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The effects of using music and movement to enhance learning

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Abstract

This paper reviews the effects of using music and movement to enhance learning in early childhood years and in the elementary classroom. Information includes Howard Gardner's musical and bodily-kinesthetic intelligences, the effects of music on brain development in infants and children, studies in the effects of music on spatial-temporal reasoning, how music affects learning in the early childhood and primary years, and the effects of music on special learners. Appropriate for parents, caregivers, and educators, this review provides the basis for incorporating music into everyday early childhood and classroom experiences.

THE EFFECTS OF USING MUSIC AND MOVEMENT
TO ENHANCE LEARNING

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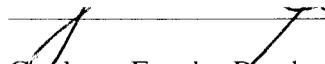
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Abstract

This paper reviews the effects of using music and movement to enhance learning in early childhood years and in the elementary classroom. Information includes Howard Gardner's musical and bodily-kinesthetic intelligences, the effects of music on brain development in infants and children, studies in the effects of music on spatial-temporal reasoning, how music affects learning in the early childhood and primary years, and the effects of music on special learners. Appropriate for parents, caregivers, and educators this review provides the basis for incorporating music into every day early childhood and classroom experiences.

Introduction

A child eagerly bounces through the classroom door the first day of school. Immediately she begins singing and reciting her alphabet. "I even know how to draw the letters in the air!" she passionately announces to her teacher. "Can I sing you some more songs and show you the actions to some rhymes that I learned in preschool?" she continues. The teacher is very pleased to hear and see the child's enthusiasm for sharing and learning. She ardently announces to the class what a fun year they will have learning the sounds of the alphabet with songs and actions. It is the first day of kindergarten and the students beam from ear-to-ear in anticipation for a year filled with musical activities.

How does incorporating music and movement into a child's early developmental years enhance learning? Theories and studies show children benefit in many ways when teachers provide a variety of musical activities early on in life and throughout the elementary school years. Music is a part of our everyday lives. Music is in our lives for enjoyment, comfort, entertainment, and artistic expression. Music also has the purpose of teaching concepts. Music, like language, has been present since the beginning of time. It is a part of human nature and an intrinsic part of our being. From conception on, we have been exposed to music in a number of ways. Studies have shown that fetuses can experience musical pitches and sounds in the womb (Weinberger, 1999). Our brains make links and pathways through these experiences and connections are made. Communication between a mother and child often begins with soothing songs and touches that stimulates developmental growth. Classical music, such as Mozart, is often used to sooth infants to sleep, increase activity, and make connections in the brain (Weinberger, 1999). Music is frequently used in children's programming, on television, compact disks, software programs, and Internet sites. It is evident that music not only stimulates, but adds

variety and enjoyment. Songs with rhythm, melody, and actions are primarily used in the toddler and preschool years to teach concepts and remember important information such as names, addresses, and phone numbers. More recently, music has been incorporated into phonetic and basal reading programs to enhance student comprehension and retention of skills.

Rationale for Using Music and Movement to Enhance Learning

The rationale behind choosing how music and movement enhances learning comes from my experiences of raising three small children and teaching practices in kindergarten through second grades. Interacting with young children is a much different world in that children need to have constant activity and movement. Activities must include involvement to hold the young students' interest levels and encourage learning. Children at this age love to sing, learn rhymes, do creative dramatics, dance, and use signals. These activities not only provide for educational experiences, but also social. Through my experience, I have observed that children at this age do best the more they are engaged. Young children need concrete examples and visual aids to retain information. They also need constant practice and repetition. Children learn by doing and performing. Incorporating musical activities with hands-on movement, increases retention of skills and knowledge of concepts.

Purpose of Using Music and Movement to Enhance Learning

Discovering a means to which all children can learn is essential. Providing children with educational opportunities in captivating environments increases students' motivation and enthusiasm to learn. By reviewing literature related to the effects of music on learning:

1. Parents will have a better understanding of how incorporating music and movement into the everyday routines of their children's lives can effect brain stimulation.

2. Daycare providers will find methods to establish creative and enhancing activities for their children.
3. Early childhood educators will find importance for providing activities centered on using nursery rhymes with songs and movement.
4. Primary instructors will find useful methods for teaching phonics, reading, and literacy through the application of music and movement.

Importance of Using Music and Movement in Early Childhood Years

In our changing society, individuals are always looking for ways to motivate students to learn and build a solid academic foundation. Many strategies and programs have been introduced over the years to enhance learning. Music is one very simple and evident way to provide motivating strategies that incorporate movement and variety to enrich learning. Music helps aid in retention by the strategic placement of words with melodies, verses that rhyme and easy flow of language (Asmus & Haack, 1996).

