

The Influence of Music on the Development of Children.

A Senior Project submitted in partial fulfillment of the requirements for the Bachelor of Science
Degree in Child Development

By

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TABLE OF CONTENTS

CHAPTER 1: Introduction.....	1
CHAPTER 2: Literature Review.....	5
CHAPTER 3: Methodology.....	17
CHAPTER 4: Results.....	20
CHAPTER 5: Discussion.....	22
REFERENCES.....	27
APPENDIX.....	30

CHAPTER 1

INTRODUCTION

Music can be found in every culture all around the world. Music has become such a big part of our lives, that researchers can't help but want to study how music affects people, especially children. Many parents, teachers, scholars, and businesses are interested in learning more about the influence of music on the development of children. Others focus on how formal music training impacts various aspects of cognitive development such as perception, memory, and language skills. Some researchers are interested in documenting effects that listening to music may have on children's development. When considering this topic, the notorious "Mozart Effect" likely comes to mind, referring to claims that listening to Mozart's music improves cognitive ability in young children. The Mozart Effect is now generally considered to be invalid, but this does not mean that music has no effect on cognitive development. Norton, Winner, Cronin, Lee, and Schlaug (2005) wanted to know if there are pre-existing neural, cognitive, or motoric markers for musical ability. Their results showed no correlations between music perceptual skills and any brain or visual-spatial measures. They did find, however, correlations between music perceptual skills and both non-verbal reasoning and phonemic awareness. Other research showed that even a little bit of musical training can enhance reading skills as well as pitch discrimination abilities in speech (Moreno, Marques, Santos, Santos, Castro, & Besson 2009).

Another study by Gromko (2005) showed that children who receive musical training will develop aural skills for spoken sounds and spoken words faster than children who did not receive

musical instruction. Finally, Franklin, Moore, Yip, Jonides, Rattray, and Moher, (2008) they found evidence for greater verbal working memory span in musicians than non-musicians.

Our investigation of the literature on the effects of music in a child's life, inspired us to create a resource for families who wish to promote and support their child's interest in the arts, specifically music. The form of this resource was a print booklet that parents could use as a guide to local music options. We took numerous approaches to gathering information about the variety of formal and informal music programs for children available in San Luis Obispo County. We went to Children's Day in the Plaza event in the Mission Plaza in San Luis Obispo to learn about existing musical programs in the community and gathered pamphlets and information to put in our booklet. We also gathered information through word of mouth, asking for information from the music department, and looking on the internet for other existing musical programs. After collecting information about local resources, we created a booklet for parents using an InDesign template to help create and design our music guide. We considered all of the information we had collected and wrote down a brief description of each program, what the program offers for children, and contact information for parents to get in touch with the programs. We compiled all of the information and put them into five categories: opportunities to observe music, ways to learn about music, informal ways to actively participate in music, ways to actively participate in a group setting, and places to get instruction. We provided a list of programs to get involved with, as well as a list of private instructors at the very end of the music guide.

This creative senior project emphasizes the importance of music involvement in children's lives to help develop memory, perception, language, vocabulary, spoken skills, and

reading skills. We sought to educate and inform parents of the many ways that music can be a helpful tool to enrich their children's cognitive development. In addition, we created a resource for parents to help them easily find local musical opportunities with which to get their children involved. These resources gives children an opportunity to observe music, ways to learn about music, informal ways to actively participate in music, ways to actively participate in a group setting, and places to get instruction.

We expect the guide to benefit the San Luis Obispo community in several ways. First, it would by promote music programs; we hope to raise an awareness of and appreciation for music that will eventually result in bringing music programs back into the schools. Second, parents will learn about the importance of music in children's lives and may encourage them to get their children involved with one of these programs, thus enriching their child's life through opportunities to use music to aid in the development of perception, memory, language skills, vocabulary, and verbal skills.

Although there are many expected benefits through this creative project, there are some limitations with our music guide. The list is not an exhaustive list of all the musical events, activities, and instructors on the Central Coast. The creative project is also not available online, which limits the promotion of the music guide. There is also not a means currently available to mass-produce our product.

It would be interesting to test how effective the educational aspect of our music guide is in teaching parents the importance of getting their child involved with music to help their cognitive development. Our next step would be to have a parent test group to see how effective our guide was in getting parents to enroll their children in some of the programs. It would be

interesting to test parents on the effectiveness of the layout, how informative and educational the music guide was, and how accessible and available the music guide is in the community once published. It would also be nice to get back any comments and/or feedback to improve the music guide to make it as beneficial as possible.

There is a need to study and test children's interest in music and its influences on the outcomes of children's academic performance. It would be intriguing if there could be an online network that would be setup for musicians and music organizations to collaborate and put themselves out there for the community, and to expand the music guide, adding to its resources. Although our guide does have some limitations, it is our hope that we educate parents and the community on the importance of music in children's lives.

CHAPTER 2

LITERATURE REVIEW

Many parents, teachers, scholars, and businesses are interested in learning more about the influence of music on the development of children. Children could potentially be influenced by music in several ways. Some researchers investigate whether and how children benefit from listening to music. Others focus on how formal music training impacts various aspects of cognitive development such as perception, memory, and language skills. Examination of the findings from each of these avenues of research can inform adults as they strive to support children's learning.

How Does Listening to Music Impact Development?

