Sound Practice: Using Music to Support
Phonological Awareness
by
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Abstract

As reading proficiency scores of students across the nation remain stagnant, many school districts, including Farmington Public Schools, have made increasing reading proficiency in their students a focus area of instruction. Research has shown the positive effects that training in phonological awareness has on students' overall reading proficiency. This project explores the effects of using instruction in music to support student acquisition of phonological awareness, as the auditory processes for understanding each are very similar. Guided by a Music Learning Theory approach, activities teaching rhythm skills, melody skills and those combining instruction in both skill sets are presented to teachers as complementary tools to traditional instruction in phonological awareness.

Table of Contents

Chapter One: Introduction

Problem Statement

Reading proficiency across the nation has shown little growth between the years 2015 and 2017 (NAED, 2017). As a direct result of this, many states have enacted laws or programs focusing on literacy. Michigan is one such state. In 2016, the "third grade reading law" was passed in the state of Michigan which recommends, among other interventions, retention of students who are one year behind grade level in reading proficiency (MDE, 2018). With such high-stakes pressure put on students to learn to read, it is becoming increasingly important for educators to identify reading deficits early and put interventions in place to support those students who are struggling with learning to read.

Importance and Rationale of the Project

Throughout the course of their schooling, most children learn to read. There are a number of these children, however, who fail to become proficient readers. The most recent NAED report (2017) shows that only 37% of fourth grade students across the United States are reading at or above a proficient level. This score is an increase of just one percent from the previous reporting year of 2015 (NAED, 2017). Michigan's reading proficiency results are slightly higher; 44% of fourth grade students are proficient in the area of English Language Arts (M-STEP results, 2017), but that still leaves 56% of fourth graders reading below grade level. These results are alarming as reading is an ability that many life skills are dependent upon in an industrialized society (Kenner, Terry, Friehling, & Namy, 2017).

The immediate impact of low reading proficiency scores is that state governments and local districts are taking steps to promote literacy instruction and intervention for students who struggle. Michigan's "third grade reading law" details steps that local school districts must take to hopefully increase reading proficiency in students where a deficit exists. These steps include initial assessments given three times per school year to all students to screen for reading struggles, extensive assessments give to students identified as at-risk or showing a deficiency in reading to pinpoint an area of focus, and an intervention detailed to parents through an Individualized Reading Intervention Program (IRIP) which explains the interventions the student will receive in the area of literacy at school (MDE, 2018). This has a significant impact on local school districts as they must utilize resources to identify students who struggle with learning to read and determine appropriate interventions to meet those students' individual challenges.

Reading is not a skill that can be developed through simple exposure to text, but rather is a skill that must be explicitly taught and often with a great deal of effort (Goodman, Libenson, & Wade-Woolley 2010). One much researched aspect of early reading development that has shown positive effects on later success in reading is phonological awareness (Bus & IJzendoorn, 1999; National Institute for Literacy, 2008; Goodman et al., 2010; Melby-Lervåg, Lyster, & Hulme, 2012). Phonemic awareness is a skill that includes a person's awareness of, and ability to manipulate, the parts of sounds in oral speech. Being able to break apart the sounds in a word and isolate their phonemes is crucial for learning to read. Studies have shown that

"children who are better at detecting phonemes learn to decode words more easily" (Bus & IJzendoorn, 1999, p. 403). The ability to decode a word is what allows the reader to draw meaning from the text. Furthermore, Rasinski (2017) stated that, in order for students to be able to read for meaning, their competency in word decoding must be developed into an automatic and effortless level. If students are expending a great deal of effort and energy on decoding the words in the text, they will not be able to devote effort or energy into comprehending what they are reading. It can be derived from this that a focus on developing phonological awareness, with specific attention to phonemes in early literacy instruction should be a priority.

Background of the Project

The idea that phonemic awareness plays a role in the learning process of reading was formally introduced by Liberman in 1973. In this seminal work, it was discovered that half of the students identified as being in the bottom third of the class (in terms of reading ability) had failed a phoneme segmenting test. No students scoring in the top third had failed the same test (Liberman, 1973). This prompted further study into how phonemic awareness plays into a child's overall phonological awareness and how it shapes a child's ability to learn to read. In a meta-analytic review of research done through experimental training programs where students received training in phonological awareness, Bus and IJzendoor were able to determine that "training of phonological awareness improves not only children's phonological awareness but – to a lesser extent – their reading skills as well" (Bus & IJzendoor, 1999, p. 411).

Literacy instruction often includes work in phonics. Phonics is often confused with or thought to be the same as phonemic or phonological awareness. Phonological awareness is an "encompassing term that involves working with the sounds of language at the word, syllable and phoneme level" whereas phonics is the use of the "sound-symbol relationship to recognize words" (Oregon Center on Teaching and Learning, 2009). In other words, phonological awareness deals with the sounds of words only and phonics deals with the relationship of text and sound. A person can have phonological awareness and not understand phonics, but a person cannot understand phonics without having phonological awareness. Another meta-analytic review of research done on phonological awareness and the role it plays in learning how to read found that phonemic skills can be trained in students and that instruction in phonemic skills was most beneficial in the earliest stages of reading instruction (Melby-Lervag et al., 2012). The data in this review solidifies the need for intentional phonological instruction in schools and that this instruction would benefit students the most during their early elementary years.

Research turned to effective ways to develop phonological awareness skills in students after establishing a clear pattern between phonological awareness and later success in reading, as well as proving that phonemic skill can be taught. Traditional instruction in phonological awareness aims at teaching students to identify initial and final phonemes, how to segment and blend phonemes, as well as work in counting and adding phonemes and removing or replacing initial and final phonemes (Hagman & Good, 2013). Time is also spent teaching students letter-sound correspondence.

This instruction is often done through teacher led learning activities, either whole group or small guided groups based on instructional needs, as well as opportunities for independent individual practice of skills taught during guided learning (McNeill, Buckley-Foster, & Gillon, 2011).

A more recent and unique approach to improving phonological awareness in students has been through music education. The heart of phonological awareness is the identification and manipulation of sound. The study of music is one that also requires the internalization and discrimination of sounds (Hansen & Milligan, 2012). The skills used to discriminate sounds in music are similar to those needed to discriminate sounds in reading. Lucas and Gromko (2007) found that students who scored high on tonal and rhythmic pattern discrimination tasks also scored well on a phonetic fluency assessment. These results suggested that training in tonal and rhythmic skills could be used as an intervention for students who struggled with phonological awareness. Another study found that dyslexic students who received training in rhythm outperformed students who had training using traditional phonological programs on a phonological awareness assessment (Thomson, Leong, & Goswami, 2013). The results of these studies warrant the further investigation into the use of music instruction to support the acquisition of phonological awareness.

Statement of Purpose

The purpose of this project is to develop an in-service for lower elementary teachers (kindergarten through 2nd grade) demonstrating how the skills taught through music education can support their students' development of phonological awareness.

The in-service will provide teachers with strategies that they can use in their own classrooms that utilize music activities to develop sound discrimination in their students. The strategies that will be presented for reading instruction are not designed to be separate. They will provide ways that music skills and activities typically taught in the music classroom can authentically be used in the reading classroom to strengthen current phonological awareness activities already taking place. These techniques and strategies will be designed for lower elementary classrooms as studies have shown that the most significant gains from phonological training occur at the early stages of reading instruction (Melby-Lervag et al., 2012). The purpose of this project is to blend the strengths of traditional phonological training programs and traditional music education curricula to create further opportunities for students to grow in their phonological awareness abilities.

Objectives of the Project

The objectives of this project are to:

- Facilitate growth in phonological awareness in students in early elementary classrooms.
- Create authentic connections between traditional music instruction techniques and traditional phonological awareness training practices.

This will be accomplished through the creation of a tool box of strategies and activities for classroom teachers, to be used within reading lessons; these would typically be used in the music classroom. The process of learning to discriminate sounds in both music and language are very similar. As musicians develop their

auditory skills, they transition from matching pitch and moving to the beat to hearing differences in intonation and rhythmic nuances (Hansen & Milligan, 2012). As readers develop their phonological awareness skills, they move from hearing rhyming sounds to hearing the parts and blending of individual phonemes in words (Kenner, et al., 2017). Drawing links between musical auditory development and phonological awareness development through these activities and strategies will encourage teachers to find additional opportunities for connection. Utilizing singing activities, rhythm games, and composition exercises will provide a new way for students to interact with phonemes. The goal is that students will show growth in their phonological awareness through additional practice and interaction with phonemes in new and different ways.

Definition of Terms

Definitions for terms used in this project are provided below.

Audiation: Cognitive process by which the brain give meaning to musical sound (Gordon, 1997)

Intermediate Measure of Music Audiation (IMMA): Assessment given to students in grades 1-6 that measures an individual's ability to distinguish between same and different tonal and rhythmic patterns. This is primarily used with older children or younger children you may find the PMMA easy.

Music Learning Theory: Sequential and comprehensive method of teaching music that develops students' musicianship through audiation – thinking about music – and expanding knowledge of tonal and rhythmic passages (Gordon, 1997)

Phoneme: Smallest unit of speech used to distinguish one word from another

(Merriam-Webster, 2017)

Phonological Awareness: The awareness of the sound structure of language;

sensitivity to any size unit of sound (Yopp & Yopp, 2000). Encompassing term that

involves working with the sounds of language at the word, syllable and phoneme

level (Oregon Center on Teaching and Learning, 2009)

Primary Measure of Music Audiation (PMMA): Assessment given to students in

grades K-3 that measures an individual's ability to distinguish between same and

different tonal and rhythmic patterns

Rhythm: The pattern of long and short sounds that fit within a steady beat

Tonal: Having to do with pitch (high and low sounds)

Scope of the Project

This project is designed to be implemented in early elementary classrooms,

specifically kindergarten, first and second grade. An in-service will be offered to all

elementary teachers in Farmington Public Schools as a part of the district wide before

school professional development session in August. During this PD, teachers attend

three sessions based on interest and/or need. This session on music supporting

phonological awareness will be one of the options teachers can select from a variety

of two-hour sessions. Teachers will not be required to attend the session or

implement the strategies. It will be offered to give teachers new and additional

resources for teaching and supporting phonological awareness acquisition. It is

possible for the strategies in the project to be used with students in upper elementary

classrooms to support students who may still be struggling with phonological awareness acquisition. Upper elementary teachers would be welcome at the sessions as well. These strategies are designed to support and add to the instruction that is already taking place within the reading curriculum, not to replace the current curricula. Teachers who attend the session will also be offered additional support and learning opportunities, if desired, throughout the school year to facilitate their utilizing of the tools and strategies presented during the in-service.

