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Relationships Among Musical Home Environment, Parental Involvement, Demographic Characteristics, and Early Childhood Music Participation

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RELATIONSHIPS AMONG MUSICAL HOME ENVIRONMENT, PARENTAL INVOLVEMENT, DEMOGRAPHIC CHARACTERISTICS, AND EARLY CHILDHOOD MUSIC PARTICIPATION

BY

Adrienne Wills

A THESIS

Submitted to the Faculty of the University of Miami in partial fulfillment of the requirements for the degree of Master of Music Education

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The purpose of this study was to examine the musical home environment of preschool children aged 3 to 5 years enrolled in an early childhood music class. This study also examined how the musical home environment was affected by demographic characteristics, parental musical experience, and early childhood music instruction. Parents and primary caregivers (N = 103) of preschool children enrolled in three university-based early childhood music programs in Florida, New York, and Ohio were surveyed using a researcher-constructed measure, “Parents’ Use of Music with Preschool Students” (PUMPS). The PUMPS was intended to gather data related to demographic characteristics of the sample, participants’ experiences in early childhood music programs, the personal music experience of participants and information about how music was used in the home.

Participants demonstrated that they provided a rich musical home environment for preschool children, having a variety of musical interactions with their children on a weekly basis (i.e., singing, listening to music, playing instruments, moving to music, utilizing music class activities and composition) and had a variety of musical materials in their homes including music instruments, musical toys, and music listening devices.
Participants reported a higher frequency of singing, listening to music, and dancing in the home and a lower frequency of playing instruments, performing music class activities, and composing or reading music.

Most of the sample had participated in music during their lifetime but the vast majority of the participants did not engage in musical activities at the time of the study. They did, however, value music and attend musical events.

Factor analysis of the PUMPS subsets revealed three factors for musical home environment (Music Interactions, Musical Materials, and Child Attendance at Musical Events), two factors related to parental music experience (Music Participation and Value of Music), and one factor related to Early Childhood Music Experiences.

Several independent variables significantly predicted musical home environment factors. Musical Interactions were related to adult gender, child age, ethnicity, and parent valuing music. Musical materials in the home were related to parental musical participation and ethnicity, while no significant predictors were found for child attendance at musical events. Ethnicity, child age, parental musical participation, and musical materials accounted for 37.8% of the variance in composite musical home environment scores, yielding a medium effect size.
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Chapter 1
Introduction

Background

In the life of a preschool child, the importance of the parent or primary caregiver is unparalleled. During this time, the parent assumes many roles including provider, playmate, and teacher, hence; “a parent is their child’s first teacher” is a plausible and often-quoted phrase. Parents also assume the responsibility of shaping the home environment (HE) where the child spends much of his time. A large body of research suggests that parent involvement (PI) and home environment throughout childhood greatly influence future success.

Sloboda and Howe (1991) discovered that only 14% of students did not need parental encouragement or support in music making. In another article on the importance of parents in the musical development of a child, McPherson (2009) states that parent involvement in music can help students feel more competent and can foster a strong bond between parent and child. The field of education has also acknowledged the importance of parent involvement.

Increasing parent involvement partnerships with schools has been made a priority in education in recent years. For example, in the Goals 2000 Educate America Act, goal number eight is “every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children” (Goals 2000: Educate America Act, 1994). The recent No Child Left Behind Act of 2001 also acknowledges the importance of parent involvement by mandating the establishment of parent involvement practices in Title 1 schools in order to receive
funding (No Child Left Behind Act of 2001, 2002). Many government-funded programs including Head Start and Early Head Start have made parent and family involvement a vital part of their educational framework.