Some researchers are interested in documenting effects that listening to music may have on children's development. One line of work in this area focuses on what children learn about music itself by listening to music. Another line of work investigates how listening to particular forms of music may impact development outside of the musical domain. Explorations of the influence of experience on children's ability to match auditory and visual stimuli within the domain of music are an example of the first research direction. Pick, Gross, Heinrichs, and Love (1994) explored whether young children could recognize the source of different sounds from instruments in different families, as well as different instruments within an instrumental family. Pick et al. (1994) asked 107 3-7 year old children to watch a video of two musicians playing different instruments while a soundtrack from one of the instruments was played. Results showed children between the ages of 5- and 7-years of age were able to differentiate between

different types of instruments as well as instruments within an instrumental family that differentiated by size and pitch. Children between the ages of 3- and 4-years of age were able to differentiate different musical families, but not different instruments within the same family. In a second study group, Pick et al. (1994) showed that infants between 7- and 9-months of age looked longer at the musical instrument that corresponded with the soundtrack. These findings suggest that experiences with seeing and hearing musical performances over the first few years of life, likely influence what children know about the relationship between instruments and sounds. However, the finding that even young infants know something about the sounds particular instruments make suggests that experience is not the only explanation.

While instrument identification does not have any implications outside of a musical domain, it leads to question whether listening to music has an effect on other areas of development outside of music. When considering this topic, the notorious "Mozart Effect" likely comes to mind. The "Mozart Effect" refers to claims that listening to Mozart's music improves cognitive ability in young children. This claim is based on an original study by Rauscher, Shaw, and Ky (1993) which found that college students who listened to Mozart's sonata in D major prior to taking a standard test of abstract spatial reasoning scored higher on tests of spatial intelligence than college students who listened to either some relaxing music or no music at all. Thus, the researchers concluded that listening to Mozart could provide a short-term spatiotemporal performance enhancement. They recognized, however, that the effect was a short-lived benefit to those completing a spatial-temporal task when differences in mood and arousal were held constant. University students were tested in three standard tests for spatial reasoning. The mean standard age scores were converted into the Stanford-Binet Intelligence scale. Their IQ scores were 8 to 9 points higher after the participants had listened to Mozart than

those who listened to some relaxation music and silence. Rauscher, Shaw, and Ky (1993) did not make any statement of increased IQ in general, but their results showed that spatial intelligence scores were higher. Despite these caveats, the publication of this finding led companies to begin to develop materials that offered young children the opportunity to listen to Mozart, with promotional materials suggesting that doing so would foster intellectual growth.

Claims that listening to Mozart will make young children “smarter” should be interpreted with great skepticism. First, the original study by Rauscher, Shaw, and Ky (1993) used college students who worked on a very narrow task. The ability to generalize the results to young children, or more meaningful tasks, is not proven. Second, additional studies on the Mozart Effect find that there is no real evidence to support the assertion that listening to Mozart improves cognitive skills even for college students. For example, Steele, Bass, and Crook (1999) asked 125 introductory psychology students to listen to either Mozart’s music, a Phillip Glass composition that had a traditional melody with changing parts, or silence after taking a pre-test measuring spatial skills. The participants were then tested again on the same spatial task. Results showed that there was no real difference between groups in test performance (Steele, Bass, & Crook, 1999). Similarly, McKelvie & Low (2002) conducted an experiment in which 11 to 13 year old children performed a spatial task after listening to one of Mozart’s sonatas. Findings failed to lend support to Rauscher, Shaw, and Ky’s (1993) previous study of the increase in spatial intelligence. In a follow-up experiment, McKelvie & Low explored whether these findings could be an artifact of the design of the study. This follow-up experiment used a relaxation stimulus as a control procedure to compare Mozart with similar music like Aqua and Yanni, which has almost identical tempo, and structure, which Rauscher argued as cited in McKelvie & Low (2002). These experiments are but two of many that fail to support the claim

that passive exposure to Mozart's music strengthens spatial IQ. Researchers have found some connections between music and cognitive development. In sum, although the Mozart Effect is now generally considered to be invalid, this does not mean, that music has no effect on cognition. In following section we present evidence that musical *training* can have a positive impact on children's cognitive development.

How Does Musical Training Influence Development?

In contrast to the disputed nature of the Mozart Effect, research clearly reveals that music training has an influence on a variety of aspects of development in early childhood. There are many different types of musical skills a person learns when he/she is involved in musical training. For example, a musician needs to know how to physically play and work his/her instrument, or how to make vocal sounds the correct way. A musician also needs to know how to read music. In order to read music, a musician needs to know how to read different intervals between different notes on a staff and translate them to his/her instrument. The faster a person can read and interpret notes on a staff, the faster he/she can play his/her instrument. Sight-reading is a skill that has to be practiced repeatedly in order to do it successfully. Sight-reading requires planning in a very short amount of time in order for the musician to be successful (Drake & Palmer, 2000). Sight-reading requires instrumentalists to look at least two measures ahead in order to plan for the up coming notes. This is a very specific skill that, once learned, can make a musician more aware of the music. Once a musician has learned his/her instrument and has not only learned to read music, but has also learned to sight read, she/he can put together a performance that is pleasing to not only the musician, but also to an audience. Reading music and sight-reading allows the musician to produce musical notes in order and the notes after, in

the right timing. The cognitive processes of reading music also manufactures rhythm and structure. In order to read music successfully, a musician needs to read the correct rhythms if the music is to be performed correctly. A musician also needs to pay attention to the meter, the tempo, the bar lines, and the phrases, which points to the overall structure of the music. Developing expertise in each of these areas enables a musician to put together a performance that is pleasing to not only the musician, but also to an audience. Music instruction is critical in helping musicians to develop these skills. An interesting question in the psychological literature is whether and how this type of training also impacts development more generally, such as within the areas of brain development perception, language, and memory.