One of the biggest foreseeable challenges with this project will be gaining classroom teacher support. Classroom teachers may be reluctant to incorporate the lessons in their own classrooms due to their perceived abilities in regards to music. A recent survey of preservice teachers showed that their confidence and success with using music to teach other content relied on their musical self-efficacy (Barry & Durham, 2017). Support and encouragement will be needed with all involved to promote the success of the project.

Chapter Two: Literature Review

Introduction

Developing students' reading skills is a key focus of education during early elementary school years. One element that has a significant impact on future reading success is having a strong sense of phonological awareness. Being able to identify the sounds within words with automaticity is necessary to free up brain power to focus on comprehension. Similar sound discrimination skills are taught through music education using Music Learning Theory. This literature review will discuss both the theory of phonological awareness skills supporting literacy and the Music Learning Theory as well as look at the effects of training music skills to develop phonological awareness skills in students. The research yielded three categories of music training that have shown benefits for developing phonological awareness; tonal training, rhythm training, and a combination of the two; each of which will be discussed. This chapter will close with a summary of the literature and conclusions drawn that will influence the development of the project.

Theory/Rationale

Phonological Awareness

Researchers have long studied the acquisition of reading skills and searched for predictors of success. Liberman (1973) introduced the idea that reading requires students to be specific about the phonemic structure of words, rather than memorizing words simply by sight. Through investigation, it was discovered that this ability to recognize the phonemic structure of words was not something that was readily known

by young readers (Liberman). Since it was shown that phonological awareness is not something that was readily known, it was reasonable to make the conclusion that phonological awareness needs to be taught. This theory sparked additional research into phonological awareness and how it assists in the process of learning how to read. It has been found that there are five main components of phonological awareness: rhyme awareness, sentence awareness, syllabic awareness, word awareness, and phonemic awareness (Kenner, Terry, Friehling, & Namy, 2017). The acquisition of these five components begins with larger word parts and gradually progresses to an understanding of smaller word parts (Hansen & Milligan, 2012).

Music Learning Theory

The ways to approach the instruction of music are vast and varied. This literature review focuses specifically on Edwin Gordon's Music Learning Theory (MLT). The reason for this selection is that Gordon (1999) links the process of learning music to the process of learning language. The acquisition of language begins by listening to others speak, followed by babbling, learning words, and eventually putting them together to convey meaning. Music Learning Theory maintains that a similar process occurs when learning music by first listening to others perform music, then playing with the sounds (musical babble), making verbal associations with vocabulary terms in music and eventually creating new and unique music (Gordon, 1999). Music Learning Theory also operates in sequencing from large parts of music to smaller and more detailed parts (GIML, 2017). Gordon specifically focuses on the idea of audiation. He describes audiation as what "takes

place when we hear and understand in our minds music that we have just heard performed or have heard performed in the past" (p. 42). It is often referred to as a process of thinking music. Gordon links the process of audiation in music to the process of thought in language.

<div align="center">**Research/Evaluation**</div>

Phonological Awareness

Phonological awareness is a foundational skill necessary to master the process of reading. Knowing the significance of the role of phonological awareness in learning to read, Carroll, Snowling, Hulme and Stevenson (2003) set out to identify how phonological awareness develops in young children. Their study monitored 76 preschool children over the course of a one-year period. While no specific interventions were put in place, it was noted that formal schooling began for most of the participants during the course of the study. The findings show that the development of phonological awareness is a "progression from awareness of large units (syllables and rimes) to awareness of small units (phonemes)," (p. 340). Awareness of large unit sounds develops from normal language development in children, but explicit understanding of the smaller units correlates with an understanding of letter and sound relationship. No child who lacked letter knowledge was successful on any phonemic awareness task (Carroll et al.).

A meta-analysis of research conducted on the role phonological awareness plays in learning to read was done by Melby-Lervag, Lyster and Hulme (2012). The aims of their meta-analysis were to discover larger, overreaching trends by analyzing

the research of others. They were predicting that they would see that phonemic awareness, rhyme awareness and short-term memory correlating to differences in children's word reading skills and that of these three correlates, phonemic awareness would be the predictor that would be most closely associated with word reading skills. They also predicted that phonemic awareness could be a predictor of children's word reading skills. The researchers used a quantitative random-effects model to analyze the data collected from previous research. Melby-Lervag et al. found that there was, in fact, a "specific and substantial association between concurrent measures of phonemic awareness and children's word reading skills" (p. 340). The review found that phonemic skills measured in the earliest stages of reading were most closely related with growth in reading. This suggests that early intervention and training in phonological awareness could be more successful than those started later in the process of learning to read.

A study done by Cunningham and Carroll (2015) looked for a predictive effect of phonological processing on later phonological awareness strategies used by students for reading and spelling. The same study also looked for a direct link between phonological awareness and reading accuracy and comprehension. Using quantitative methods, the researchers measured the students' skills in the areas of phonological processing, phonological awareness, reading comprehension and reading accuracy, first in kindergarten/first grade and again three years later. No interventions were put into place by the researchers. The results of the study showed that students who had poor phonological processing skills were "consistently at risk

for difficulties in phonological areas" (p. 523). They also found that children who

showed poor phonological processing skills at the time of the first test developed

poorer phonological awareness skills three years later. The biggest finding was that

phonological awareness has a direct effect on reading accuracy, and to a lesser extent,

reading comprehension. The gains in reading accuracy are important, as students

who can accurately read what is on the page will be more likely to be able to make

meaning of what they are reading.

Once a clear pattern of influence of phonological awareness abilities on later

success in reading emerged, research began to focus on whether interventions

focusing on phonological awareness could be proven effective at supporting growth

in reading. Goldstein et al. (2017) focused on identifying growth in phonological

awareness in 113 struggling readers in pre-kindergarten classrooms. The students

were divided into two groups, one receiving an experimental phonological awareness

specific intervention program, *PAth to Literacy*, while the other group received a

control intervention with a program based on comprehension and vocabulary

development, *Story Friends*. The results of the study showed that students who

received the experimental intervention out-performed their peers in the control group

in phonological awareness. While this was a result expected by the researchers, what

was not expected is that after students participated in the phonological awareness

intervention, only 18 percent had not met the kindergarten benchmark for

phonological awareness. This suggests that students who struggle in the area of

phonological awareness may be able to catch up with their peers following small-group intervention.

Music and Phonological Awareness

The process of sound discrimination used when reading words and the process of sound discrimination used when listening to and creating music are very similar. With this thought in mind, research has been done to determine to what extent music can be used to support phonological awareness development in readers. An analysis of the research has yielded three focus areas on which music interventions to support phonological awareness were based: Tonal Training, Rhythmic Training and a Combination Tonal/Rhythmic Training. Each intervention program produced slightly different results while an overarching pattern of growth in phonological awareness was seen through all training methods.

Tonal Training as an Intervention. There are similarities between tonal aspects of speech and the tonal aspects of music. The voice moves up and down in pitch and places stress on certain words to convey meaning through language. In the same way, notes move up and down and are played at different volumes to create a piece of music. Culp (2017) set out to determine whether a relationship existed between phonological awareness and tonal music aptitude utilizing Edwin Gordon's Intermediate Measures of Music Audiation (IMMA). In this study, 17 second grade students were given both the Phonological Awareness Test-2 (PAT-2) to measure phonological awareness and the IMMA test to measure music aptitude. The results indicated that students who scored well on the tonal portion of the IMMA also scored

well on the PAT-2 test of phonological awareness, particularly in the areas of rhyming and phoneme deletion tasks. Similar studies have also found a positive association between a child's pitch perception and phonological awareness in children between the ages of five and nine (Lucas, Gromko, & Eastlund, 2007; Tsang & Conrad, 2011). These findings support the similarities between auditory processing skills used in tonal music with the acquisition of phonological awareness, a basic reading skill.

Researchers have implemented programs which use training in tonal awareness through music to bolster phonological awareness skills. A study was done that implemented an experimental music program focused on songs, tonal patterns and playing melodies on instruments (Bolduc, 2009). The control group also received music training, but it was the traditional curriculum of the local school. The results of the study showed that while both groups made gains in their phonological awareness processing, the experimental group (which had a firm focus on tonal aspects of music) showed higher gains than the experimental group. The control group improved by 16.7 percent in syllable identification, 15.1 percent in phoneme identification and 11.8 percent in rhyme identification. The experimental group improved by 32.5 percent, 30.5 percent and 23.4 percent respectfully.

Rhythmic Training as an Intervention.   Speech is a result of a combination of sounds put together to make meaning. Phonological awareness is the ability to detect the sound structure of language or speech. Tierney and Kraus (2013) noted that since speech sounds are short, recognizing and understand speech sounds

requires "precise representations of time and frequency information" (p. 211).

Rhythm in music is a pattern of sounds and silences over time. Rhythm does not just

consist of duration, but notes are given different levels of stress depending on where

they fall within the beat structure (Tierney & Kraus). This is similar to how different

parts of words are given stress depending on syllable and word structure.