A substantial body of general education literature suggests PI is positively correlated with school success, academic achievement, and school readiness (Englund, Luckner, Whaley, & Egeland, 2004; Fan & Chen, 2001; Hong & Ho, 2005; Macron, 1999; Miedel & Reynolds, 1999; Parker, Boak, Griffin, Ripple, & Peay, 1999). Music researchers have found positive correlations between PI-HE, music retention, plans to pursue music, music achievement, music aptitude, as well as cognitive, affective, and performance outcomes (Brand, 1986; Sichivista, 2004; Zdzinski, Gumm, Orzolek, Cooper, Dell, Rinnert, Yap & Keith, 2008; Zdzinski, 1992; Zdzinski, 1996; Zdzinski, 2008). This research suggests that parents play a vital role in the success of their child in many aspects of their schooling and interests, including music.

While most of this research, especially research in general education, focuses on school-based involvement (i.e., volunteering, conferences, and attendance at school functions), PI is a multi-faceted construct. Due to the variety of operational definitions of PI, research regarding PI and HE has produced conflicting results (Fantuzzo, Tighe, & Childs 2000; Fan & Chen, 2001; Marcon, 1999; Miedel & Reynolds, 2000).

To help clarify this issue, general education researchers have attempted to define parent involvement via the creation of frameworks to better describe the various types of PI. Perhaps one of the most influential of these frameworks is by Epstein (1995) who created a six-factor framework to describe various types of involvement interactions
between schools, communities, and families. Researchers including Fantuzzo (2000) have created scales to further define PI in early childhood educational settings.

Music researchers have also created frameworks to define musical PI-HE. In a study on musical home environment, Brand (1985) created the *Home Musical Environment Scale (HOMES)*. Factor analysis of this scale produced four musical home environment factors for elementary children. More recently, Zdzinski (2008) created the *Parent Involvement and Home Environment in Music scale (PI-HEM)* that revealed seven PI-HE factors.

In addition to exploring the various types of PI-HE through creation of frameworks or factor analyses, general education researchers have found that PI-HE is influenced by demographic characteristics. Differences in ethnicity, (Fan & Chen, 2001; Hong & Ho, 2005; Huntsinger, 2009; Keels, 2009) family composition, (Arnold, Zeljo, Doctoroff, & Ortiz, 2008; Fantuzzo, 2000) and socioeconomic status (SES) (Arnold et al., 2008) have been significantly associated with differences in PI. Parent gender (Huntsinger & Jose, 2009; Mcbride, Dyer, Liu, Brown, and Hong, 2009), parental education level (Arnold et al., 2008; Castro, Bryant, Peisner-Feinberg & Skinner, 2004; Englund et al., 2004; Fantuzzo et al., 2000), and parent employment status (Castro et al., 2004) have also been shown to significantly effect PI and HE.

Music researchers have also studied several aspects of the home environment of young children. Several of these studies relate to the type and frequency of musical interactions that occur in the home. The majority of this research is focused on homes with children under 3 years old (Barrett, 2009; Custodero, 2003; Custodero, Britto & Brooks-Dunn, 2003; De Vries, 2007).
Current research suggests that musical home environment is influenced by several factors. Just as general education researchers discovered, music researchers found that demographic characteristics affect PI-HE (Custodero et al., 2003; Zdzinski, 1992; Zdzinski, 1996; Zdzinski et al., 2008). Another factor that has been shown to influence musical home environment is the personal musical experience of the parent. Research suggests that parents with a rich musical background or those currently involved in music provide more musical experiences for their young children (Custodero, 2003; Galliford, 2003; Kelly & Sutton-Smith 1987; Zdzinski, 2008).

**Need for the Study**

PI and HE are vital to the success of a child. Although an extensive amount of research has been done on these topics, several aspects of PI-HE have not been explored. As mentioned above, PI is multi-faceted and various types of PI-HE have been shown to have varying outcomes. This makes findings difficult to generalize.

Because researchers have found that the effect of PI changes with child age, (Custodero et al., 2003; Fantuzzo et al., 2000; Zdzinski, 1992; Zdzinski, 1996) there is a need to study various age groups. In fact, many current researchers have also identified the need for studying various age groups when investigating PI-HE. Because most of the early childhood music research currently available explores PI with infants, further studies are needed with a focus on preschool-aged children.