Brain Development

Norton, Winner, Cronin, Lee, and Schlaug (2005) investigated how musical training influences brain development in 5-7 year olds. Two groups of children participated in this study. One group was comprised of children who were provided with music lessons. The other group of children, a control group, received no musical training. Norton et al. (2005) looked for differences in brain structure, as revealed by MRI scans, of children in both groups. In addition to investigating overall group differences, Norton et al. (2005) explored individual differences by assessing whether children who excelled in musical ability after instrumental training differed in visual-spatial, verbal, and/or motor skills prior to training from children in the training group who did not end up excelling in music, and to children in the non-music group. By looking retrospectively at the brains of those children who stick with their music training over time and emerge showing exceptional talent and achievement, they aimed to test whether the brains of musicians look different prior to training, and/or respond differently to training compared to

those of children taking music lessons but showing only average talent or interest in music. This strategy was also designed to reveal whether the positive effects of music training on non-musical outcomes as shown in past studies are due partly to pre-existing correlations between musical and non-musical skills or just outcome of training. Results showed no correlations between music perceptual skills and any brain or visual-spatial measures. They did find, however, correlations between music perceptual skills and both non-verbal reasoning and phonemic awareness.

More definitive results regarding the influence of music training on brain development is offered by Hyde, Lerch, Norton, Forgeard, Winner, Evans and Schlaug (2009). They examined the auditory brain structures of children with varied with musical training experiences. In this study, two groups of 5-7 year old children were engaged in different musical experiences. Fifteen children were part of the "instrumental" group getting private keyboard lessons for 15 months. In contrast, the "control" group did not receive instrumental music instruction but did participate in a weekly 40-minute group music class in school that consisted of singing and playing with drums and bells. Children who played and practiced a musical instrument showed numerous benefits, such as greater improvements in motor-finger dexterity and in auditory melodic and rhythmic discrimination skills. In addition, findings from MRI brain scans showed that "structural brain changes in motor and auditory areas (of critical importance for instrumental music training) were correlated with behavioral improvements on motor and auditory-musical tests" (Hyde et al., 2009, p. 3021-3022). According to Hyde et al. (2009), musical training and practice is the cause of differential development in certain regions of the brain. Before the musical training, there were no structural brain differences found between groups, disproving

preexisting biological predictors of musicality, which supports the Norton, Winner, Cronin, Lee, and Schlaug (2005) study.

Language and Linguistic Development

Anvari, Trainor, Woodside, and Levy (2002) support claims of a relationship between musical training and linguistic development. They examined phonological awareness, early reading skills, and music perception skills in 100 children between the ages of 4-5 years. The children were given experiences with a set of musical tasks that focused on rhythm, melody, and chord progression. They were then tested on phonological awareness and reading skills. Anvari et al. (2002) found that music skills were correlated with phonological awareness and early reading skills. The basic auditory skills for music perception were similar to early reading skills which shared some of the same auditory mechanisms that predicted reading ability. Thus, although this study was not based on an experimental methodology, the authors suggest that skill in music perception gives children an auditory awareness that helps when it came to reading.

Another group of researchers pursued a similar question in a more experimental manner and found that training in music helps build skills important to reading. Moreno, Marques, Santos, Santos, Castro, and Besson (2009) conducted a longitudinal experiment involving thirty-two non-musician 8-year old Portuguese children. Children who had no musical training were tested for neuropsychological assessments and pitch discriminations before they began music instruction. The children were then given 6-months of musical instruction, and then were tested on the same previous neuropsychological assessments and pitch discrimination tasks. Results showed that even a little bit of musical training can enhance reading skills as well as pitch

discrimination abilities in speech. Like other research has suggested, this study is consistent with the conclusion that music training helps cultivate reading, language, and speech development.

Enhanced listening skills help develop linguistic organization. In a study Milovanov, Tervaniemi, and Gustafsson (2004, as cited in Milovanov, Tervaniemi, Takio, & Hämäläinen, 2007) suggest that there is a connection between music and language skill (Milovanov, Tervaniemi, Takio, & Hämäläinen, 2007). This led Milovanov, Tervaniemi, Takio, & Hämäläinen (2007) to believe that musical expertise might possibly affect the dominance of one side of the brain in controlling the musical and linguistic processing in the brain. This brought about the study of whether hemispherical phonemic processing is different between non-musical and musical subjects as indicated by a listening task tested on three adult subgroups of 45 participants containing English philology students, musically talented choir members, and non-musical university students with a mean age around 26 years old. There was also a children's group of 12 musical children and 12 non-musical children with a mean age of 10. The dichotic listening task showed greater left ear monitoring skills among adults who practiced music consistently, however the other age groups were unable to control left ear functioning. They did find that the musical aptitude score correlated positively with the laterality index score; the greater the general musical score was, and the more correct left ear responses were. The researchers suggested that aging and musical aptitude had a controlling influence on cognitive abilities. Participants with good scores in a musicality test are not able to show good left ear monitoring skills in childhood, but those adults with good musicality test score who also practice music actively had better developed listening skills even in linguistic tasks. Milovanov et al. (2007) concludes that consistent practice may have influences on the brain's linguistic organization.

Relationship between Musical Training and Language

As children get older, they begin to expand their vocabulary and they start to make connections with words and their meanings. Another way that children can enhance language development can be found through music and ear training. Forgeard (2008) found that instrumental music training may enhance auditory discrimination, vocabulary, and non-verbal reasoning skills. Children with various backgrounds in music were tested. Fifty-nine children whose ages ranged from 8-12 years old were recruited from public schools. One group included children who had received at least three years of musical training. Children who had received no musical instruction were in the control group. The children were tested for auditory discrimination, vocabulary, and non-verbal reasoning skills, as well as fine motor skills. Forgeard (2008) found that children who received musical training not only outperformed the children in the control group, but that the duration of the musical training was important. The longer children received musical training, the more likely they were to outperform children who did not receive musical training.