This review will lend insight as to why music and movement is an important tool to use in the learning process. It will show how individuals develop from the beginning of their lives with music deepening an understanding of concepts and awareness for skills that progress learning. This review will give meaning behind musical activities and movements that boost and supplement children's intellectual abilities.

Terms to be Addressed

Terms that are addressed in this review are as follows: *brain development, the Mozart Effect, nursery rhymes, Jolly Phonics, phonemic awareness, phonological awareness, and systematic phonics*. Terminology is addressed in the course of explaining how the key elements enhance learning through musical activities and movements in a child's early developmental

years, throughout their early school age years. Terms will be directly linked to the significance of the review and to the roles in a child's learning processes.

Methodology

Locating materials for this review consisted of searching online using a number of descriptors that related to the topic of music and learning. The searches were based on the following keywords and various combinations of these words: *music and movement*, *music and brain development*, *creative dramatics*, *early learning strategies*, *music and reading*, *music and young children*, *nursery rhymes*, *Jolly Phonics*, *music in schools*, and *music and phonics*.

After using the keywords to locate information, articles and sources were obtained through the University of Northern Iowa Rod Library online for distance learners, Google searches to locate sources on the ERIC Education Government site, JSTOR Online Archive, professional books, and professional literature searches at University Book and Supply, and Amazon.com.

Sources were selected through reading of abstracts and introductions. Materials were read and analyzed by the amount of information that correlated to the topic of using music and movement to enhance learning. Criteria for obtaining information for this review included current copy write dates, reports stating advantages and evidence of the benefits of using music and movement, and studies that have been conducted.

Literature Review

Can Music and Movement Enhance Learning?

Using music and movement to enhance learning must have relevance if Gardner found it important to add these to his list of multiple intelligences. Howard Gardner (1983, 2004) identified seven distinct intelligences. These intelligences helped identify and explain how

individuals think, process, learn, and retain information. The following is a list of the seven intelligences that Gardner originally identified:

1. Linguistic intelligence where there is sensitivity to the meaning and order of words.
2. Logical-mathematical intelligence where one has ability to rationally analyze problems, perform mathematical operations, and scientifically explore problems.
3. Musical intelligence involves skill in the presentation, organization, and understanding of musical patterns.
4. Bodily-kinesthetic intelligence is the ability to use movements in a skilled way, for self-expression, or toward a goal.
5. Spatial intelligence is the ability to perceive the world accurately and to maneuver the patterns of wide space, as well as more restricted areas.
6. Interpersonal intelligence is an ability to perceive the objectives, motivations, and wishes of other individuals and to work collaboratively with others.
7. Intrapersonal intelligence is the ability to control one's own life by understanding one's own emotions, fears, desires, and faculties (Gardner, 1999).

In 1999, Gardner revised his model to add the naturalistic intelligence, which is the ability to distinguish patterns in nature (Waterhouse, 2006). Although the theory of the multiple intelligences has not been proven with conclusive studies, the utilization of intelligences in the education setting can be very beneficial to understanding how individuals learn. Gardner (1999) states, "The accumulating neurological evidence is amazingly supportive of the general thrust of MI theory. Research supports the particular intelligences that I have described and provides elegant evidence of the fine structure of such capacities as linguistic, mathematical and musical processing" (p. 99). According to Gardner's theory, we are all able to know our styles

of learning and how to relate to the world around us. His theories can better help parents, daycare providers, instructors, and educational leaders identify individual differences in novices and how to reach their intellectual potentials. Each student has a distinctive way of learning that is easily identifiable. Society would be better served if disciplines could be presented in a number of ways and learning could be assessed through a variety of means (as cited in Lane, nd).

With Gardner's Musical intelligence individuals show sensitivity to rhythm and sound, love of music, and are sensitive to sounds in their environments. They may study better with music in the background, be taught by turning lessons into lyrics, and speak rhythmically (Lane, nd). With musical intelligence individuals have the capacity to hear patterns, recognize them, and perhaps manipulate them. Cohen (1999) states:

People who have musical intelligence are attracted to the world of sound, try to produce appealing combinations of sound on their own, and usually play an instrument. Children's creativity in this area may reveal itself through their sense of rhythm, their expressions of ideas and stories through singing, or their desire to turn everything into an instrument. (p. 27)

Reaching learners through their musical intelligences provides for motivation and emotions through experiencing patterns in musical lyrics. At young ages, learners easily pick up on these language patterns. Providing stimulating learning experiences through musical activities promotes development.