Another gap in the current body of research is the lack of scales with adequate reliability and validity to measure parent involvement or home musical environment in children under five. In studies conducted with school-aged children, several scales have been created including the *HOMES* (Brand, 1985), The *PIM* (Zdzinski, 1992), and the *PI-*
HEM (Zdzinski, 2008). Researchers provided evidence of adequate validity and reliability for these measures. None of these studies, however, are designed for children of preschool ages. Without reliable measures available, it is difficult to assess the social characteristics of involvement and musical home environment for preschool children.

Yet another gap found in the current body of research is the absence of a musical home environment framework for preschool children. The creation of a framework assists researchers in further defining PI. Creation of such a framework, through factor analysis of a PI-HE measure for this age group, would benefit the research field by more clearly defining musical PI-HE for preschool children.

One type of parent involvement not often researched is parental participation in instruction. This is likely due to the fact that this type of involvement is not typically an option in traditional education settings. One area in which PI is very common is in early childhood music programs.

Because parents often physically participate in early childhood music instruction with their children, they too are likely to gain music knowledge and skills. Several early childhood music educators suggest that this experience between child and caregiver is of great value. Furthermore Levinowitz (1998) suggests that forming positive collaborations between educators and caregivers can have a significant impact on a child’s overall growth and development.

Several music researchers and educators suggest that early childhood music classes may enhance the home musical environment. Kenneth K. Guilmartin (1999), creator of Music Together™, claims that children develop a disposition for music making from their parent or primary caregiver. Therefore, he suggests an environment should be
created to involve parents modeling appropriate musical tasks. He believes that the primary goal of the early childhood music educator is to give parents tools to use with their children in the home.

Early childhood is considered a critical time period is critical for later music development (Levinowitz, 1998). Gordon (2003) states that learning occurring within the first five years of life forms the basis for all future educational development. He also explains that ample opportunities for unstructured and structured activities in early childhood expand a child’s capacity in later life when formal instruction begins.

De Gräzer (1999) suggests that participation in early childhood music programs has benefits that go well beyond musical development. In her description of a program initiated in Brazil, she explains that although the initial goals of the program were solely musical, as the program grew another trend was revealed. She suggests that parents and children begin to communicate and relate to each other in a more meaningful way as a result of music class participation.

Music education professionals seem to agree that early childhood music instruction has the potential to enhance the musical home environment. However, no published research exists on the effect of early childhood musical instruction on home musical environment. There is also a general lack of empirical research on parent perceptions of early childhood music instruction or their motivation to enroll their child in such a class. The study of parents and preschool children involved in early childhood music programs would, therefore, explore a new facet of parent involvement. This information would serve both families involved in music and the educators who teach in similar settings.
Although several researchers have examined frequency of musical interaction as well as the correlation between PI-HE and parental musical experience, the results have been inconsistent. De Vries (2007), found only 18% of parents played or sang to their child daily, and 0% encouraged their child to make up songs. These results are in direct conflict with two studies by Custodero who showed 60% and 69% of participants, respectively, sang to their children daily (Custodero et al., 2003; Custodero, 2003). This dramatic disparity in results is surprising, especially because De Vries used a modified version of Custodero’s survey instrument. This could potentially be due to the fact that De Vries conducted his study at one school in Australia and Custodero surveyed parents from across the United States.

The results of Custodero (2003) also conflict with a study by Ilari (2002). Ilari found no significant correlation between the musical background of the mother and the frequency of music making between mother and child or the mother’s plans to do so after giving birth. A study by Galliford also found that parental music experience did not significantly effect the amount of musical interaction in the homes of children aged 3-5 (Galliford, 2003).