Knowing this similarity, David, Wade-Woolley, Kirby and Smithrim (2007)

conducted a study to determine if there was a relationship between an ability to

recognize rhythms and phonological awareness. The study involved 53 first grade

students who were measured in their ability to keep rhythms steady during two

musical examples of varying tempo. These same students were also measured on

their phonological awareness and reading ability each school year beginning in first

grade and continuing through fifth grade. The results of the study showed that the

scores on the rhythm assessment given in first grade strongly correlated to not only

the scores on the phonological awareness assessments each year, but also to a child's

reading ability up to four years after the rhythm assessment was given.

Thomson, Leong and Goswami (2012) devised a rhythmic intervention

utilizing a drumming game and metrical stress patterns designed to help children with

dyslexia improve their auditory perception. To measure the success of their

intervention they compared their results to the results of a phoneme-based

intervention as well as a control group which received no intervention. Both the

rhythm group and the phoneme intervention group made gains in rhyme perception

and in word and non-word reading. The rhythm group, however, was the only group

to show gains in rise time discrimination, which identifies where stress is placed on a word.

Another study also looked at how a rhythm intervention influenced phonological awareness acquisition (Moritz, Yampolsky, Papadelis, Thomson, & Wolf, 2012). The study included 30 kindergarten students divided into two groups, one of which received music instruction daily for 45 minutes while the control group received music instruction once a week for 35 minutes. At the end of the study period, the experimental group showed significant gains in all six measured aspects of phonological awareness while the control group showed gains in only four of the six areas. The results of this study led the authors to conclude that:

> (1) rhythm pattern ability is linked to phonological segmentation ability; (2) exposure to rhythmic pattern activities and rhyming song lyrics through intensive musical instruction are connected to enhanced PA in the form of rhyming and phonological segmentation skills; and (3) PA facilitates reading acquisition in a reciprocal manner (p. 762).

These studies have demonstrated a link between how the brain processes rhythm in music and how it processes the rhythm of sound in speech as a part of phonological awareness.

Combination Tonal/Rhythmic Training as an Intervention. It is rare to find music that is purely tonal or purely rhythmic in nature. Aside from specifically developed examples, tone and rhythm exist together in music in much the same way as inflection, stress and rhythm of speech exist together in language. As a result of

this, research has been done that does not focus simply on tonal or rhythmic aspects of music as an intervention strategy to support phonological awareness, but rather as a holistic music intervention approach which incorporates aspects from both tone and rhythm.

Dege and Schwarzer (2011) conducted a control-trial study to determine the effect that a music instruction program would have on phonological awareness with preschoolers. The researchers were specifically trying to see if a music instruction program would have a positive effect on phonological awareness, as well as comparing those results to those of students who participated in a traditional phonological skills program. The study focused on students, ages five to six, divided into three groups. One group participated in a music program, one in a phonological skills training program, and the third in a sports program to be used as a control. Dege and Schwarzer predicted that there would be similar gains made between students who participated in the music program and those who participated in the phonological skills training program. The results showed that students in both the music program group and the phonological skills program group made significant gains in phonological awareness from the beginning of the program to the end. The control group showed no significant gains. These results show that music can be an effective tool to help develop phonological awareness in students.

A similar random control-trial study was conducted by Flaugnacco, Lopez, Terribili, Montico, Zoia, and Schon (2015). The researchers were testing the hypothesis that music training would have a positive effect on phonological

awareness when used as an intervention with children who are diagnosed as dyslexic. In their trial they divided two groups of children into a control group who received training in painting and an intervention group who received training in music. The group who received training in music made significant gains in the area of phonological awareness, specifically in the areas of phonemic blending and rhythm reproduction, as compared with the control group who received training in art. The researchers theorize from their findings that:

> since rhythm and meter, by requiring more precise timing, possibly place higher demands in music than in language, remediation based on music and rhythm may strengthen phonological and language development from a perspective that is quite different from (though complementary to) the more traditional language-based remediation approaches. (p. 13)

These results offer support for the use of music to supplement traditional training programs to develop phonological skills in students.

Summary

Research has shown the importance of phonological awareness skills in the acquisition of reading. Students who struggle with phonological processing in early years of instruction are at a greater risk of developing poorer phonological awareness skills later in their schooling (Cunningham & Carroll, 2015). Research has shown that students acquire phonological awareness beginning with large parts of words and gradually developing recognition of smaller parts of words (Carroll et al., 2003). It has also been shown that training in phonological awareness in students is not only

effective, but is most effective when students are in the early stages of learning how to read (Melby-Levag et al., 2012). When small group phonological awareness interventions were put in place with preschoolers, only 18 percent failed to reach the kindergarten benchmark for phonological awareness at the end of the intervention period (Goldstein et al. 2017). This speaks to the need for early intervention and training in phonological skills.

Training in music has been proven to be an effective means of enhancing phonological awareness skills. Music and language are processed in very similar ways. The Music Learning Theory (MLT) approach uses this as a foundation for how to instruct students in music (GIML, 2017). Just as phonological awareness is acquired through first identifying larger parts of words and progressing to smaller parts, MLT advocates for instruction of music to focus on large parts of music and become smaller and more detailed as learning progresses.

Researchers have inquired as to whether tonal or rhythmic aspects of music best support the acquisition of phonological awareness. Studies have shown that a student's ability to hear pitch and recognize tonal patterns relates positively to their ability to hear parts of words (Culp, 2017; Lucas et al., 2007; Tsang & Conrad, 2011). Bolduc (2009) showed that students who received music training with a strong tonal focus outperformed students who received traditional music instruction on a phonological awareness assessment. Research centering on rhythmic aspects have yielded similar results. Tierney and Kraus (2013) noted how the stress of words in a sentence relates to stress of notes within a beat structure. This may explain why

David et al. (2007) found that students who performed well on a rhythm assessment also performed well on a phonological assessment. Interventions that use rhythm training as a focus have also shown that students who receive training in rhythm have improved their phonological awareness skills as well (Thomson et al., 2012; Moritz et al., 2012). Studies using a combination of tonal and rhythmic aspects have also shown positive results. The study by Dege and Schwarzer (2011) showed that training in music yielded comparable gains in phonological awareness to participation in a program specifically designed to train phonological awareness skills. Training in music also supports the development of improved auditory processing, prosodic and phonemic sensitivity, and temporal orienting of attention (Flaugnacco et al., 2015).

Conclusion

Music instruction has been shown to be an effective tool to facilitate phonological awareness development in students. The nature of how music is learned is very similar to how language is learned. Music is an auditory process, as is language, whereas reading is a visual representation of language. When students receive training in music, both tonal and rhythmic, it strengthens their auditory processing skills which, in turn, allows them to better distinguish the parts of speech in words. Since the auditory processes needed for understanding music (audiation) can sometimes be more demanding than in language, using music as an intervention for lack of phonological awareness skills would be most effective when done in conjunction with traditional language based phonological awareness interventions. These interventions should ideally be done earlier in a student's development of

reading skills to facilitate the greatest growth in phonological awareness. These gains

will then lead to an increased ability to accurately read words and comprehend what

is being read.

Chapter 3: Project Description

Introduction

Phonological awareness is the process of identifying the sounds within words. This process needs to be done automatically in order to allow the brain to focus on higher level tasks such as fluency and comprehension. Developing students' phonological awareness is an important focus of literacy instruction during the early elementary school years. Music instruction has been shown to be beneficial in supporting phonological awareness development when done in conjunction with traditional phonological awareness training programs. Using Music Learning Theory, students are taught similar sound discrimination skills. The goal of this project is to show classroom teachers how they can incorporate music concepts within phonological awareness instruction to strengthen their students' skills. The following sections will discuss the project components (including explanation of the appendices), how the project will be evaluated and what conclusions can be drawn from the implementation of this project. There will also be a suggestion for implementation and sharing of results with others.

Project Components

Reading proficiency is a focus area in many schools in Michigan as a result of the passage of the Third Grade Reading Law. This includes Farmington Public Schools, a suburban school district in southeast Michigan. Phonological awareness is an early reading skill that has been proven to support the development of reading proficiency. The objective of this project is to provide a toolbox of strategies and

activities for elementary classroom teachers that utilize music skills to support and

reinforce phonological development in their students (see Appendix A). This toolbox

will be available as a hard copy to teachers and will be uploaded to the district share

drive as a PDF document for electronic access. The toolbox will guide teachers

through activities to do with their students that include singing songs, playing

instruments, moving to music, and creating their own versions of traditional

children's songs. For each activity a description is included that details the process of

the lesson step by step, provides the song/rhyme to be used, materials needed and

suggestions for possible lesson extensions. There will be a kit made available (one

for each elementary building) that will contain rhythm instruments (rhythm sticks,

egg shakers, hand drums, and jingle bells) and movement props (scarves, ribbon

streamers, and a parachute) to be used by the teacher during implementation of the

activities. The purpose of these activities is not to be a stand-alone program, but

rather to be a springboard to encourage use of music in phonological awareness

instruction in future lessons to be developed by the classroom teachers.

Prior to implementing the project, a professional development session will be

given for the teachers utilizing these activities in their classrooms (see Appendix B).

The materials for the professional development include a Microsoft PowerPoint

presentation that will educate the participants about the benefits of using music to

support the acquisition of phonological awareness as well as lead the participants

through many of the activities in the toolbox. The goal of the professional

development session is to help teachers gain confidence in their ability to utilize these activities and strategies in their classrooms.

There will also be a survey included in the professional development materials that will be used to gauge teacher perceptions regarding the use of music to teach phonological awareness both before and after the professional development (see Appendix C and D).   A follow up survey will also be sent out to teachers at the end of the first trimester to gauge their perception of how well the activities are supporting phonological awareness acquisition in their classrooms and to plan for additional support and instruction for teachers on utilizing music strategies (see Appendix E).

Project Evaluation

The evaluation of the project will be two-fold. The first evaluation will be in the form of the pre- and post-in-service surveys that the teachers take as a part of the professional development. The surveys will include Likert scale responses to interpret perceptions, as well as questions with short answer opportunities for more detailed responses. The surveys will be completed anonymously at the beginning and end of the in-service and collected in two separate folders to be read after the in-service has been completed. A follow up survey will be sent to teachers who participated in the in-service at the end of the first trimester to gauge changes in perceptions and how comfortable the teachers feel about using the activities in their classrooms. The information gleaned from these surveys will be used to make

improvements to future in-services provided to teachers as well as identify supports

teachers may need as they implement the activities in their classroom.