Bodily-kinesthetic intelligence involves using one's body (or parts of it) to perform skillful and purposeful movements, to solve problems, and create products (Gardner, 1999). Individuals have an acute sense of body awareness. They like movement, making things, and feeling. Individuals communicate well through body language and like to be taught through performing and role playing, hands-on activities, and physical association using tangible equipment and real objects (Lane, nd). Cohen (1999) affirms, "Children first explore the world

through their bodies, and some children demonstrate their creativity by getting involved in all types of movement activities” (p. 27).

Cohen (1999) suggested that one should provide children with the following opportunities to encourage creativity in music and bodily-kinesthetic intelligences:

1. Integrate music during daily routines.
2. Let children create their own melodies and explore the world of sound.
3. Record children’s own songs as well as using a tape recorder to listen and sing.
4. Provide instruments that include rhythm and melody with occasions to freely experiment.
5. Express feelings through music and dance.
6. Offer opportunities to exercise, dance, move creatively, and add dramatics.
7. Utilize movement to help children learn about their world.
8. Help children gain motor control by moving from larger to smaller spaces.
9. Invite children to problem-solve with their bodies by asking questions.
10. Make adjustments and adapt movement activities that allow all children to participate.
11. Provide materials from nature and other objects that promote tactile exploration.

In accordance with Howard Gardener’s Intelligences, it is highly plausible that individuals not only learn through music and movement, but also knowledge can be enhanced to meet the learning styles of each individual need. Incorporating musical and bodily activities in a child’s daily routines not only enhances learning, but promotes creativity that builds on a number of significant skills in a child’s development.

Studies in Music Conditioning

The term “Mozart Effect” refers to the study that originated with 36 college students who listened to 10 minutes of a Mozart piano sonata before performing a series of spatial-temporal

tasks. This research was conducted by Francis Rauscher and Gordon Shaw and their colleagues at the University of California at Irvine in the early 1990s (Rauscher, 2003). Results showed that the subjects scored eight to nine points higher on the spatial IQ tests, but this effect only lasted for 10 minutes after listening to the sonata (Waterhouse, 2006). The results of Rauscher and Shaw's study led them to the conclusion that early music training may be a useful tool in brain development (Caulfield, 1999). The "Mozart Effect" was studied only in adults, lasted only a few minutes, and was found only for spatial-temporal reasoning (Rauscher, 2003). Currently, scientific research supporting the "Mozart Effect" is limited, but from what we can perceive listening to music can promote brain stimulation.

Although there have been few studies that prove listening to music can have an effect on an individual's spatial-temporal abilities, Rauscher and Shaw (2003) also conducted a two year study to determine the effects of early music lessons in piano on spatial reasoning with preschool-aged children. The results showed that students who began instruction at age five scored higher on special-temporal tasks than children who did not receive music lessons; where as children who began lessons at age seven did not differ from the control group (Rauscher, 2003). Further into the study, results showed that children three years of age who received keyboard instruction continued to score higher on special-temporal and math tasks two years after they had received music lessons (Rauscher, 2003). This study provided additional evidence to the researchers that brain development can increase with exposure to music at an early age (Caulfield, 1999). The results also concluded that the earlier the instruction, the more of an impact music instruction has on the lasting effect of performing special-temporal tasks (Caulfield, 1999).

Expanding on her studies, Rauscher (2003) duplicated a study with kindergarten students who received group piano keyboard lessons. The study also involved a control group who received no formal music training and a group who received technology training. Results of the study showed that students who received the keyboard instruction outscored those in the control groups by 48% on spatial reasoning tests (Demorest & Morrison, 2000). These findings were reported at the American Music Conference in 1997. The research team concluded that when learning math and science skills; music training is far superior to computer instruction in increasing children's abstract reasoning (Demorest & Morrison, 2000).

One method in reading brain activity is through the brain imaging technique called an electroencephalogram (EEG). This method measures and records the brain's electrical activity. Scientists have been using this method to examine cognitive and music processing in young children (Flohr, Miller & DeBeus, 2000). EEG information is recorded from readings taken on the surface of the skull using either electrodes sewn into a cap or paste on electrodes (Flohr et al, 2000). Flohr and Miller (2000) researched preschool children who had music training, with a control group who did not have formal music training. The music training lasted seven weeks. While the subjects listened to music and performed a visual-spatial task the hypothesis was that the music group's electrical brain activity would be different from the control groups. The results of the study suggested that the music trained group showed changes in cortical activation patterns in the same areas of the brain that are associated with spatial-temporal reasoning, which also showed activation patterns similar to those in adults who have had formal music training (Flohr et al, 2000). The EEG studies described suggest that formal music training is beneficial for brain development in young children.