To the contrary, parents in the Custodero (2003) study showed that musical parents were more likely to sing or play music for their child. Also, Kelly and Sutton-Smith (1987) in a longitudinal study of the musical experiences of three infants from families with different levels of musical background showed that musical parents provided more musical opportunities for their child than non-musical parents. Due to several gaps and inconsistencies outlined above, more research concerning parent involvement and home environment will benefit the early childhood music field.
**Purpose of the Study**

The purpose of this study was to examine the musical home environment of preschool children aged 3 to 5 years old enrolled in an early childhood music class. This study also examined how the musical home environment was affected by demographic characteristics, parental musical experience, and early childhood music instruction. Specifically the research questions are:

1. What are the characteristics of the musical home environment (i.e., musical interactions and musical materials) and parental personal musical experience?
2. What are the attitudes of parents involved in early childhood music classes in regards to their level of satisfaction, their motivation for enrolling their child, and their perception of the benefits of the music program in which their child is enrolled?
3. What do parents involved in early childhood music classes perceive as the most enjoyable, most interesting, and most challenging aspects of their early childhood music program participation?
4. What are the underlying factor structures of the musical home environment, parental music experience, and early childhood music class experiences for preschool children?
5. What independent variables (i.e., parental musical experience, early childhood classroom experiences, and demographic characteristics) best predict the musical home environment factors determined via research question 4?

**Delimitations**

This study investigates the musical home environment among parents whose preschool children were enrolled in an early childhood music program. The study involved parents with children between the ages of 3-5-years-old. Early childhood
programs selected were all university-based intact programs. Participants were drawn from any other types of early childhood music programs (i.e., community or private programs). Additionally, the parent completed the tool used to assess home environment therefore, use of music in the home was not directly observed by the researcher.

**Definitions**

*Early Childhood Music Program*: For the purposes of this study, an early childhood music program was one that uses a specific music enrichment curriculum taught over a period of no less than ten weeks at a time. An individual who was trained in the curriculum must teach the classes. The curriculum included singing, playing instruments, movement, and focused listening.

*Parental Involvement*: This study examined two different types of parent involvement - parental participation in early childhood music instruction and parental use of music in the home.

*Home Musical Environment*: Musical home environment will include: frequency of musical interaction between child and parent, types of musical activities that occur in the home (i.e., singing, moving to, listening to, writing and playing music), musical materials that are present in the home, and frequency of attendance at musical events by family members.
Chapter 2

Review of Literature

Various parent involvement (PI) and home environment (HE) research was reviewed in preparation for this study. In these studies, research participants were parents or primary caregivers of infants through senior high school students. Although the overall body of research is great, a scarcity of music specific studies focus on preschool-aged children. Also, while researchers have explored several different relationships between PI-HE and academic outcomes, musical outcomes, and demographic characteristics, the findings have been inconsistent. Therefore, this review of literature examined three different areas of PI-HE research.

The first section of the literature review focused on musical PI-HE research with children under the age of five. This section provides information on what aspects of musical PI-HE have been explored and what conclusions can be drawn from the results. Because of the paucity of music research with young children related to PI-HE, the second section of this review reports on the musical PI-HE research with school-aged children (ages 5-18). This is largely due to the fact that researchers have more extensively studied musical PI-HE with this population. Therefore, information on this research is included to highlight what the early childhood body of research is lacking and what areas require further study.

The final section of the review describes general education PI-HE research conducted with preschool children. Again, because of the lack of music research with young children currently available, this section helps to reveal possible trends for further music research with young children.
Musical Home Environment In Early Childhood

Researchers have studied several aspects of the musical home environment of young children. Several of these studies explore the type and frequency of musical interactions in the home (Custodero, Britto, & Brooks-Gunn, 2003; Custodero, 2003; Custodero, 2006; De Vries, 2007; Ilari, 2002). Many studies also attempt to determine how parental characteristics (i.e., personal music experience or demographic characteristics) influence PI/HE (Custodero, 2003; Custodero et al., 2003; De Vries, 2007; Galliford, 2003; Ilari, 2002; Kelly & Sutton-Smith, 1987). Limited research relates to outside factors that influence the musical HE of young children, such as music instruction (Barrett, 2009).