The overall goal of this project is to increase phonological awareness in

students which, in turn, should support growth in reading proficiency. As attendance

and implementation of the strategies presented in this in-service are not required of all

teachers in the district, a comparison of Dynamic Indicators of Basic Early Literacy

Skills (DIBELS) assessment scores given to the students in classrooms where the

teacher is implementing the strategies can be compared with DIBELS assessment

scores of students in classrooms where the strategies are not being implemented.

These results will be compared to the scores of classes who did not utilize the music

activities to determine if the suspected correlation between music instruction and

growth in phonological awareness exists. The data from these assessments can be

analyzed to determine the level of growth in the area of phonological awareness that

the students made during the course of the project as compared with a control group.

Additionally, reading proficiency scores as measured through Northwest Evaluation

Association (NWEA) reading assessments can also be compared to measure the

effectiveness of the project.

<div align="center">**Project Conclusions**</div>

This project is expected to foster growth in phonological awareness in the

students participating in the project through the use of music. It is anticipated that the

scores on the DIBELS assessments will go up from the start of the project to the

completion as music instruction has shown positive effects on phonological

awareness development (David et al., 2007; Dege & Schwarzer, 2011; Thomson, Leon & Goswami, 2012; Flaugnacco et al., 2015). This project is also expected to increase teacher skills and confidence in using music to enhance phonological awareness instruction already occurring in the classroom through the in-service training. An increased self-efficacy in using music to supplement instruction will most likely lead to greater success among the students. Having music instruction embedded in phonological awareness instruction will lead to increased success in reading fundamentals that support the overall goal of literacy development.

Plans for Implementation

The project will be implemented in suburban elementary schools in Southeast Michigan. The in-service will be offered to teachers as a part of Farmington Public Schools before school district-wide PD day. On this day, teachers choose from a menu of options that they feel best meet their learning needs for the upcoming school year. The in-service is geared toward primary grade level teachers (kindergarten, first grade and second grade), but will be open to upper elementary teachers and music teachers as well. The pre- and post- in-service surveys will be given to the teachers to gauge their perceptions of and comfort with using music to facilitate the learning of phonological awareness. During the in-service, teachers will not only learn of the benefits of using music to support phonological awareness, but also actively participate in some of the activities being presented. This hands-on experience with the activities is designed to give teachers the opportunity to act as their students and learn the process of implementing the activities. Once the teachers are familiar with

how to utilize the activities in their classrooms, they will give their students a

DIBELS assessment prior to teaching the first lesson. Teachers will then implement

the activities provided in their classrooms. After instruction, teachers will then give

the DIBELS assessment to their students again and analyze the two assessments to

measure the growth in phonological awareness made by their students.

The teacher surveys completed by participating teachers will be used to gauge

their perceptions on the effectiveness of the activities and to identify challenges to be

addressed moving forward. Once the success of the activities has been shown

through teacher perception and increased scores, the information will be shared with

other elementary teachers. Suggestions will be made for how to implement these

strategies in their own classrooms.

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Appendix A

Sound Practice:

Using Music to Support Phonological Awareness
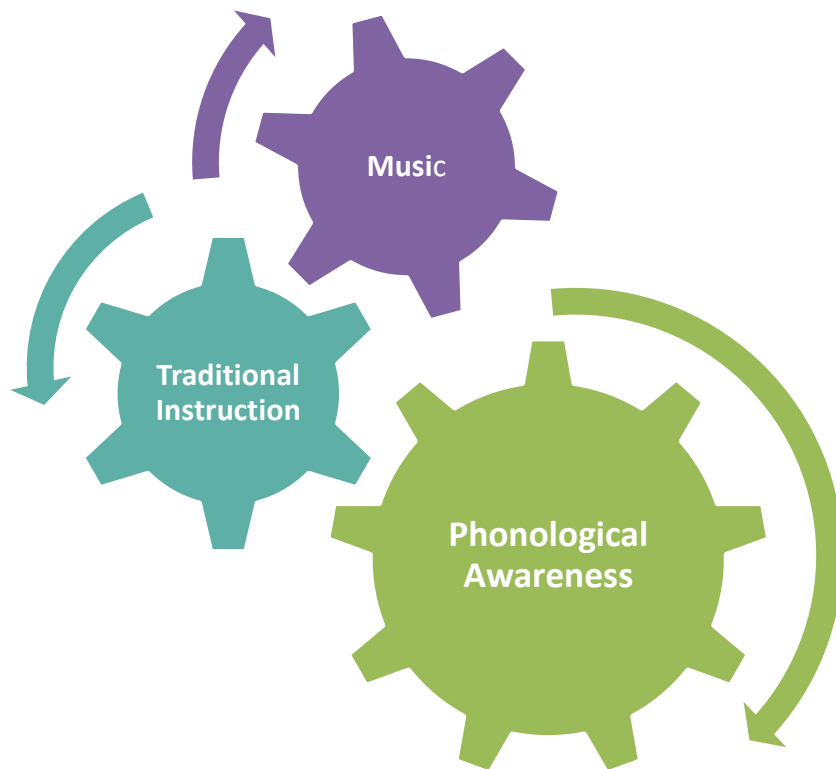
Teacher "Toolbox" of Activities

Activities to Support Sound Discrimination

In order to be able to identify and label individual phonemes in words, students must first be taught to listen intentionally to sounds. These activities help students to listen for, label and identify differences in sounds. While there are no direct ties to phonemes in these activities, strengthening auditory processing skills through activities often used in the music classroom increases students' abilities to listen for, label and identify differences in sound in speech (phonological awareness). These activities can be done as stand-alone activities or as a part of a phonological awareness lesson.
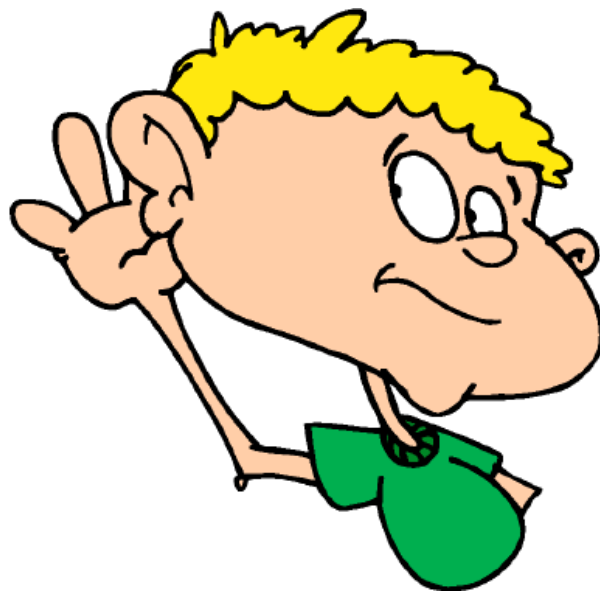
Sound Walk

The purpose of this activity is to help students hear and identify all the different sounds they hear. These sounds may be occurring simultaneously or in quick succession. Speech is a combination of phonemes occurring in very quick succession, almost simultaneously. Picking out different sounds from the multitude occurring around them helps students train their ears to listen to smaller units of sounds.

Procedure:
1. Have students close their eyes and listen to the sounds in the classroom for 30 seconds-1minute.
2. Ask students to open their eyes and tell you what sounds they heard. Record their answers on chart paper or a white board for the class to see.
3. When they have given their answers, fill in some that they may not have paid attention to such as the buzzing of the lights, the hum of the fan, the sound of shoes moving across the carpet as students fidget, etc. Tell students that some sounds are big and loud and some sounds are small and quiet.
4. Tell students that you are going to go on a sound walk and that they will need to be completely quiet during the sound walk.
5. Have students bring paper and pencil with them on the sound walk and ask them to write down sounds that they hear.
6. Take a walk down the hallway (or outside in good weather).
7. Come back to the classroom and again create a class list of sounds that kids heard on their sound walk.
8. When students share an answer, ask the class if they heard that sound as well and to mark it on their list if they did. Remind students that it is not bad or wrong to not hear every sound and that while one student was listening to one sound, they were probably listening to another.

Yoo-Hoo

The purpose of this activity is to help students hear and identify where a sound is coming from. This activity is done with eyes closed so that students are only focusing on the information received with their ears. Listening for directionality of sound forces students to go beyond simply hearing something, and activates deeper auditory processing skills.

Procedures:
(This activity will work the best if the class can be close to the center of the classroom)
1. Introduce and teach the song to students.
2. Tell students that someone is going to move from the group to another part of the classroom while the rest of us have our eyes closed. That person will be hiding even though student could probably see them if their eyes were open.
3. Have students close their eyes and select one student to go and "hide" somewhere in the classroom.
4. When they are in their spot, have the class sing the first part of the song, keeping eyes closed. (Yoo hoo, where are you?)
5. The student "hiding" responds by singing the second part of the song (I am over here.)
6. The class keeps their eyes closed and points to where they believe they heard the sound coming from.
7. When all students are pointing, have them open their eyes and check if they are pointing in the right direction.
8. Allow multiple students to have turns and challenge students to find different places in the room to sing from to challenge their classmates' ears.

How'd That Go?

The purpose of this activity is to help students hear and identify sounds in a sequence. Words are created through a combination of phonemes in a sequence. Change that sequence, and you change the word. This activity will challenge students to hear, identify and replicate sounds in a specific order. This is done with eyes closed so that students are only focusing on the information received with their ears and not relying on sight.

Procedures:

1. Gather 3 things that can be used to make sounds (ex. Stomping a foot, pencil tapping a chair, crumple paper) and have them with you.
2. Have students listen to the sound that each things makes.
3. Tell the students that they are going to close their eyes and you are going to make 3 sounds in order and they need to listen to what in what order the sounds happen.
4. Have students close their eyes and make the 3 sounds. You can use all the sounds, or only one.
5. Tell students to open their eyes and ask if a student can make the exact sound sequence as you. Allow that student to try.
6. Repeat procedure multiple times.