Studies with the effects of music on the babies' brain are very limited, but evidence does show that connections are made with music experiences. John Lynch, a developmental psychologist, reported that full-term infants' performance in detection of melody changes appeared to be influenced from six months in utero up to birth (as cited in Fox, 2000). Another study with premature babies in intensive care units demonstrated that recordings of contrasting musical styles had a direct effect on the infants' heart rate, blood pressure, and respiration (Fox, 2000).

From the prenatal period, the brain is making constant connections and pathways throughout life. It is critical to develop these connections at an early stage of life. Children characteristically have up to twice as much neural activity and twice as many connections in their brains as adults do during the first decade of life, in which some of the connections are due to environmental factors and some due to genetics (Flohr, Miller & DeBeus, 2000). According to MENC (2000), "The human brain has a remarkable capacity to change, but timing is crucial" (as cited in Flohr et al, 2000). The significant window of opportunity for optimal music learning appears to take place in the early childhood years (Flohr et al, 2000). Flohr et al. (2000) refer to "critical timing" as a period of development when lack of stimulation or inappropriate stimulation affects the brain for life. Thus, it is imperative that children receive music instruction at a young age to meet the "critical timing" in brain development.

Music and Movement in Early Childhood Years

The brain is a very complex and baffling instrument. From the moment of conception, wiring in the brain begins (Weinberger, 1999). The brain contains over 100 billion or so neurons which form more than 50 trillion connections established at birth. These synapses will increase 20-fold to more than 1,000 trillion in the first months of life (Begley, 1997). Begley (1997)

comments in her article that if synapses in the brain are not used, just like our memories, will wither and fade away, which is known as the process of pruning. According to Begley (1997), the following sequential list represents the development in the synapses of an infants' brain:

1. At two months synapses in the motor cortex begin and infants lose their startling reflexes.
2. At three months synapses in the visual cortex peaks.
3. Between eight to nine months memories become fully functional.
4. During 12 months the auditory map is formed and responses to sounds are made.
5. Between 20 months to two years vocabulary development progresses.

Stimulation to the brain at the onset of birth is critical in a child's development. If connections are not made early on in life, than those connections will disappear and opportunities in brain development will be lost. Music and movement is one form of stimulation that can maintain these connections. According to Fox (2000), evidence suggests that early music experience may arise from the bond between mother and child. Fox found evidence from Canadian psychologist Sandra Trehub, who tested infant perceptions of melodic and rhythmic elements in laboratory environments (Fox, 2000). Trehub found that while infants cannot understand the meaning words, mothers can speak to them in different pitches, tones, melodic rhythms, and overtones in which infants can respond (Fox, 2000). Along with vocal stimulation, infants respond to carrying, swaying, and rocking movements to music (Fox, 2000). Providing these experiences in early developmental years promotes stimulation and connections in the brain synapses. Phyllis Porter (2007) found the following data in her brain development inquiries:

New synapses are formed while others are pruned away. Between birth and eight months, the synapses are formed more quickly. There may be 1,000 trillion synapses in the brain at 8 months.

After the first birthday, pruning occurs more quickly. By 10 years a child has nearly 500 trillion synapses, which is the same as the average adult. Pruning occurs for about 12 years but the brain maintains flexibility for future learning.

Early experiences, both positive and negative, have a dramatic effect on this formation of synapses. The brain operates on the "use it or lose it" principle. Only those connections and pathways that are frequently used are retained. This is not a cause to panic however. Most of us keep enough synapses to do very well in life. Learning language is an example of this principle. (§ 12-14)

Infants need many factors in order to promote healthy brain development. According to Porter (2007), an infant requires the following factors in order to help the brain grow:

1. Interaction between adults and child.
2. Touch and contact between parents and care providers.
3. Stable relationships that promote security.
4. Safe and healthy environments.
5. Self esteem to grow and nurture a healthy self concept.
6. Quality care from parents and guardians.
7. Communication between adults and child.
8. Social play among adults and children.
9. Music activities that enhance learning and development.
10. Listening to books read orally.

Porter (2007) found that from birth children have an attraction for music. They need to have musical experiences that involve physical coordination, imagination, memory stimulation, and responses from caregivers (Porter, 2007).

Parents are the first and most important teachers in their children's social and academic development. According to Scott-Kassner (1999), "Parents are key to creating musically rich environments to which young children can explore sound and improve with it" (p. 20). She contends that by reaching children through music while still in the womb, exposing children to

high-quality recordings, attending musical events, and providing music lessons; parents model their value of music, thus providing a solid music foundation that will enhance learning and development in the early stages of life (Scott-Kassner, 1999).