Frequency of musical interactions in the home. In order to explore the musical home environment, researchers assessed the frequency of musical interactions that occur in the home. This information can then be used to explore how other variables (i.e., parental personal music experience or demographic characteristics) influence these interactions. Custodero conducted several studies related to frequency of musical interaction in the homes of young children.

In 2003, Custodero constructed a survey called The Parent Use of Music with Infants Survey (PUMIS) that was used for a large-scale study that explored associations between past or current musical experiences of parents and the frequency of playing and singing music in the home (Custodero, 2003). Randomly selected English-speaking parents of infants aged 4-6 months participated in the study (N = 2,250). Participants represented a variety of races, socioeconomic status levels, ages, and income levels. Most participants (73%) were women.
Custodero (2003) found that 64% of participants played music for their infants and 69% sang for their infants on a daily basis. Similar results were found in a study by Custodero, Britto, and Brooks-Gunn (2003). Participants were 2,017 parents with children under age 3 from the United States. Results revealed that 60% of parents were singing or playing music for their child daily and 32% were doing so weekly which indicates that 92% of participants used music in their home on a weekly basis. These two studies suggest that the majority of parents with children under 3-years-old provide daily musical interaction in their homes (Custodero et al., 2003).

De Vries (2007) sought to explore musical practices in the home of children under the age of 5 \( (N = 63) \) in Australia and utilized a modified version of the PUMIS. He did not reveal what specific questions were in the survey or how and if it was tested for reliability or validity. Parents completed the survey, and a subset of participants was selected for a follow-up focus group. This study found that only 18% of people surveyed played music for their child daily and 0 % encouraged their child to create their own music.

Results of this study conflict with findings of Custodero (2003) and Custodero et al. (2003). Several reasons for this contrast are possible. First, the number of participants and location of the studies vary greatly. Also while Custodero’s surveys focused on parents with children under 3, De Vries included parents with children up to age 5. Perhaps one of the more striking reasons for these conflicts is the lack of validity or reliability information provided for measures used to gauge musical home environment.
Due to the conflicts present in this area of the literature and the limited number of studies that explored this area of musical home environment, more research on the frequency of musical interaction in the home is warranted. Research with preschool children specifically would be beneficial in order to reveal if and how interaction changes from birth through age 5.

**Factors that influence musical interactions in the home.** After determining the frequency of musical interaction in the home, many researchers then examined what factors may influence these interactions. This type of research benefits both researchers and parents in determining what type of home environment may yield the most musical interactions. Both the Custodero studies discussed above, as well as others, have examined these associations. The body of research related to young children focuses on several factors including demographic characteristics, personal musical experience of parents, and parental attitudes.

Custodero, Britto, and Brooks-Gunn (2003) examined how demographic characteristics including socio-economic status (SES), child age, birth-order, and parent gender influenced the frequency of musical interactions between parents and children. Findings of this study suggest that frequency of musical interaction is higher for first-born children as compared to later-born children. Child age and gender also influenced interactions for this population. Mothers were twice as likely to sing for younger children than older children and were also more likely to sing or play music for children than were fathers. This study also found that, in general, frequency of musical interaction decreased with the age of the child. Furthermore, parents with more than a high school education were more likely to sing or play for children than those who received a high
school education or less. Finally, mothers who were employed sang to their children less than mothers who did not work (Custodero et al., 2003).

The findings from this study suggest that demographic characteristics including age of the child, parent gender, child gender, SES and birth-order can significantly influence frequency of musical interaction in children under 3. Although these results are intriguing, this study does not explore interactions between preschool children and parents. It should also be noted that this is the only study in this review that explored how demographic characteristics influence the musical home environment of children under age 5.

Many researchers have explored associations between the personal musical experience of parents and frequency of musical interaction in the home. Custodero (2003) explored these associations in her study of interactions between infants and parents. Results revealed that more musically experienced parents have more musical interactions with their infant. Custodero found higher levels of parental musical experience (i.e., whether they were sung to as a child, past or current participation in choir or a musical group, playing a musical instrument, or taking private music lessons) were positively associated with higher levels of music interactions in the home ($p < .01$) (Custodero, 2003).