Variations:

a. Allow the student who correctly copies the sound sequence to create the next one
b. Add additional sounds that can be used in the 3 sound sequence
c. Make the sequence longer (4 or 5 sounds) to challenge students listening farther
d. Ask students to verbally identify what sound came first, last or in the middle before replicating the sounds.

High/Low Dance

This activity is designed to help students in discriminating between sounds that are high in pitch and sounds that are low in pitch. Identifying differences in pitch encourages students' ability to hear variation in sound. Incorporating movement into the activity provides a visual and physical reinforcement of the sound that they are hearing.

Procedures:
1. Gather audio clips of various sounds (ex. birds, garbage truck, man singing, women singing, instruments, etc.)
2. Students often confuse high and low pitch with loud and soft sounds. Have students talk in a squeaky baby voice and identify that as high. Then have them talk in a grumbly troll voice and identify that as low.
3. Once you feel students are comfortable with the terms high and low as they relate to pitch, play the sound clips for the students and have them sort the sounds in to high and low categories. Have students place their hands on the heads for high sounds and on their laps or the floor for low sounds.
4. Have students find a space in the room and play students a piece of music. Ask students to move between high space with hands above their heads and low space with hands towards the ground as the music they are listening to gets higher and lower. *(A good first piece to listen to is Mozart's "Requiem in D minor – Movement 3" as it has very clear definition between high and low, but any piece of music will move between high sounds and low sounds)*

Variations:
a. Use similar procedures to teach and reinforce a variety of opposite sound concepts
   i. Fast/Slow *("In the Hall of the Mountain King" by Edvard Grieg)*
   ii. Loud/Soft *("Surprise Symphony" by Joseph Haydn)*
   iii. Long/Short
   iv. Heavy/Light
b. Add movement props such as scarves or ribbons or a parachute to the movement portion of the activity.

Activities to Support Segmenting/Blending Sounds

Once students are able to hear individual sounds they need to be able to put them together and break them apart again. These activities help students to listen for, label, identify and replace sounds in words. The activities in this section are ones used in the music room to support learning of music content (pitch matching, voice quality, rhythm, etc.) which have been modified to support phonological awareness. When done in conjunction with learning happening in the music classroom (cross-curricular connections), the learning becomes more powerful and meaningful to students. These activities can be done as stand-alone activities or as a part of a phonological awareness lesson.

Earthquake

The purpose of this activity is to help students find and keep the beat in a song. This ties to language perception in that there is an underlying pace to everything that we say as well. Hearing the beat in music requires a similar auditory process as hearing syllable stress in language. Strengthening beat processing skills provides support for students being able to process syllables.

Procedures:
1. Select a recording of music for the students to listen to.
2. Have the students find a space in the room where they can stand and move without bumping into each other.
3. Play the music and have the students move to the beat with some part of their body (ex. tapping shoulders, clapping, marching in place, etc.). Students can all copy teacher motions or create motions of their own.
4. After a short time, press pause on the recording to stop the music.
5. When the music stops, students should stop tapping the beat and instead wiggle around in place (think the opposite of freeze dance).
6. When the music starts again, students resume tapping to the beat. Encourage students to find a new way to keep the beat each time.

Variations:
a. Play as a traditional move and freeze activity if the wiggle part becomes a distraction for students
b. Have students say a letter sound on each beat as the tap

Song Switcheroo

Hearing the beginning sound of a word is an important step in acquiring phonological awareness. This activity takes traditional children's songs and switches them up by singing every word of the song with the same beginning sound. It is a fun and silly way to reinforce phonics (sound to letter association) as well as support phonological awareness as you are playing with a single sound of a word.
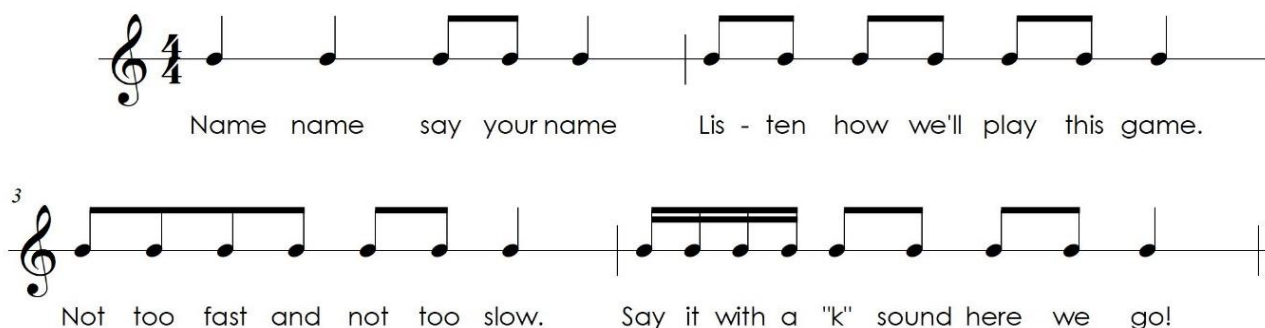
Procedures:
1. Select a traditional children's song that the class is familiar with. It could also be a song that you have taught the class as a part of another lesson. The important thing is that they know all the words before beginning this activity.
2. Sing through the song as written once to review and reinforce the words.
3. Tell the students that you are going to switch things up and change how they sing the song.
4. Show students the letter you have selected to practice and ask them to make the sound of that letter. *(Make sure you sing the song with the letter you have selected first to avoid any words you might not want kids to say accidentally!)*
5. Ask students to think about what the song would sound like if we replaced the first sound of every word with the sound of the letter you just practiced.
6. Practice a few words from the song together without singing the song.
7. Once students understand the concept, sing through the song together.

Example: "Row, row, row your boat gently down the stream" sung with the beginning sound of /b/ would be "Bow, bow, bow boar boat bently bown buh bream."

Name Game

This activity is another fun and silly opportunity for students to focus on hearing beginning sounds and replacing them with another sound. Using a child's own name they will first say their name as is, then they and the class will respond with their name replaced with a new beginning sound. Sure to illicit some giggles as silly names are said, students will focus on identification and replacement of beginning sounds.

Name   name   say your name   Lis - ten   how we'll play   this game.

Not   too   fast and   not   too   slow.   Say it with a   "k" sound here   we   go!

Procedures:
1. Begin by teaching students the rhyme.
2. Explain to students that at the end of the rhyme they are all going to say their name, and the class will repeat their name back to them.
3. Practice one time giving each student an opportunity to say their name and the class to echo it back.
4. Explain to the class that this time you play the game, instead of repeating their friend's name just like they said it, we are going to say it back to them with a different beginning sound.
5. Give the students some examples. *(Jessica says her name, we say Kessica; Bobby says his name, we say Kobby, etc.)*
6. When students are comfortable with the idea, say the rhyme again and this time students echo back the name with the new beginning sound.
7. Play the game using different beginning sounds each time *(pre-say all student names with the new beginning sound to avoid names saying anything that might be embarrassing to the student or inappropriate)*

Hickety Pickety Bumblebee

The purpose of this activity is to help students segment words into syllables. Using their names as a familiar word, students will say their name and clap out the number of sounds in their name in different ways to reinforce syllables.
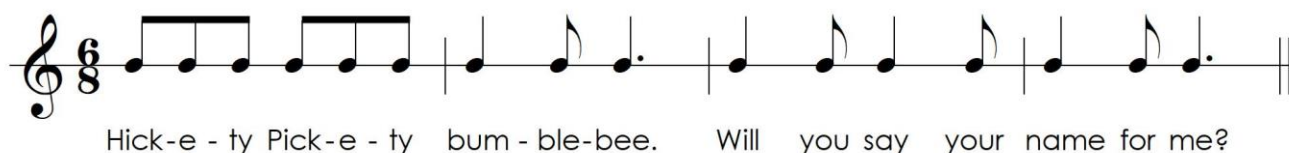
Hick-e - ty Pick-e - ty   bum - ble-bee.   Will   you say   your   name for me?

Procedures:
1. Begin by teaching students the rhyme.
2. When students are familiar with the rhyme, give each student a chance to say their name at the end of the rhyme.
3. Next ask the students to think about their own name and how many syllables it has in it *(Sometimes having students rest their hand under their chin and feeling how many times their hand moves when they say their name can help them identify syllables).*
4. Tell the students that this time when they say their name you would like them to say their name and clap the syllables at the same time.
5. Ask the rest of the class to echo that student after they say and clap their names, adjusting syllable identification as needed.
6. Repeat as needed or desired using variations *(examples below)*

Variations:
a. Students echo the name back as a whisper and with a two finger clap
b. Students echo back the name with a high voice and clap above their heads (also reinforces pitch understanding)
c. Students echo back the name with a low voice and pat their laps or the floor (also reinforces pitch understanding)
d. Students echo back quickly or slowly (reinforces tempo)

Mr. Syllable had a Zoo

The purpose of this activity is to help students blend syllables together to create a word. This activity uses the traditional song Old MacDonald but asks students to blend syllables together rather than practice making animal sounds. Blending sounds together allows the listener (or reader if they are sounding out words from print) to make meaning from what they are hearing.

Procedures:
1. Begin by telling students that they are going to play a guessing game where it is very important that they listen.
2. Read this scenario for students. "A man named Mr. Syllable has opened a new zoo, but because he loves syllables, he has broken up all of the names of the animals into syllables. The only way you can visit the animals in the zoo is to put their names back together. I will sing you a song that has the syllables in it broken apart. Put the sounds back together and guess the animal at the end of the song."
3. Sing the song. At the first blank fill it in with the word "animal."

4. Then sing the syllables in the blanks of the next line to complete the song. *(Two and three syllable animal names only)*. If the animal has two syllables in its name replace the "___ is last" with and additional "that is all."
5. At the end of the song ask the students if they can guess the animals in Mr. Syllable's Zoo.