Musical training not only affects reading, vocabulary, and pre-reading skills, but also speech skills when it comes to language development. In a study by Gromko (2005), four classrooms of kindergarten children received musical training for four months from advanced music students from a nearby university, while another group of kindergarten children did not. The children who received the training showed greater phonemic fluency than the children in the control group who did not receive musical training. Phonemic fluency is the capacity to verbally generate words beginning with particular letters or belonging to particular categories, respectively. This study shows that children who receive musical training will develop aural

skills for spoken sounds and spoken words faster than children who did not receive musical instruction, which helps when it comes to learning in the classroom.

Academic Achievement

Southgate and Roscigno (2009) examined the relationship between music training and academic achievement in schools among children and adolescents 13-17 years old. In order to measure this, they looked at music participation in three separate contexts: in school, outside of school, and parent involvement in the form of concert attendance. Looking at nationally representative data resources, the researchers found that music involvement had a positive association with grades and math and reading scores. What was concluded was that music is meaningful not as predictor of achievement but as a medium to support children's achievement.

Memory

While it may be argued that musicians have an advantage over non-musicians in academic achievement, studies have shown that they do have an advantage when it comes to long-term verbal memory. Franklin, Moore, Yip, Jonides, Rattray, and Moher (2008) reviewed a number of studies that investigated effects of musical training on verbal abilities and verbal memory. This review led Franklin et al. (2008) to conclude that musicians perform better on verbal working memory tasks as well as verbal long-term memory tasks than non-musicians. This may be because musicians have a more developed verbal rehearsal mechanism. Franklin et al. (2008) divided the participants into two separate groups. One group contained musicians, who all had formal musical training at age 10 or younger, had at least nine years of continuous training in music, currently played and practiced at least 15 hours/week, were enrolled in an

undergraduate or graduate music program, and had self-rated themselves with a sight-reading skill of 4 or better on a seven-point scale (Franklin et al., 2008). The other group was the control group which was made up of non-musicians who did not currently play an instrument, had no history of playing an instrument prior to age 10, had never played an instrument for longer than one year, and had self-rated themselves with a sight-reading skill of 1 on a seven-point scale (Franklin et al., 2008). Through this study, Franklin et al. (2008) found evidence for greater verbal working memory span in musicians than non-musicians.

In a similar study, 60 university students, 30 students who had at least six years of training with an instrument before the age of 12, and 30 who had received no musical training were tested on verbal memory Chan, Ho, & Cheung (1998). A word list was presented orally to the students three times and they had to recall as many words as possible. Students with music training learned significantly more words than those without any music training. After a few years, Ho, Cheung, and Chan (2003) examined those that continued in musical training and those who stopped musical training. They found that those who began or continued music training indicated significant improvement in verbal memory, whereas those who discontinued the training did not show any improvement. The results support claims that music training affects memory processing.

In another study, researchers investigated how music instruction on music perception skills affects children. Two groups participated in this research, one comprised of children who received music instruction, one without instruction (Orsmond and Miller, 1999). These children were given a music perception task of melody recognition and other cognitive measures before and after the music instruction. Results showed that, children with music instruction had greater

improvement on the music memory task than those not instructed. Orsmond and Miller (1999) suggest that music as a medium strengthens the integration of auditory, visual, and motor coordination. When instructed, the use of musical instruments seemed to strengthen this coordination of visual and auditory sensory input and motor output. This consideration shows how music has helped children with memory skills.

In summary, although it is evident that one will not become “smarter” simply by listening to Mozart’s Piano Sonata in D major, studies have shown that music instruction can have a positive effect on children when it comes to cognitive development. We developed this senior project to raise awareness about the positive effects music has on perception, language, and memory development. Specifically, we set out to develop a guidebook that would provide members of the San Luis Obispo community with a list of resources to help enhance this goal.

CHAPTER 3

METHODOLOGY

How can one find resources on music? Where do I go if I want my child to enroll in music lessons? What can I do as a parent to get my children involved with musical activities? What are some events in my area that my child can go to listen to music? These are questions that we imagined parents may ask as they strive to further enhance their child's growth in the area of arts, verbal skills, vocabulary, memory skills, and perception skills. Our investigation of the literature on the effects of music in a child's life, inspired us to create a resource for families who wish to promote and support their child's interest in the arts, specifically music. The form of this resource was a print booklet that parents could use as a guide to local music options. Further, as existing research investigations emphasize the particular benefits of participating in the creation of music, as opposed to mere listening, we aimed to highlight both formal musical training and informal music participation in our guide.

We took numerous approaches to gathering information about the variety of formal and informal music programs for children available in San Luis Obispo County. Our first effort to learn about existing programs was a visit to the Children's Day in the Plaza event in the Mission Plaza in San Luis Obispo. This event is an opportunity for families and children to come together to experience different resources the community has to offer in a one day event that is free to the public. We went around to every booth and asked what music resources they had to offer, if any. There were some music-related businesses and programs that had information to give out. For example, Drum School 101 offers different kinds of lessons to offer, including but not limited to drum lessons. They also support a drum-performing group called Bucket Busters

that performs at different venues around the community. In addition, one of the many different programs that the San Luis Obispo Symphony offers to children in the community is a musical petting zoo that gives children an opportunity to examine and explore different percussion, woodwind, and string instruments that play in the symphony. Talking a little bit to representatives of each booth enabled us to collect relevant information to put into our booklet.

Our next approach to locating information about music programs was to speak with faculty and staff in the Cal Poly Music Department. We walked into the office and talked with the women who were working and asked them if they offered any music programs in which families in the community could get involved. They provided a sheet of all the music instructors that they knew of in the area, which included those teachers that teach the music students in the department as well as students participating in the Cal Poly symphony and orchestra.