There are a number of activities that one can do to stimulate creativity in children. Elena Cohen (1999) expressed that singing, talking and reading to children from the time they are babies, holding a baby while dancing to a favorite melody, using character's voices and gestures when reading a story, and taking children to festivals, band concerts, and other events in the community; are just some of the many things adults can do to stimulate creativity in their children. One can infer from Cohen that music not only enhances learning, but stimulates creativity in children.

It is important to stimulate all areas of development through meaningful experiences. According to Cohen (1999), music and creative movement activities promote the following development in children:

1. Physical development - the hearing-feeling connection necessary for motor development combined with rocking, patting or bouncing to the beat, develops through hearing music.
2. Emotional development - bonds of trust and communication between adults and children are strengthened through music and creative movement activities.
3. Social development - opportunities to share experiences with others, make friends, show consideration of others, and learn to take turns are enhanced through music and creative movement experiences.
4. Cognitive development - growth and development in art, language arts, mathematics, and science are promoted through creative movement and music experiences.

5. Language development - children develop an awareness and discrimination of sound which improves; listening, language, and vocabulary skills while listening to music.

During the preschool years music and movement are effectively used to teach numerous skills. A child's day is centered on musical movements that take place during opening activities, counting, cleaning-up, dressing, playing, walking in line, and going home. During these preschool years, students are exposed to many nursery rhymes, songs, and games. Using nursery rhymes at a young age is one way for children to hear musical phrases and language that flow. According to Kenney (2005), many nursery rhymes include movements that help children develop both large and small motor skills. Nursery rhymes are also influential carriers of rhythm and are fundamental to music educators in the fact that they prepare young children for future music study (Kenney, 2005). Children love to move, skip, march, hop, run, and jump to the rhythm and beat of nursery rhymes. They are excellent sources of developing physical coordination and vocal expression. Dettore states (2004), "Nursery rhymes can play an important role in a child's developing phonemic awareness. The compelling music of these jingles is so ear-catching, children from 18 months to 6 years and older become entranced when the rhymes are read aloud" (p. 32). Children can easily pick up on the words in nursery rhymes because of the nature of the short phrases and rhyming text. Rhymes that are set to musical tunes-with hand games and movement activities-compose even easier occurrences for children to catch on and remember verses.

In early childhood years, songs and rhymes help to strengthen children's ability to hear the sounds of our language. This skill will help students in kindergarten and first grade map the sounds onto letters, which we refer to as phonics (Neuman & Roskos, 2007). Children's ears will

tune to hearing the similarities and differences in how words sound by playing with songs and rhymes (Neuman & Roskos, 2007). Neuman and Roskos (2007) expressed:

Generally, we begin by teaching larger units of sounds such as rhymes and move to smaller units of sounds such as blends and segmented individual sounds. This progression helps children become more aware of the features of words, which will help them learn to read. (p. 56)

Singing is an important phonological awareness task, which builds on recognizing and generating rhyming words, and moving sounds around to create new words (Bennett-Armistead, Duke & Moses, 2005). When one introduces students to rhyming they are expected to specifically pay attention to a part of a word (Neuman & Roskos, 2007). This can be challenging for students as they have previously focused on whole words and are moving into learning about word parts. Children use their bodies expressively when they learn. Using hand motions, clapping, and marching to the beat can draw children's attention to the rhythm of a song or rhyme (Neuman & Roskos, 2007). Because of the patterns of sounds, easy text, and beat of rhythm, nursery rhymes can be a great tool for enhancing learning through music and movements.

Teaching children in their early childhood years is not only the sole purpose of the primary caregiver or teacher; it is also a privilege for the individual music teacher who can also reach children through cross curricular areas (Scott-Kassner, 1999). According to Scott-Kassner (1999), "The MENC Position Statement on early childhood education identifies developmentally and individually appropriate musical practices in the prekindergarten setting and suggests that certain characteristics are desirable in music teachers of young children" (p. 22). The National Association for Music Education (MENC) recommends that early childhood music teachers:

1. Like and respect young children.

2. Value music and recognize that an early introduction to music is important in the lives of children.
3. Model an interest in and use of music in daily life.
4. Be confident in their own musicianship, realizing that the multiple facets of musical interaction afford many effective ways to affect children's musical growth.
5. Be willing to enrich and seek improvement of personal musical and communication skills.
6. Interact with children and music in a playful manner.
7. Use developmentally appropriate music materials and teaching techniques.
8. Find or create appropriate music resources and seek assistance in acquiring and using them.
9. Work to create appropriate music learning environments.
10. Be sensitive and flexible when children's interests are diverted from a planned activity (as cited in Scott-Kassner, 1999).

MENC's list applies to everyone who works professionally with young children in the areas music, but also has relevance for parents and care providers who are not trained in music (Scott-Kassner, 1999).