Example: *Mr. Syllable had a zoo, E-I-E-I-O. And on that zoo he had an animal, E-I-E-I-O. With a /zee/ sound first and a /bra/ sound next. That is all, that is all, can you guess the animal? Mr. Syllable had a zoo, E-I-E-I-O.*

Variations:
a. Change Mr. Syllable to Mr. Phoneme and break apart one syllable animal names into their individual phonemes and ask students to blend the phonemes together to create the name of the animals.

Example: *Mr. Phoneme had a zoo, E-I-E-I-O. And on that zoo he had an animal, E-I-E-I-O. With a /c/ sound first and a /o/ sound next. /w/ is last, that is all, can you guess the animal? Mr. Syllable had a zoo, E-I-E-I-O.*

What's Missing?

This is a variation of the "How'd That Go" activity. The purpose of this activity is to not only have students hear and identify sounds in a sequence, but also to identify an eliminated sound and where it occurred. This activity will support students' ability to eliminate and replace individual phonemes in words.   Students will have eyes closed during this activity so they are not relying on their eyes for the answers.
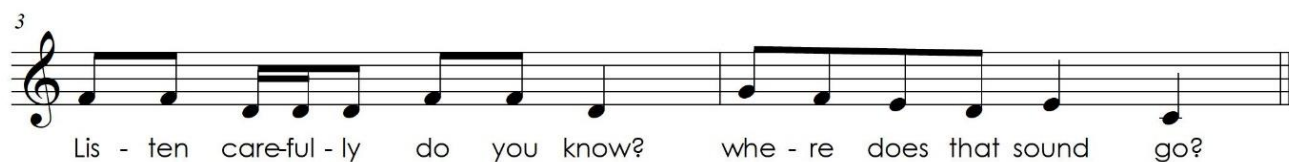
Procedures:
1. Gather 3 things that can be used to make sounds (ex. Stomping a foot, pencil tapping a chair, crumple paper) and have them with you.
2. Have students listen to the sound that each things makes.
3. Tell the students that they are going to close their eyes and you are going to make 3 sounds in a sequence and they need to listen to what in what order the sounds happen.
4. Have students close their eyes and make the 3 sounds. You can use all the sounds, or only one.
5. Now tell them that you are going to play the same sequence again but this time you are going to leave one sound out and they have to listen for which sound is missing.
6. Play the sequence again and leave one of the three sounds out.
7. Tell students to open their eyes and ask a student what sound was missing. If they get is correct ask them where that sound was supposed to be (beginning, middle end)
8. Repeat procedure multiple times.

Variations:
a. Allow the student who correctly identifies what is missing from the sound sequence to create the next one
b. Change the game from "What's Missing" to "What's Different." Rather than eliminating a sound, replace one sound with a different sound and ask students to identify the new sound and where it occurred.

What's that Sound?

In this activity students will segment words into phonemes and identify where those phonemes fit within the word. Being able to identify individual phonemes and their placement within the word will support students in their ability to replace those individual phonemes in other situations. This activity is done with students eyes closed so they can focus on what they are hearing rather than what they are seeing.

Hey there friend! What's that sound? I picked one up from off the ground.

Lis - ten care-ful - ly do you know? whe - re does that sound go?

Procedures:
1. Begin by telling students that they are going to play a guessing game where it is very important that they listen to the different parts of a word.
2. Lay out a word broken into phonemes on cards on the floor.
3. Guide the students through sounding out each phoneme, blending it into the word it creates and dividing the sounds back up again. Flip the cards over.
4. Tell the students that while their eyes are closed you are going to take a sound away from the word and sing just that sound at the end of the song. Tell them that it will be their job to identify what sound is missing and where it fits in the word (beginning/middle/end).
5. Have the students close their eyes, and take away a phoneme while singing. At the end of the song sing "I took the ___ sound."
6. Have the students tell you what sound is missing and where it goes in the word.

Variations:
a. Have students be the one to take the missing phoneme and sing it for the class
b. Have student identify the missing letter (or blend) from the missing sound

Activities to Support Rhyming

The ability to recognize and create a rhyme is an important part of phonological awareness development. Rhyming words have the same ending sound but different beginning sounds. The activities in this section include ones designed to encourage students to recognize and repeat musical patterns as well those designed to change the first part of the pattern but keep the rest the same. This correlates to the process of recognizing and creating a rhyme.
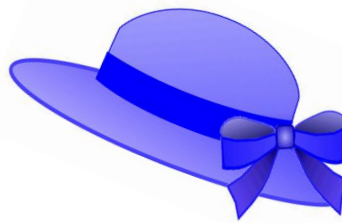
Cat   Hat

Copy Game

This activity is designed to help students hear sound patterns and create ones that are the same. Being able to recognize a pattern of sound and produce the same pattern mimics the skills necessary to hear a sound pattern in a word and create another word with that same pattern. A variation activity is included which asks students to change only the first part of a word while keeping the rest the same. This is done through a similar process as creating a rhyme.

Let's play the co - py game it's so much fun!

Let's co - py "some - bo - dy" s/he's the one!

Procedures:

1. Begin by teaching students the rhyme.
2. When students are familiar with the rhyme replace the word "somebody" with the teacher's name.
3. At the end of the rhyme the teacher creates a four-beat pattern using clapping, patting legs, and stomping. Students echo the pattern exactly as given. The teacher can do 3-4 patterns with students echoing before repeating the rhyme and continuing.

Variations:

a. Allow students to be the one creating the four-beat pattern for the rest of the class to copy. *(Explain to students that they should do a pattern different than the person before them and that they may only use one movement (patting/clapping/stomping) at a time).*
b. To make a more direct connection to rhyming, the teacher (or student) creates a four-beat pattern while the class responds by changing the first beat ONLY and keeping the other three the same. *(This will take some practice and modeling for students before they are able to do this independently)*

Rhythm Machine

The purpose of this activity is to encourage the development of the auditory processing skills necessary to recognize and create patterns that are the same. These auditory skills are utilized when listening for and creating rhymes. Including movement with this activity engages multiple areas of the brain at the same time.

Procedures:
1. Have students stand in a circle.
2. Tell the students that we are going to be a rhythm machine that moves a rhythm from one person to the next. Tell the students that they must perform the exact rhythm as the person in front of them, even if the rhythm is changed.
3. Decide how the rhythm will be passed (ex. clapping, patting, stomping, patting neighbors hands, etc.)
4. The teacher starts by creating a rhythm using whatever method was chosen to pass the rhythm
5. The student next to the teacher performs the same pattern as soon as the teacher is finished.
6. This continues until all children have passed the rhythm and it returns to the teacher.

Variation:
a. Create at bump in the machine by having students close their eyes and selecting one student to intentionally change the rhythm when it comes to them. After the rhythm returns to the teacher, students try to identify where the intentional bump occurred. This can be a challenge if the rhythm changed unintentionally, but encourages intentional listening.

Wizard in the Kingdom

The purpose of this activity is to encourage the development of the auditory processing skills necessary to recognize patterns that are the same and patterns that are different. These auditory skills are utilized when listening for and creating rhymes.

Procedures:
1. Begin by telling students this scenario. "Once upon a time there was a kingdom under the spell of a wizard. The wizard loved things to be exactly the same and cast a spell on all the people in the kingdom so that they could only move to patterns that were the same. The wizard would play two patterns for the people. If they were the same, the people could move their feet to match that pattern. If the patterns were different, the people had to stay frozen in their places."
2. Tell the students that today you are the wizard and you are going to play two patterns for them. If the two patterns match exactly, they can move their feet to that pattern. If the two patterns are different in any way, they need to stay frozen in their place.
3. Give the students a few examples before allowing them to move after hearing the pattern. Play one pattern for the students, wait a couple seconds, then play either the same pattern again or a different pattern.
4. Ask the students to verbally identify whether the pattern was the same or different.
5. Have the students find a space in the room where they will be able to move around. Play patterns for students (they should only move after the second pattern) and have them move if they were the same or stay frozen if they were different.

Variations:
a. Introduce elimination. If students move when they are supposed to be frozen or don't move when they should they will be out. *(Sometimes this encourages more active listening, however, know the dynamics of your classroom before introducing this variation)*
b. Walk to the pattern if the two patterns match, jump to the second pattern if it is different from the first. *(This allows for more movement for students who may need it.)*

Down By the Bay

The purpose of this activity is to allow the students an opportunity to create rhymes that is fun and silly.

Procedures:

1. Sing the song to the students or sing through a story book version.
2. At the "Did you ever see a _____" sections, sing up until the word that rhymes and then pause. Allow the students to guess the word that comes next. Remind students that the word is going to rhyme.
3. Work as a class to create a new verse to the song. Write the new verse on chart paper or a white board. Draw students' attention to the words that rhyme and where they fit in the verse.
4. Divide students into groups and give them the task of creating a new verse for the song.
5. Give them an activity sheet (included on the next page) and allow them to write down and illustrate their verse.
6. Bind the new verses together to create a new "Down By the Bay" book.