Word-of-mouth offered us additional direction for our search for local music programs. We discovered, for example, that the downtown Boo Boo Records music store holds a weekly infant-toddler sing-a-long session. We attended a session and observed as Miss Heidi led mothers, fathers, and children in song. Participants not only sang songs, but also engaged in motion and interactive movements. For instance, participants sang songs to “get out the sillies” and perform the duties of a firefighter (Fire Truck song). The program was very fun and entertaining to watch as parents helped the children with their gross motor skills.

Another source of information for opportunities to engage children with music was the internet. Our search yielded information about different choir groups for children to participate in, different local music events around the community, a Kindermusik resource that can be brought to any school, and other music classes for children of all ages.

After collecting information about local resources, we created a booklet for parents using an InDesign template to help create and design our music guide. We considered all of the information we had collected and wrote down a brief description of each program, what the program offers for children, and contact information for parents to get in touch with the programs.

CHAPTER 4

RESULTS

In order to disseminate our research, we compiled musical guide of different musical activities around San Luis Obispo to help parents get their children involved in music. Our first page of information is a note welcoming parents to our music guide, followed by a table of contents. The second page is a scholarly paragraph giving parents some information about why their children should be involved in music, and some benefits behind music instruction. Page 3 is titled “Opportunities to Observe Music” and lists two different places for parents to take their children to listen to music. The music guide describes and gives information on Paso Palooza Children’s Music Festival and No Ties Allowed Symphony Rehearsals. “Ways to Learn About Music” is the title of the next section on page 4. This section lists and describes three different ways to learn about music. The Music Van and the Musical Petting Zoo give children opportunities to explore and play different musical instruments while Etudes for 3rd Graders provides children with opportunities to learn about different composers, genres, and time periods throughout history. The fourth section of our project is entitled “Informal Ways to Actively Participate in Music” and begins on page 5. This section provides information about three different groups for children to actively participate in music: SLO Song, Kindermusik, and a weekly children’s musical sing along held at Boo Boo Records. Each of these groups requires individual participation of the children while singing, dancing, and moving to children songs. Pages 6-7 contains “Ways to Actively Participate in a Group Setting.” This section provides ways to gain experience playing music in a group setting that depends on others. The Youth

Symphony is a program that gives children the experience of playing in an orchestral setting. Debut Strings gives children experience to play in Quartet and smaller groups, while the Central Coast Children's Choir gives children experience singing in a big choir. Bucket Busters is a group that teaches children how to stay together while drumming on buckets and other percussion instruments. Our last section is entitled "Places to Get Music Instruction." Page 8 contains two programs, Everyday Etudes and Strings in the Schools that bring music instruction to children at schools. A third program is Drum School 101 that provides drum and percussion lessons, as well as other instrumental lessons at three different locations in San Luis Obispo County. Pages 9-11 lists private instructors for a variety of instruments as well as voice.

CHAPTER 5

DISCUSSION

This creative senior project emphasizes the importance of music involvement in children's lives to help develop memory, perception, language, vocabulary, spoken skills, and reading skills. We sought to educate and inform parents of the many ways that music can be a helpful tool to enrich their children's cognitive development. In addition, we created a resource for parents to help them easily find local musical opportunities with which to get their children involved. These resources gives children an opportunity to observe music, ways to learn about music, informal ways to actively participate in music, ways to actively participate in a group setting, and places to get instruction.

From our findings in research pertaining to listening to music like Mozart, passive listening to music will not increase IQ or boost intelligence but can only produce a temporary spatial temporal ability. Although studies do not support ideas that listening to music will have a dramatic influence on cognitive development, there may be value in exposing children to musical performances. Pick et al. (1994) demonstrated that children's distinguish between instruments and their sounds. Although the mechanisms by which children learn these differences are not known, seeing live performances may be helpful. The No Ties Allowed and Paso Palooza Children's Music Festival are events in San Luis Obispo County that gives children an opportunity to observe music. This provides children with a wonderful opportunity that may help promote instrument recognition and perception. Similarly, the Paso Palooza music festival, children not only get to observe music, but the festival will give children to interact with some of

the booths where they can get their first experiences with instruments and music. One study talked about getting involved with music training and playing music, which improved motor-finger dexterity and rhythmic skills (Hyde, Lerch, Norton, Forgeard, Winner, Evans and Schlaug, 2009). At the Paso Palooza activity booths, there may be some instruction, which might encourage a child to pursue further interest in learning a new instrument.

Pick et al. (1994) and Gromko (2005) found that actively participating in music and learning about music and musical instruments is important. One of the ways to learn about music is to explore instruments to find out how they work and sound. The Musical Petting Zoo is an opportunity for children to play and explore different musical instruments that can be seen in an orchestral setting. The Music Van program travels around to different schools giving children lessons about the different roles each instrument has in the orchestra and afterwards, the children are invited to explore the instruments. Both the Musical Petting Zoo and the Music Van provide physical ways that give children the chance to actively participate and learn about music. The San Luis Obispo Symphony also provides a program called Etudes Quartet for 3rd Graders that has musicians come to third grade classrooms to talk about different composers and give children a lesson on music from around the world. This program is a connection that helps children know a little bit about music and the history behind it while they practice and play their instrument of choice, which may help motivate children to actively get involved with music.