Interestingly, past musical experience also significantly influenced the type of music that was played for or sung to infants. Specifically, parents who recalled being sung to by their mother sang more lullabies, made-up songs, and popular songs than those parents who did not recall being sung to. Parent’s current musical experiences also influenced the type of music they presented to their infants. For example, parents who
play an instrument were more like to play classical, jazz, or world music for infants and less likely to play rap music. Overall, this study provided strong evidence that both past and current parental music experience had the potential to influence the type and frequency of musical interactions between parents and infants and thus, the home environment.

Because of the intimate nature of music making in the home, other researchers chose to conduct longitudinal observation studies using very few participants when exploring associations between musical interaction in the home and parental music experiences. Although case studies may not be easily generalized to large populations, they can reveal trends for further study.

Kelley & Sutton-Smith (1987) explored the connection between parental musical experience and musical home environment. The researchers conducted a study that examined how musicality was expressed in three families with infants, the features of infant early musical response and performance, and the context in which musical behavior occurred. This study followed three families with female, first-born children from birth to 24 months of age. The method for data collection was primarily observation, which focused on any spontaneous musical actions of the child and the context in which they occurred. Case I was a professional, musically oriented context in which both parents were professional musicians. Case II was a musically oriented context in which parents were not professional musicians but music played a main role in the family. Case III was a non-musically oriented context in which the parents did not place a high value on music in the home (Kelley & Sutton-Smith, 1987).
Longitudinal observations of the three families showed that the children in cases I and II developed many more musical skills at younger ages than the child in case III. Interestingly, the children in cases I and II approached music from a musical (i.e., melodic) base, meaning they tended to learn the melody of a song before the words. The child from case III approached music from a language base, and then incorporated rhythm. This child would learn the words, then be able to chant the words in the rhythm and finally, sing the melody.

Child I and II followed similar paths in vocal development and both produced clearly defined pitches before age 2, which was not the case for child III. In general, parental influence was much more clearly seen in the musical development of children in cases I and II than the child in case III. Therefore, this study suggests that the personal musical experience of parents not only influences the type and frequency of musical interaction in the home, but may also actually change how a child learns music.

By contrast, Ilari (2002) interviewed mothers and pregnant women ($N = 68$) in Canada about the frequency of singing and listening to music with their baby or their intention to do so after giving birth. She also gathered information about the mother’s current and past musical background. This study found no positive correlation between musical background of the parents and the frequency with which they sang or played music for their children, or their intentions to do so if they had not yet given birth (Ilari, 2002).

Much like Ilari, Galliford (2003) found that parental music experience was not related to musical interactions in the homes of children aged 3-5. This study sought to determine if preschool music exposure at home and at school improved linguistic- and
non-linguistic skills. Parents were surveyed to determine how often the child was exposed to music in the home. Interestingly, while parental music experience did not significantly effect the home musical environment, music exposure at home was shown to significantly improve both linguistic and non-linguistic skills for preschool children.

These results conflict with both Custodero (2003) and Kelley & Sutton-Smith (1987) who found that parental musical experience did have an impact on frequency of musical interactions. Method and participant differences, as well as the fact that these studies were conducted in different countries, could have contributed in these discrepancies. For example, Ilari is the only researcher who included pregnant women in the sample. It is possible that pregnant women’s intentions to engage in music making with their child are not reliable. Nonetheless, inconsistent findings call for additional research in this area.

Several other studies have used the longitudinal case study model to gain further insight into other influences on musical parenting. Custodero (2006) did yet another study with a subset of the participants from her study for which she created the PUMIS (Custodero, 2003). Ten families, who took the PUMIS, participated in an interview and observational study.