Down by the bay (down by the bay)

Where the watermelons grow (where the watermelons grow)

Back to my home (back to my home)

I dare not go (I dare not go)
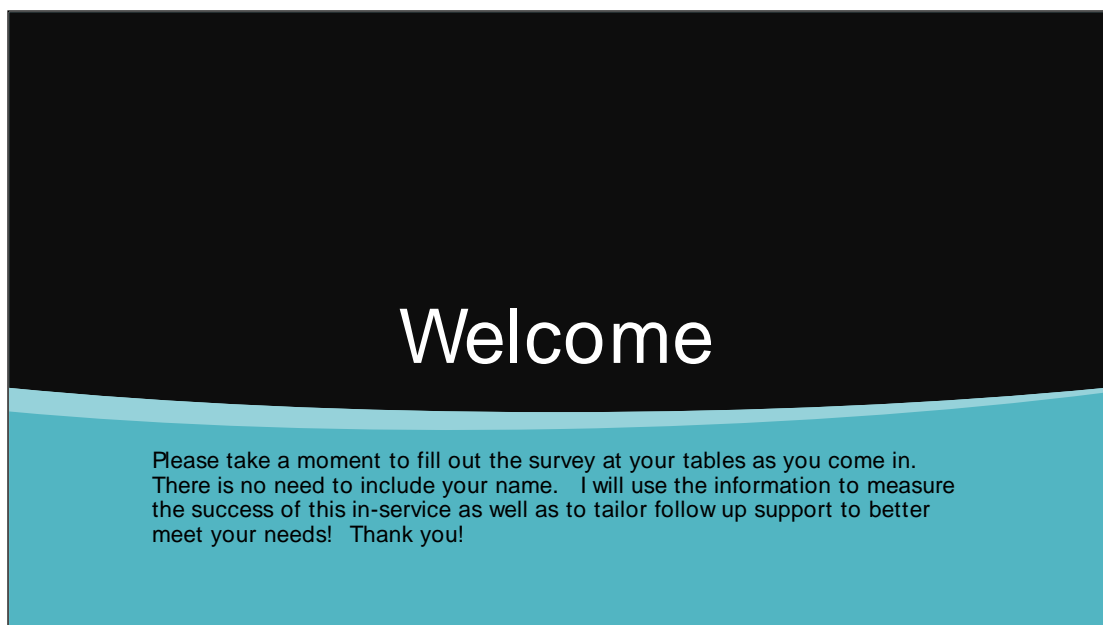
For if I do (for if I do)

My mother will say (my mother will say)

Did you ever see a _____

_____

Down by the bay!

Appendix B

Sound Practice

Using Music to Support Phonological Awareness

Welcome

Please take a moment to fill out the survey at your tables as you come in. There is no need to include your name. I will use the information to measure the success of this in-service as well as to tailor follow up support to better meet your needs! Thank you!

Your Presenter: Rachel Moore

- A Bit About Me
  - Bachelor in Music Education from Central Michigan University
  - Masters in Elementary Education from Grand Valley State University
  - 14th year teaching Elementary Music/ 7th year for Farmington Public Schools
  - Have also worked as a reading interventionist
  - The information in this presentation comes from research done during my Masters project

Presentation Goals

- What I hope you'll leave here with today
  - An understanding of the similarities between music acquisition and phonological awareness acquisition
  - A knowledge of how music instruction supports the development of phonological awareness
  - Ways you can, and why you should, incorporate music into your phonological awareness instruction to support student learning
  - Activities ready to implement in your classrooms this school year

How Children Learn to Process Sound

Spoken Language Continuum

1. Listening

2. Speaking

3. Thinking/ Conversing

4. Reading/ Writing

Music Language Continuum

1. Listening

2. Speaking

3. Thinking/ Conversing

4. Reading/ Writing

Wait…aren't those the same?

Music Learning Theory

- A theory of how children learn the music language, introduced by Edwin Gordon

- Often called the Gordon Method, but it is not a method, just a theory that guides the development of any number of different methods of teaching music

- Key principles of MLT
  - Audiation
  - Sequential Learning Sequence

Aud   Ideate

Audiate
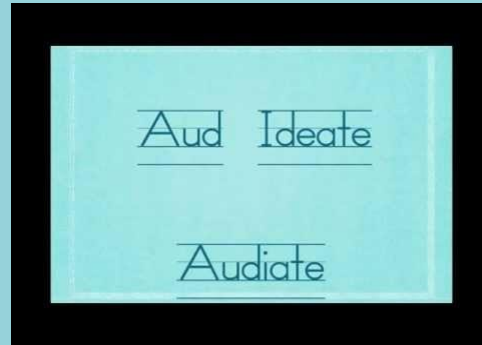
Shouldice, H. (2015, January 18). "Intro to music learning theory." [YouTube]. Retrieved from https:/ / www.youtube.com/ watch?v=2vl3tSFC0HY

How Music Supports Phonological Awareness Acquisition

▪ Studies have shown that students who score well on rhythmic and tonal discrimination assessments also score well on phonemic fluency assessment

(David, Wade-Woolley, Kirby and Smithrim, 2007; Lucas & Gromko, 2007; Tsang & Conrad, 2011; Culp, 2017)
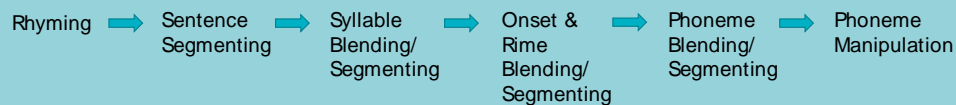
▪ The skills necessary for auditory discrimination in music are very similar and complimentary to the skills necessary for auditory discrimination in language. Training in music can help support the sound discrimination skills in language (phonological awareness)

(Bolduc, 2009; Dege and Schwarzer, 2011; Thomson, Leong and Goswami, 2012; Moritz, Yampolsky, Papadelis, Thomson, & Wolf, 2012; Tierney and Kraus, 2013; Flaugnacco, Lopez, Terribili, Montico, Zoia, and Schon, 2015)
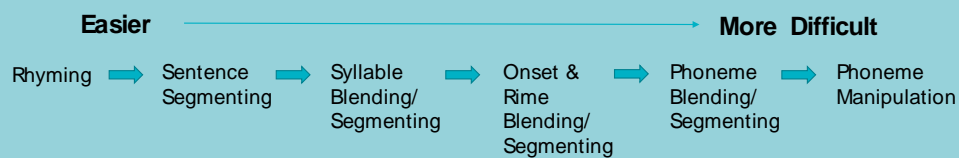
What the Research Says

Phonological Awareness Acquisition

▪ Phonological Awareness is the awareness of the sound structure of language; sensitivity to any size unit of sound (Yopp & Yopp, 2000). Encompassing term that involves working with the sounds of language at the word, syllable and phoneme level (Oregon Center on Teaching and Learning, 2009)

Rhyming ⟶ Sentence Segmenting ⟶ Syllable Blending/ Segmenting ⟶ Onset & Rime Blending/ Segmenting ⟶ Phoneme Blending/ Segmenting ⟶ Phoneme Manipulation

Phonological Awareness Acquisition

- In simple terms, phonological awareness acquisition begins with larger/ easier to discriminate sounds in words, and progresses to smaller/ more difficult to discriminate sounds in words

Easier → **More Difficult**

Rhyming ⇒ Sentence Segmenting ⇒ Syllable Blending/ Segmenting ⇒ Onset & Rime Blending/ Segmenting ⇒ Phoneme Blending/ Segmenting ⇒ Phoneme Manipulation

The same principle
applies to learning sound
discrimination in music

Rhythm Awareness Acquisition

- When dealing with this aspect of music learning, rhythm awareness acquisition begins with larger/ easier to discriminate sounds in music (the beat), and progresses to smaller/ more difficult to discriminate sounds in music (rhythms and meter)

Easier —————————————————————→ **More Difficult**

Beat → Tempo → Rhythm → Meter

Using Music to Support Phonological Awareness

How/ When to Add Music

- Anytime!
  - These activities are not long.   Most can be completed in 10min or less.
  - They are not designed to replace your current phonological awareness instruction
  - It doesn't have to be a part of your phonological awareness lesson time.
  - Possible places to insert music activities
    - Transition time
    - As a filler activity
    - Sub plans

Activities to Support Sound Discrimination

Sound Hunting

- Sound Walk
  - Take a walk through the building (or outside!) in complete silence
  - Students focus on sounds they hear and where they are coming from
  - Upon returning to the classroom create a list of sounds students heard and their source

- Yoo-hoo!
  - One student sings, "Yoo-hoo, where are you?" with their eyes closed
  - A second student responds "I am over here"
  - While keeping eyes closed, the student must point to where the sound came from

Sound Sequences

- How'd That Go?
  - Find a number of unique sounds for children to use
    - For example: tapping on a chair, clapping hands, tapping pencils together
  - Have students close their eyes and play three sounds in a sequence
  - Select a student to try and replicate the sequence
  - Have students create their own sequences for classmates to copy

Using Movement

- Opposites
  - High/ Low
    - Play a variety of sounds (birds, garbage trucks, instruments, etc.) and ask students to identify if it sounds high in pitch or low by placing hands on head for high and hands on lap or group for low.
    - Play music and have students move their bodies, matching the pitch sounds they hear
  - Other musical opposites that can be taught with similar procedures
    - Loud/ Soft
    - Fast/ Slow
    - Heavy/ Light
    - Long/ Short

Activities to Support Segmenting/ Blending Sounds

Beginning Sounds

- Song Switcheroo
  - Use a traditional song and change the first sound of each word
    - For example: "Row, row, row your boat gently down the stream" could become "Bow, bow, bow bour boat bently bown bhe bream"

- Name Game
  - "Name, name, say your name? Listen how we'll play this game. Not too fast and not too slow. Say it with a k sound, here we go."
    - Jessica becomes Kessica
    - Joe becomes Koe

Syllables

- Hickety Pickety Bumblebee
  - "Hickety pickety bumblebee, will you say your name for me?"
    - Student says their name, and class repeats it and claps the syllables
    - Variations: Whisper name and two finger clap syllables
                           Say it high and clap syllables up high
                           Say it low and pat syllables on the floor

- Mr. Syllable Had a Zoo
  - "Mr. Syllable had a zoo.   E-I-E-I-O. And in that zoo was a/ an _____"
    - Have the animal names typed out and cut according to syllables
    - Sing the animal name by syllables and have the students identify which animal is in the zoo

Using Movement

- Beat Perception
  - Earthquake
    - Play music and have the students tap the beat on any part of their body
    - When you press pause there is no longer a beat so students wiggle their bodies until the music begins again (think opposite of freeze dance)
    - When music starts again student find a new place to tap the beat on their body

Individual Phonemes

- What's Missing?
  - Variation on "How'd That Go?"
  - Have students close their eyes and listen to the sequence.
  - With students' eyes still closed, play the sequence again, this time eliminating a sound. Have students identify what was missing and where in the sequence it was

- What's That Sound?
  - "Hey there friend. What's that sound? I picked one up from on the ground. Listen carefully, do you know? Where does that sound go?"
    - Have each sound on a separate card. / d/ o/ g/
    - One student takes a sound and sings "I have the / d/ sound."
    - Another student says where the sound fits in the word (beginning/ middle/ end)

Activities to Support Rhyming

Rhyming

- The Copy Game
  - "Let's play the copy game; it's so much fun. Let's copy _____ s/ he's the one!"
    - The leader creates a rhythm pattern by clapping, patting and stomping and the class echoes the pattern with the same sounds.
    - When students are confident with the procedure, tell students they must change only the first sound in the pattern but keep the rest the same

- Down By the Bay
  - Sing song together as a class or sing the picture book
  - Create new verses for the song

Using Movement (cont.)