Music and Movement in Primary School Years

To keep children motivated to learn and stay on task today requires numerous activities that entice and captivate students' attention. It is the purpose of every instructor to help students reach their fullest potential and meet their academic goals in all curricular areas. Fisher, McDonald and Strickland (2001) found:

Musical activities that foster early literacy development can support early literacy instructional goals. These goals include; children's learning of concepts of print, a sense

of story and sequence, phonemic awareness and phonics, background knowledge and vocabulary, basic spelling patterns, and early writing activities. (p. 15)

Concepts of print are one of the earliest forecasters of young children's reading success (as cited in Fisher & McDonald, 2001). Students need to have a good sense of what letters stand for and how they can form words. Fisher et al. (2001) state, "Music in the classroom is an excellent place to explore concepts of print" (p. 16). Teachers can provide activities that incorporate music with written words. Singing songs in big books and charts, while students track print, is a common practice in the elementary classroom. Music teachers also ask students to track in their text as they sing and learn new songs (Fisher et al, 2001). Students see the words on paper and hear the sounds as they chant and sing. Many times hand actions and movements through dance and creative dramatics are built into these lessons. A deeper understanding is met as students have concrete experiences with concepts of print through music and movements.

Another important task for early readers to single out is the sense of story and sequence within narrative text (Fisher et al, 2001). Predictable rhythmic texts help children grasp the concept of order in story events (Hansen & Bernstorf, 2002). Books such as *The Itsy Bitsy Spider*, *I'm a Little Teapot*, *Shoo Fly!*, *Row, Row, Row Your Boat* and *Twinkle, Twinkle Little Star* by Iza Trapani provide for familiar nursery rhymes in book print and predictable sing-along texts. Children know the sequence of story elements and can easily join in correlation and predict the continuing story structure. Children can also use the familiar hand motions, while they follow the print in the text and sing along. This is another concrete approach in using music with movements to enhance learning.

Phonemic awareness is a confined concept that involves noticing and thinking about words and their individual sounds (Pinnell & Fountas, 2003). Phonemic awareness includes children's understanding that there are relationships between the letters of the alphabet and the

sequences of sounds that words are formed (Pinnell & Fountas, 2003). Phonological awareness is a wider concept that includes the child's growing skill to (a) notice and connect sounds, (b) recognize sounds and rhymes, and (c) hear the syllables in words (Pinnell & Fountas, 2003).

Pinnell and Fountas (2003) agree:

The extent of a child's phonemic awareness when he or she enters kindergarten is one of the best predictors of how well he or she will learn to read. (p. 14)

We recommend extensive work in reading aloud and shared reading to develop phonological and phonemic awareness. Songs, rhymes, and poetry give students the background and examples to participate fully in your mini-lessons in this area. (p. 4)

Phonological awareness skills can be taught not only in isolation and in reading texts, but also in music texts and music symbol reading. According to Hansen & Bernstorff (2002), children learn music-symbol reading through clapping and singing with syllabic division. At the decoding stage, students learn to echo-clap rhythmic patterns and then generate their own patterns. At the emerging level, music text reading is taught by asking children to aurally identify the words that rhyme in a song and then replace the words with new rhyming words. Hansen and Bernstorff (2002) concur:

Learning in music and the arts opens doors to a vast array of enlightening influences and life-changing experiences that can contribute to reading skills. In a practical sense, then, instruction in music can be a particularly rich source of support for achieving reading literacy. (p. 14)

Phonics programs in elementary schools have been on the back burner for a number of years. With the push for the whole language movement in the 1970s and early 1980s, students have lost the valuable foundation for beginning reading skills (Taylor, 2001). During this time teaching analytic phonics was mainly used, which introduced letter sounds by analyzing the initial sounds heard and seen in whole words (Taylor, 2001). Incorporating synthetic phonics back into the classroom has found importance in teaching reading from the bottom-up. Synthetic or systematic phonics is introducing letters and their sounds in isolation. One teaches how to

sound and blend all the letters in a printed word and how to segment words in order to sound out and spell words (Stahl, Duffy-Hester & Stahl 1998).

One very promising program that teaches systematic phonics through music and movements is known as Jolly Phonics. Jolly Phonics was created by Susan Lloyd, a primary teacher in UK, after realizing that a number of her students reading needs were not being met through whole language, which she referred to as the “Look and Say” method (S. Lloyd, personal communication, May 7, 2007). In order to try and reduce the number of underachievers, Lloyd and members of her team introduced traditional, synthetic phonics into the classroom. Lloyd immediately noticed dramatic improvements in all the children. Standardized test scores of her students increased by one year of growth. She wanted other schools and teachers to share in her successes, so started searching for a publisher. It wasn't until 1990 when she met Christopher Jolly, that she had accomplished her goal. Jolly was very interested in her method and through years of research teamed up to write and publish *The Phonics Handbook*; along with her colleague, Sara Wernham (S. Lloyd, personal communication, May 7, 2007).

