For example, if kindergarten children are learning about the sound that the letter 's' makes, and then later combining the letter s with other letters to create blends, a song such as *Spider Spin* from Silly Songs can be used to help teach the entire class about that sound in print. It can also be an opportunity to reinforce s-blends for a child who is working on that specific speech goal.

Implications for my Practice

I have presented my knowledge of using music in the classroom, and introducing specifically the Kids' Express Train Key Sets to the pre-kindergarten leaders at Holy Spirit Schools sharing. This presentation was given pre-lesson implementation. Many of the leaders have taken it upon themselves to use this music in their programs. I have observed the children in the programs participating in the songs and they have all responded enthusiastically to the music. There have been some additions to the visuals, including physically dressing up like the snowman, which they find very motivating. This provided a setting where the children with speech and language delays could practice their goals in an environment with their peers that was motivating and fun. I intend to present the findings of my research to the pre-kindergarten leaders. My goal is to speak with the speech-language pathologists to discuss how they feel it would be appropriate to add more music into the programs to support those children who experience speech and language delays and how we can work with the pre-kindergarten staff to help with this implementation. One of the speech-language pathologists has also recently attended Rachel Arnston's presentation. She intends to apply some of the songs to her therapy.

Since music is something that can benefit all of the children in the programs, I have been using music and songs as part of my science curriculum. One of my roles as the early learning lead teacher is to deliver a science program monthly at each of the pre-kindergarten programs. Each lesson includes a song or two that add vocabulary and reinforces the science vocabulary introduced during the lesson. The vocabulary is also introduced to the children throughout the books I read, the conversations we have as a group, and through our experiments, however this research has taught me the significance

of using music as a tool for rehearsal. By using songs as part of the science program, the children can practice the newly introduced vocabulary through song, and be more likely to repeat the vocabulary because of music's repetitive nature.

Conclusion

In conclusion, music has always been, and will continue to be a part of my teaching practice. Throughout this research, my intuition that music would be beneficial for helping a specific child develop her expressive language skills and work on her speech sounds was confirmed. During weekly thirty-minute music lessons, Hayley and I focused on goals that were in her individualized program plan through music. I later reviewed each lesson to determine the changes in Hayley's speech and language and to determine what the next step should be. Throughout these weekly one-on-one music lessons, Hayley's demonstrated improvements in her speech expressive language moving from a moderate expressive language delay to a mild expressive delay and from a severe phonological delay to a mild phonological delay. The repetitive nature of music combined with Hayley's love of music encouraged her to practice the songs containing her goals outside of music lesson time. In addition to singing on her own, Hayley liked to teach her songs to others, and was therefore receiving auditory feedback from them as they were singing the songs using the correct pronunciation for words. My goal moving forward is to provide musical experiences for more children within an early childhood setting so that they can experience the benefits of music in their lives the way that Hayley and I have.

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