Research has found that children can begin to develop pitch discrimination abilities without any prior training (Moreno, Marques, Santos, Santos, Castro, & Besson, 2009). Children can also develop aural skills from musical training that helps develop spoken skills (Gromko, 2005). At Boo Boo Records, children engage in movement, finger play, and singing which provides children the opportunity to not only actively participate in music, but also a helpful

setting may help develop pitch discrimination abilities and spoken skills. Similarly, the Kindermusik program provides classes for infants and toddlers to listen, sing, move, participate, and dance along with the music. In SLO song, children learn to sing and play music. These opportunities allow children to participate in an informal ways as opposed to a choir or orchestra. Each of these programs provides children with opportunities to actively participate in music which may help develop and foster pitch discrimination and spoken skills.

Children can develop rhythmic accuracy, musicality, and sight-reading skills (Drake & Palmer, 2000). Anvari et al. (2002) found that ear-training helps promote reading skills. One program that allows children to play and get experience in an orchestral setting is through the Youth Symphony which helps develop and promote musical skills that are important for a musician learning to sing or play an instrument. Debut Strings is a smaller ensemble that is designed as a beginning string orchestra for advanced beginners which provides opportunities to develop rhythmic accuracy, musicality, sight-reading skills, and ear-training. Bucket Busters is another ensemble group that helps promote rhythmic accuracy. Central Coast Children's Choir is a group of different children's choirs that provides children with the ability to develop their ear-training. All four of these groups give children group experience that requires a sense of responsibility because everyone depends on everyone else in order to succeed in performing well, which is an important concept to learn when learning how to perform music.

When parents are able to provide their children with private one on one formal lessons, the music instruction can improve children's verbal memory (Ho, Cheung, and Chan, 2003). Everyday Etudes educates children in kindergarten through sixth grade with hands-on experience on learning music, giving lessons on how to play different instruments. Strings in the Schools is an after school program that focuses on giving violin, viola, and cello lessons. Drum School 101

has studios around the Central Coast where children can learn technique, reading, and a variety of music styles. Throughout the Central Coast, there are musicians and music instructors willing to share their knowledge and provide voice and instrument lessons to children. These are all ways parents can provide their children with music instruction, which can improve children's verbal memory.

Using the research to create our music guide, we expect some benefits to result in its creation. The programs mentioned in the music guide would gain more promotion. Through the education the music guide provides, we hope to educate not just the parents, but the community as well, about the importance of music. This music guide helps promote music programs, which hopefully would result in eventually bringing music programs back into the schools. Parents and the community will be educated through the music booklet on the importance of music in children's lives. This will encourage parents to get their children involved with one of these programs and enrich their child's life. The music guide provides opportunities for children to receive music instruction that may help develop children's perception, memory, language skills, vocabulary, and verbal skills.

Although there are many expected benefits through this creative project, there are some limitations with our music guide. The list is not an exhaustive list of all the musical events, activities, and instructors on the Central Coast. The guide is also static. There are no means or ways to continually update the guide as programs change, old programs discontinue, or new programs develop. The creative project is also not available online, which limits the promotion of the music guide. There is no current means to promote the guide to the parents within the community to educate the people within San Luis Obispo County. There is also not a means currently available to mass-produce our product.

After researching how music helps children develop cognitively, we express excitement in sharing this preliminary music guide to the community in which we hope will be built upon in the future. It would be interesting to test how effective the education aspect of our music guide was in teaching parents the importance of getting their child involved with music to help their cognitive development. Our next step would be to have a parent test group to see how effective our guide was in getting parents to enroll their children in some of the programs. It would be interesting to test parents on the effectiveness of the layout, how informative and educational the music guide was, and how accessible and available the music guide is in the community once published. It would also be nice to get back any comments and/or feedback to improve the music guide to make it as beneficial as possible.

Additionally, there is a need to study and test children's interest in music and its influences on the outcomes of children's academic performance. When this research happens, it would be wonderful to include in this music guide. As society and networking continues to progress, it would be interesting to see how this guide can further expand its' reach to other spheres like the Internet. It would be fascinating if there could be an online network that would be setup for musicians and music organizations to collaborate and put themselves out there for the community, and to expand the music guide, adding to its resources. Although our guide does have some limitations, it is our hope that it will eventually serve to educate parents and the community on the importance of music in children's lives.

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APPENDIX

Music Guide

A musical reference for parents to get their children involved with different musical activities around San Luis Obispo County



A Note to Parents

Listening to classical music, like Mozart, is a wonderful way to expand one's musical taste. Contrary to popular beliefs, however this passive engagement with music does not make your child smarter. However, research demonstrates that active participation in music and music instruction help develop memory, perception, language, vocabulary, spoken skills, and reading skills. In order to disseminate these findings, we compiled a list of different opportunities around San Luis Obispo for children's active participation in music. Our goal is to provide you with a resource to help them facilitate your children's involvement in music.

Table of Contents

Why Should My Child Be Involved With Music?	2
Opportunities to Observe Music	3
Ways to Learn About Music	4
Informal Ways to Actively Participate in Music	5
Ways to Actively Participate in a Group Setting	6
Places to Get Music Instruction	8

Why Should My Child Be Involved With Music?

Music can be found in every culture all around the world. Many parents, teachers, scholars, and businesses are interested in learning more about the influence of music on the development of children. When considering this topic, the notorious "Mozart Effect" likely comes to mind, referring to claims that listening to Mozart's music improves cognitive ability in young children. The Mozart Effect is now generally considered to be invalid, but this does not mean that music has no effect on cognitive development. Some research has showed that even a little bit of musical training can enhance reading skills as well as pitch discrimination abilities in speech (Moreno, Marques, Santos, Santos, Castro, & Besson 2009). Another study by Gromko (2005) showed that children who receive musical training will develop aural skills for spoken sounds and spoken words faster than children who did not receive musical instruction. Finally, Franklin, Moore, Yip, Jonides, Rattray, and Moher (2008) they found evidence for greater verbal working memory span in musicians than non-musicians. We have created a list of musical references for parents to get their children actively involved in music instruction and participation.