Jolly Phonics is a systematic program that introduces children to the 42 sounds of the alphabet. These sounds are taught one sound a day for the first 42 days of school (Lloyd, 1992). Students learn the sounds through (a) *Jolly Jingles*, (b) actions for each sound, (c) visual big books, (d) finger phonics, (e) puppets, and (f) printing activities. Teachers introduce a new sound each day through a short narrative in a big book, which visually introduces the action for the sound. As students learn the action and sound, the teacher plays a jingle on CD, which correlates directly to the big book narrative. Each action is directly linked to the song. Performing the actions and singing the songs is highly motivational to the students and retention of sounds is increased through real and meaningful practice.

Three important studies evolved from the Jolly Phonics program. These studies were conducted in Canada, England and Scotland. According to Macmillan (nd), these studies were large-scale classroom studies with non-reading children; where procedures ensured that instructional time and conditions were equivalent between comparison groups and standardized testing (Macmillan, nd).

The study in Canada compared the effects of Jolly phonics instruction with whole language instruction among 265 kindergarteners from working class neighborhoods (Macmillan, nd). Instruction and activities lasted six months. It was found that there were astonishing differences in achievement. On results from three standardized tests, students who were taught with the Jolly Phonics method had an effect size on test scores ranging from .43 to .64 (Macmillan, nd). Results from a similar study conducted in England, showed that students using Jolly Phonics reading skills were 11 months above the expected level for their age; where students instructed in whole language methods, tested reading skills were about two months above their age level. The effect size between groups for reading words was .65 in support of the Jolly Phonics group (Macmillan, nd).

The third study was conducted in Scotland. This study involved 304 five-year-old children who were taught three different methods of phonic-oriented instruction: (a) Analytic phonics, (b) phonological awareness with analytic phonics, and (c) synthetic phonics through Jolly Phonics instruction. After 16 weeks, results showed that the first two groups had similar progress in reading - both groups reading at grade level. The Jolly Phonics group had significantly higher reading levels - seven to nine months above grade level. Effect sizes between the first two groups and the Jolly Phonics group were 1.1 and 1.0 in reading (Macmillan, nd).

Educators and researchers alike have found the Jolly Phonics program to be very beneficial to student learning. Marj Newbury (2006) stated:

I have been teaching Jolly Phonics for 12 years now and I still get such a buzz out of watching children learn with apparently little effort. The amazing progress that the children make contributes greatly to the support I receive from parents. I find that it takes less than three terms before the majority of children are able to read and write independently (p. 20).

Providing interesting and captivating phonetic instruction in the early primary years proves to have success through the results of these studies. The Jolly Phonics program revolves around daily phonic instruction through music and movements. Actions are directly linked to letter sounds, as students listen and join in singing the jingles. These activities create a long lasting effect on students' retention of sounds and letter names. Learning is enhanced through providing students with a musical phonetic program with actions.

Using music and movement through direct instruction in the classroom is one method of creating a sound learning environment for students. Although; students need to learn, investigate, and explore learning activities independently as well. One method of providing this stimulation is through learning centers. Suzanne L. Burton, Ph. D (2006) discusses in her article that music-based learning centers in the classroom provide students with opportunities to interact with their environment, learn about themselves, and their place in the world. Burton (2006) suggests that outcomes should include the following when creating music-based learning centers:

1. To develop musical response through recorded music and props.
2. To develop an understanding of the physical properties of making sound through experimentation and creation of musical instruments.
3. To create musical compositions.
4. To have opportunities to informally read printed music and read about music.

5. To respond to music through creative writing.
6. To respond to music through drawing, painting, coloring, or other visual art forms.

Burton (2006) goes on to point out that a number of activities can be created to meet the preferred outcomes. Activities can include: creating musical instruments; exploring various instruments; listening to musical tapes or CDs; viewing music books with songs; writing songs and stories; painting, drawing, and coloring to music; and dancing with creative movement activities. Providing independent activities that students can explore and create with will enhance investigation and curiosity in student learning outcomes. All of these methods will enhance student learning throughout the primary years.

Music and Movement with Special Learners

Meeting the needs of all individual students is of the utmost importance in educating our children. Parents, caregivers, and educators need to find the methods and means that will reach all special learners. Cohen (1999) states, “An environment that supports creativity takes into account the strengths, interests, and needs of individual children. Adaptations are made in the environment so that all children, including those with disabilities, can be included in the activities and experiences” (p. 1). Activities with music and movement can provide learning opportunities for all children.