- Rhythm Perception
  - Rhythm Machine
    - Clap or play a rhythm pattern on rhythm sticks
    - Have students move their feet to the same rhythm patterns
  - Wizard in the Kingdom
    - A wizard casts a spell on the people of the kingdom so that they can only move when two rhythm patterns are played exactly the same.   If the two patterns are different the people must stay glued to their spot
    - Play or clap a variety of two pattern combinations (some same and some different)
    - Students move or stay frozen based on what they hear

Additional Resources

–Music Learning Theory
  ▪ Gordon Institute for Music Learning
    https://giml.org/

–Your Building Music Teacher
  ▪ Talk with them about which skill you are trying to develop
  ▪ Ask for song suggestions
  ▪ Build cross curricular connections

–Me
  ▪ rachel.moore@Farmington.k12.mi.us

Additional Resources

Questions…
Concerns…
How can I help?

THANK YOU!!

Please fill out the post in-service survey and place it in the box before you leave.   Also, put your e-mail on the list before exiting to sign up for follow-up support and future learning opportunities!

Appendix C
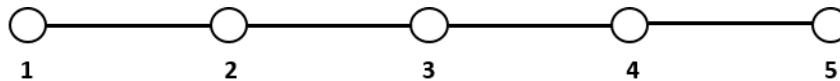
Sound Practice: Using Music to Support Phonological Awareness Pre- In-Service Survey

Please answer the questions below as honestly as possible and place in the **BLUE** folder at the front of the room before the in-service begins. Thank you!

1. **How often do you intentionally teach phonological awareness in your classroom?**

   Infrequently   Every Day

   ○————————○————————○————————○————————○
   1   2   3   4   5

2. **Please list activities that you use currently in your classrooms to teach phonological awareness.**

   _____
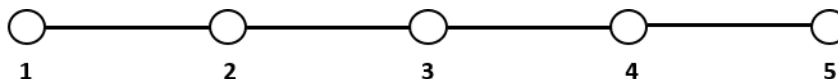   _____
   _____
   _____
   _____
   _____
   _____

3. **Approximately how much time per week do you spend intentionally teaching phonological awareness?**

   _____

4. **How often do you use music to teach and/or reinforce content in your classroom?**

   Infrequently   Every Day

   ○————————○————————○————————○————————○
   1   2   3   4   5

5. **Please list ways that you currently use music to teach and/or reinforce content in your classroom.**

_____
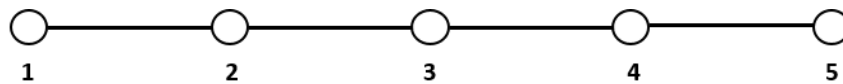_____
_____
_____
_____
_____

6. **How valuable do you find using music to teach and/or reinforce content in your classroom?**

Not Valuable   Very Valuable

```
   O ———————— O ———————— O ———————— O ———————— O
   1          2          3          4          5
```
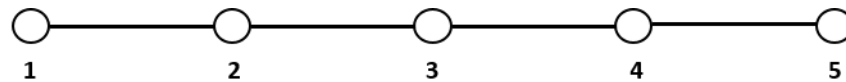
7. **How confident are you in your ability to use music to teach and or reinforce content in your classroom?**

Not Confident   Very Confident

```
   O ———————— O ———————— O ———————— O ———————— O
   1          2          3          4          5
```

8. **What would help you feel more confident?**

_____
_____
_____
_____
_____
_____

Appendix D

Sound Practice: Using Music to Support Phonological Awareness Post- In-Service Survey

Please answer the questions below as honestly as possible and place in the **RED** folder at the front of the room before leaving the in-service. Thank you!

1. **What was your biggest take-away from today's in-service?**

   _____
   _____
   _____
   _____
   _____
   _____

2. **Were you aware of music's support of phonological awareness before this in-service?**

   YES   NO

3. **How relevant did you find that material presented today to be to your current teaching practice?**

   Not At All   Very Relevant
   Relevant

   O────────O────────O────────O────────O
   1   2   3   4   5

4. **Which of the activities presented today are you most excited to try with your students? Why?**

   _____
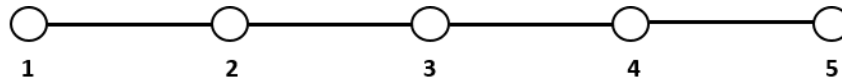   _____
   _____
   _____
   _____
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5. **How likely will you use the activities presented today on a regular basis as a part of your phonological awareness lessons?**

Very Unlikely   Very Likely
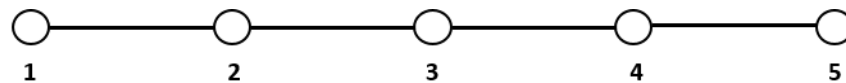
```
     O————————O————————O————————O————————O
     1         2         3         4         5
```

6. **Why?**

_____
_____
_____
_____
_____
_____

7. **How confident are you in your ability to use the activities presented today to support phonological awareness in your classroom?**

Not Confident   Very Confident

```
     O————————O————————O————————O————————O
     1         2         3         4         5
```

8. **What would help you feel more confident?**
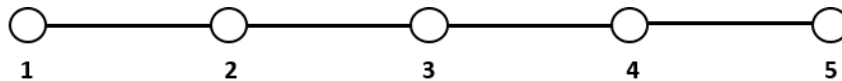
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_____
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Appendix E

Sound Practice: Using Music to Support Phonological Awareness Follow-Up Survey

Please answer the questions below as honestly as possible and inter-office send them to Rachel Moore at Beechview Elementary. Thank you!

1. **How often do you intentionally teach phonological awareness in your classroom?**

   Infrequently   Every Day

   ◯———◯———◯———◯———◯
   1   2   3   4   5

2. **Please list activities that you use currently in your classrooms to teach phonological awareness.**

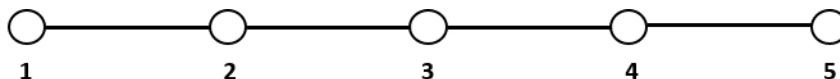   _____
   _____
   _____
   _____
   _____
   _____

3. **Approximately how much time per week do you spend intentionally teaching phonological awareness?**

   _____

4. **How often are you using the activities presented in the in-service to support phonological awareness in your classroom?**

   Infrequently   Every Day

   ◯———◯———◯———◯———◯
   1   2   3   4   5

5. **Which activities do you use most frequently?**

_____
_____
_____
_____
_____
_____

6. **Which activities have you found to be most effective with your students? In what ways?**

_____
_____
_____
_____
_____
_____

7. **Which activities have you found to be least effective with your students? In what ways?**

_____
_____
_____
_____
_____
_____

8. **How valuable do you find using the activities to support phonological awareness?**

Not Valuable   Very Valuable

O———————O———————O———————O———————O
1   2   3   4   5
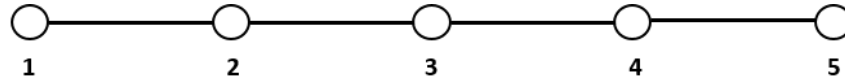
9. **How confident are you in your ability to use the music activities to support phonological awareness?**

Not Confident   Very Confident

    1   2   3   4   5

10. **What would help you feel more confident?**

_____
_____
_____
_____
_____
_____

11. **Have you noticed an improvement in your students' phonological awareness since implementing these activities? In what ways?**

_____
_____
_____
_____
_____

12. **What additional support would you like to have that would help your implementation of these activities?**

_____
_____
_____
_____
_____

13. **Would you be interested in further professional development in the area of music and its support of phonological awareness?**

      YES   NO

GRAND VALLEY STATE UNIVERSITY
ED 693/695 Data Form

NAME: ___Rachel S. Moore_____

MAJOR: (Choose only 1)

_____ Adult & Higher Ed	_____ Ed Differentiation	_____Library Media
_____ Advanced Content Spec	_____Ed Leadership	_____Middle Level Ed
_____ Cognitive Impairment	_____ Ed Technology	_____Reading
_____CSAL	_X__Elementary Ed	_____School Counseling
_____Early Childhood	_____Emotional Impairment	_____Secondary Level Ed
_____ ECDD	_____Learning Disabilities	_____Special Ed Admin
		_____TESOL

TITLE: Sound Practice: Using Music to Support Phonological Awareness

PAPER TYPE: (Choose only 1)   **SEM/YR COMPLETED:** Spr/Sum 2018
    __X__ Project
    _____ Thesis

SUPERVISOR'S SIGNATURE OF APPROVAL_____

Using key words or phrases, choose several ERIC descriptors (5 - 7 minimum) to describe the contents of your project. ERIC descriptors can be found online at:

http://www.eric.ed.gov/ERICWebPortal/Home.portal?_nfpb=true&_pageLabel=Thesaurus&_nfls=false

1.	Phonological Awareness	6.	Music
2.	Reading Proficiency	7.	Music Education
3.	Beginning Reading	8.	Music Learning Theory
4.	Reading Instruction	9.	Teaching Strategies
5.	Phonological Awareness Instruction	10.	