Christopher Chau and Theresa Riforgiate

Opportunities to Observe Music

No Ties Allowed

Paso Palooza Children's Music Festival

No Ties Allowed



- **What:** Free Dress Rehearsals! Come watch the symphony rehearse!
- **Where:** Performing Art Center's Christopher Cohan Center on the Cal Poly campus
- **When:** Saturdays from 1-3pm
- **Cost:** Free! (Children must be accompanied by an adult)
- **Call:** (805) 543-3533 for more information or email staff@slosymphony.com
- Visit www.slosymphony.com for more information

Paso Palooza Children's Music Festival



- **What:** Paso Palooza is an annual event featuring top-notch musical entertainment for children that adults will enjoy.
- **Where:** Paso Robles Event Center on the 4th Saturday in April
- **When:** From 10:00 am to 2:00 pm.
- **Cost:** \$5 Admission
- **Call:** (805) 238-5617 for more information or visit <http://www.central-coastpage.com/modules/event4/index.php>

Ways to Learn About Music

Music Van
Musical Petting Zoo

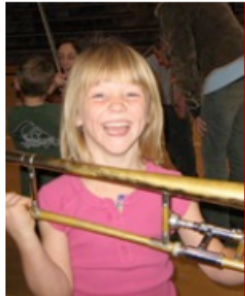
Etudes Quartet for 3rd Graders

Music Van



- **What:** A music van visiting schools throughout San Luis Obispo County giving students lessons on the roles of the instruments in the orchestra
- **Where:** 4th grade classrooms in schools throughout San Luis Obispo County
- **When:** The Music Van visits schools that have registered from the end of January through March
- **Cost:** School's PTA invited to contribute a voluntary donation of \$25 per classroom
- **Call:** (805) 543-3533 Ext. #107 or email Davia@slosymphony.com for more information
- visit www.slosymphony.com for more information

Musical Petting Zoo



- **What:** A musical petting zoo that allows for the exploration of well-loved Instruments
- **Where:** Community events around the County, schools, and non-profit organizations
- **When:** Upon requests
- **Call:** (805) 543-3533 Ext. 3 for more information or email staff@slosymphony.com
- Visit www.slosymphony.com for more information

Etudes Quartet for 3rd Graders



- **What:** Four San Luis Obispo Symphony musicians introducing students to composers taking them on a 45-minute musical trip around the world
- **Where:** In schools, especially for 3rd grade History-Social Science, and other programs
- **When:** Upon requests
- **Call:** (805) 543-3533 for more information or email staff@slosymphony.com
- Visit www.slosymphony.com for more information

Informal Ways to Actively Participate in Music

SLO Song
Kindermusik

Boo Boo Records

SLO Song

- **What:** Provides 'Musical Science' Assemblies, After School Enrichment, Summer Theater Camps, Preschool Classes, and Children's Concerts
- **Where:** Various schools throughout San Luis Obispo County
- **When:** Various times during the year
- **Call:** (805) 549-0270 for more information or email Diana@slosong.com
- Visit www.slosong.com for more information



Kindermusik

- **What:** A music and movement program that allows children to play, listen, and dance to music that impact you and your child in profound ways.
- **Where:** Classes in San Luis Obispo, Atascadero, Templeton, and Santa Maria
- **When:** Various times depending on the location
- **Call:** (336) 273-3363 or (800) 628-5687 for more information or email info@kindermusik.com
- visit <http://www.kindermusik.com/> to find a kindermusik program near you!



Boo Boo Records

- **What:** Babies and toddlers get a chance to sing and dance in a free class that encourages movement, finger play, and fun.
- **Where:** Boo Boo Records Store (978 Monterey St. San Luis Obispo, Ca)
- **When:** Wednesdays between 10:00-11:00 AM
- **Cost:** Free!
- **Call:** (805) 541-0657 or email sacredheart9395@yahoo for more information
- visit <http://www.centralcoastkids.com/arts/music/music-for-kids.cfm>



Ways to Actively Participate in a Group Setting

Youth Symphony
Debut Strings

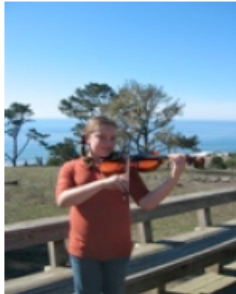
Central Coast Children's Choir
Bucket Busters

Youth Symphony



- **What:** An opportunity for school-age musicians to receive a full orchestral experience.
- **Where:** San Luis Obispo High School
- **When:** Visit the website for sectional rehearsal times and audition times
- **Call:** (805) 543-3533 ext. 109 for more information or visit www.sloyouthsymphony.org

Debut Strings



- **What:** An ensemble designed as a beginning string orchestra for advanced beginners who want the fun of playing in a group, but who might not feel quite ready for the Youth Symphony.
- **Where:** Sinsheimer Elementary San Luis Obispo
- **When:** Mondays from 3:30-4:30
- **Call:** (805) 543-3533 for more information or email staff@slosymphony.com!
- visit www.slosymphony.com for more information

Ways to Actively Participate in a Group Setting (continued)

Central Coast Children's Choir



- **What:** Six choruses that help develop musicianship training (sight-singing, ear training, note and rhythm reading, music theory and history) and healthy singing habits.
- **Where:** Rehearsals at Grace Church, 1350 Osos Street, San Luis Obispo, or in various locations in North County
- **When:** Different choruses rehearse at different times. Check website for more information
- **Call:** (805) 541-5323 or (805) 464-0443 for more information about auditions or email cccc-slo@charter.net
- Visit their website at <http://www.centralcoastchildrenschoir.org/Index.html>