Randee Bergen (1995) conducted a study to see if using music would enhance skill acquisition and retention in primary students with identified learning disabilities. Students were provided with opportunities to listen to and sing with musical cassettes portraying letter names and sounds. The study group consisted of six first grade students and two second grade students (Bergen, 1995). Students were given four individual tests at the beginning and at end of the intervention. Results showed that all students in the study improved in all areas assessed on the

pre and post-tests. Ability to name letters increased from 2% to 27%, and the ability to name sounds increased with the 22% to 63% range. Of the 52 letters dictated to them, students could write 8% to 77% more letters and 11% to 50% more of the letters associated with a sound (Bergen, 1995). This study affirmed that music can enhance learning for students with special learning needs.

According to Ellen Booth Church (1992), music is a great way to enhance learning in children who need help with (a) speech and language development, (b) have mental disabilities, (c) hearing losses, (d) visual impairments, (e) physical disabilities, and (f) emotional disabilities. Church (1992) implies:

1. Children with speech and language impairments find singing familiar songs often gives opportunities to practice language skills that may be beyond their usual reach.
2. Children with hearing losses can often feel the vibrations from recorded music and make responses.
3. Children with visual imparities enjoy music and movement because it stimulates other senses, and children with limited sight learn to associate pictures with words through finger plays that accompany songs.
4. Children who may be restricted to a wheelchair enjoy physical activity with clapping and swaying.
5. Children with emotional needs can find comfort in soothing musical activities and sensory motor stimulation.

Music and movement is a natural way to reach and identify with every learner. Adapting musical activities to meet individual needs, establishes an atmosphere that is sensitive to all

learning abilities. One needs to take into account every child's special needs, therefore making accommodations to activities so every child can participate.

Conclusion and Recommendations

After meaningful research and investigation in the effects of using music and movement to enhance learning; it has been concluded that providing music and movement opportunities for children to explore, create, interact, enjoy, learn, and grow are a beneficial tools for all learners. Music and movement provides for true and meaningful experiences. Children grow and develop when there are ample learning experiences that provide concrete examples. Music and movement is a very hands-on method that children can relate to well. Nothing brings more joy to an educator's job, then when a child shows a spark of enthusiasm for learning. Smiles come in abundance when children are interacting with each other and learning new skills. From before birth, studies have shown that music can have an effect on development. Through the critical years of brain development, it is imperative to make connections that have lasting effects. Children grow and develop so quickly making it is impossible to go back and change the wiring that has determined our abilities to learn. One needs to make every effort imaginable to create the most attractive and enhancing learning environments possible for our children.

As a mother and an educator, I have found incorporating music and movement activities into daily routines, a very stimulating and educational experience for my own children and students. My children grew up listening to Mozart and other classical composers as they rested or went to sleep at night. Doing finger plays with nursery rhymes and children's songs is a part of our everyday lives. We not only enjoy singing together, but also enjoy doing Karaoke, where my children have learned to read the words and verses on screen. Just another example of how music is incorporated into literacy. Taking piano lessons has been a priority for my daughter. I

have seen the true effects and benefits of learning to read music. Providing my children with toy musical instruments from the time they were toddlers was a priority, where they loved making tunes and reading books to the beat. What a splendid journey in a musical world.

On the educator's side, I have experienced numerous benefits to the addition of music and movement in the primary curriculum. Many students come into the kindergarten classroom, not having experienced the joy and simplicity of the world of nursery rhymes. Exposing children to activities, books, and creative dramatics with nursery rhymes has been a productive experience. Students pick up on the simple text and repetition of verse. They love the finger plays and actions used with any type of rhyme. Many concepts are introduced and taught through nursery rhymes. They are a wonderful cue for students to retain information.

Discovering and introducing the Jolly Phonics program into the kindergarten curriculum- I must say-has been my biggest accomplishment. The studies that I have mentioned only substantiate what I see and experience in the classroom daily. Student's motivation and love for learning the jingles and actions for each letter sound is truly amazing. They cannot wait for the next day to see and hear what new sound they are going to learn. These concrete experiences have amazing effects on the retention of letter sounds and names. My own data collection confirms the effectiveness of the Jolly Phonics program. I conclude that what makes this program successful is the use of music and movement to teach the sounds and letter names. This is what particularly makes it unique and inviting for the students to learn.

In conclusion, I have discovered from my research and my own personal experience that using music and movement to enhance learning is an outstanding tool to benefit all children.

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