Bucket Busters



- **What:** A group that beats on buckets and cans, developing stick technique that can be applied to the drumset.
- **Where:** Bucket Busters performs at a select number of charitable events throughout the Central Coast.
- **When:** Call for appointments
- **Call:** 805) 929-1165 or (805) 543-0377 for more information or email office@drumschool101.com
- Visit their website www.musicschool101.com for more information

Places to Get Music Instruction

Everyday Etudes
Strings in the Schools

Drum School 101
Central Central Coast Music Instructors

Everyday Etudes

- **What:** Brings music education into the classroom that gives students live-hands on experience through different programs. from K-6 graders through different programs
- **Where:** Programs for K-6th graders at various schools in the County
- **When:** Daily 5-minute lessons at schools with the program
- **Call:** (805) 543-3533 for more information about bringing this program to your school!



Strings in the Schools

- **What:** Affordable after-school program that teaches violin, viola, and cello in schools
- **Where:** At specified schools throughout San Luis Obispo County
- **When:** The program starts at different times depending on the location
- **Call:** (805) 543-3533 or visit http://slosymphony.com/cm/Symphony_for_Kids/Strings_in_the_Schools.html for more information



Drum School 101

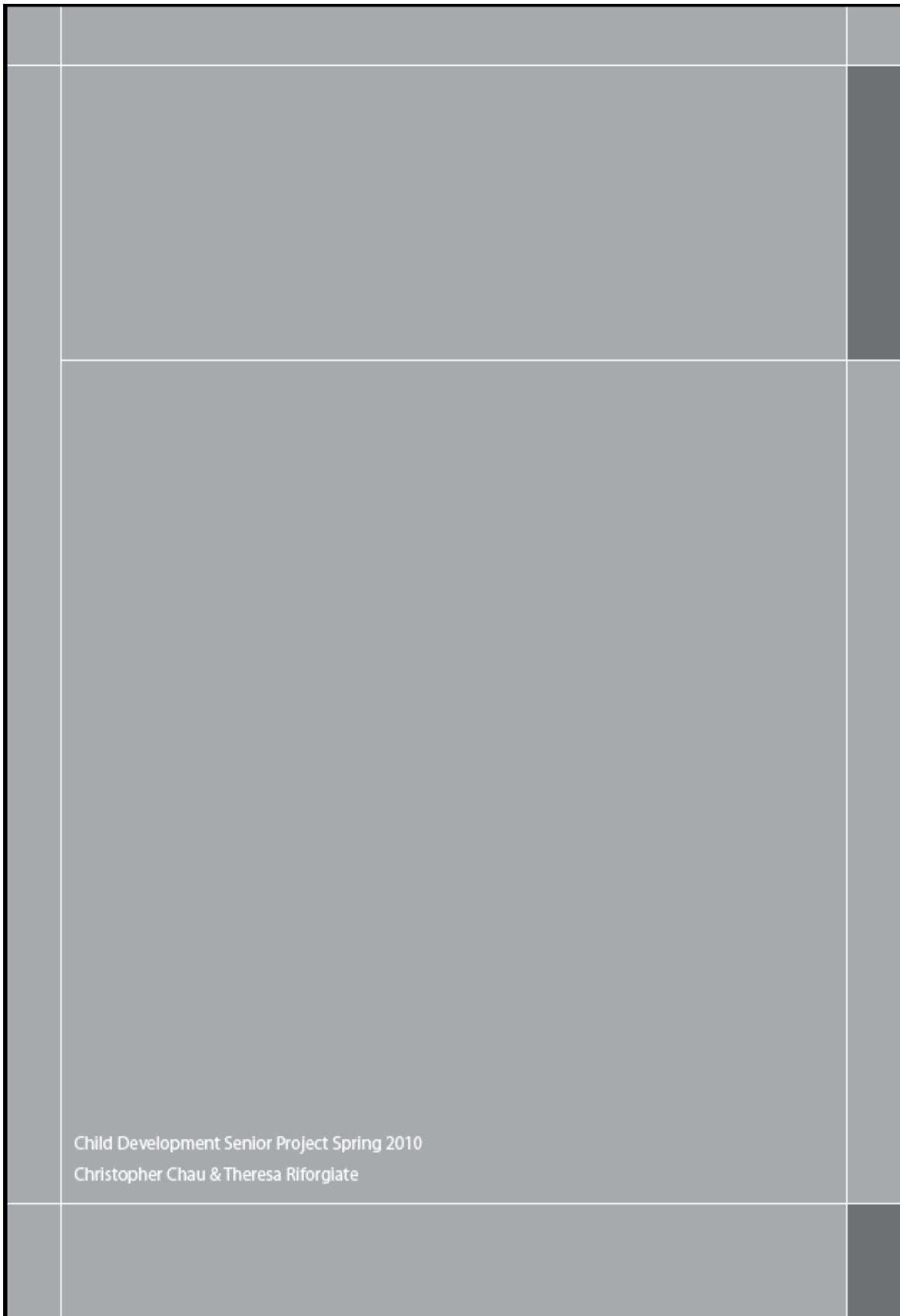
- **What:** Students learn technique, reading, and a variety of musical styles. This program offers lessons for not only drumsets, but also instruction for guitar, bass, piano, hand and percussion
- **Where:** At the studios in San Luis Obispo, Paso Robles, and Nipomo
- **When:** Call for appointments
- **Call:** 805) 929-1165 or (805) 543-0377 for more information or email of-
fice@drumschool101.com
- Visit their website www.musicschool101.com for more information



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Child Development Senior Project Spring 2010
Christopher Chau & Theresa Riforgiate