The purpose of this study was to ascertain the type and function of music being used in the homes of young children. Seven of the children were girls and all of the children turned 3 before or during the study. Parent interviews and journals were collected along with researcher notes from two visitations to the home. Analysis of observation notes, parent journals, and interviews revealed three major trends related to
music in the homes of toddlers. Findings suggest that music was most often used or enjoyed in one of three contexts: everyday routines, traditions, or play (Custodero, 2006).

Music was used in routines in many ways. Several of the parents revealed that they often used music to accompany daily activities (i.e., bedtime, bathing, meals etc.) in order to make the activities more fun. Slightly less common, some families devoted a part of their daily routine to solely focus on music making with their child. Other families explained that often they simply made up songs about whatever they were doing.

Music was also used as a means to honor traditions. For example, many parents chose to use music in a similar way as their own parents. This finding provides further support for the notion that past parental music experience may influence parents’ musical interactions with their children. These families also used music as a way to honor their musical heritage. Additionally, new traditions in the family were also centered around music experiences. Finally, music was often found to be a part of play. Parents and children were often seen interacting together and using both spontaneous and learned songs during play activities. All of the parents delineated play as the most common time for them to use music in their home.

While several researchers have examined musical interactions in the home, fewer have examined how the home environment is affected by outside influences. Barrett (2009) identified ways in which a young child and his family incorporate musical engagement into their everyday lives. This longitudinal study followed a total of 13 families, but this particular article focuses on a single family of a male child 2-to-5-years-old. The child attended a Kindermusik™ class weekly during the length of the study.
This is the only research currently available that relates home musical environment and parenting directly to participation in an early childhood music enrichment curriculum.

Barrett states that for this family, participation in an early childhood music enrichment program provided parent education about how to use music in the home. Barrett suggests that these findings warrant further study on the effects of early childhood music instruction on musical parenting (Barrett, 2009). She also suggested that this type of music instruction gives parents both repertoire and strategies so they may successfully incorporate music into their home.

The parent who participated in the study also suggested that music played an important role in her child’s language development. Music was also found to be useful in regulating emotional state and providing opportunities for family bonding and unity. Finally, this study found that music was often embedded into traditions based on parental musical experience and daily routines, similarly to Custodero (2006).

**Implications.** The survey of early childhood research related to musical home environment yields several interesting findings. First, it appears music is often an important part of the daily lives of families. This is especially true of families with infants, with the majority of parents singing to their children on a daily basis (Custodero, 2003; Custodero et al., 2003). Music is used in the home in many ways, including during daily routines, as an activity parents and children enjoy together, or as a means to carry on traditions important to the culture of the family (Custodero, 2006; Barrett, 2009). There is also strong evidence that musical interactions in the home are influenced by the past and current musical experiences of the parent (Custodero, 2003; De Vries, 2007;
Kelly & Sutton-Smith; 1987). Many researchers have found that parents with more musical experience provide a richer musical home environment.

Although these studies provide important information on the musical home environment of children under age 5, there are also many gaps and inconsistencies in the research. The general lack of research with parents of children between the ages of 3 and 5 years old has resulted in no valid and reliable scale to measure musical home environment.

**Musical Home Environment And Parent Involvement with School-Aged Children**

Due to the lack of research on musical PI-HE involving children from birth through age 5, this section of the review will explore musical PI-HE research involving school-aged children. This body of research is more expansive and has yielded several important trends related to musical parenting. Also, due to the lack of valid measures designed for early childhood populations, methodology used to create measures for other age groups will be explored. Therefore, the purpose of this exploration is to discuss trends evident in the research with older children. These trends will then be used as a basis to enhance and expand research with children ages 3 to 5.

The study of musical home environment and parent involvement with children in kindergarten through high school has resulted in several interesting findings. Researchers who have examined musical PI-HE with this population have constructed several valid and reliable measures (Brand, 1985; Zdzinski, 1992; Zdzinski, 2008). Construction of these measures has led to the creation of several musical parent involvement frameworks. These frameworks are used to better explain the underlying structure of parent
involvement. As far as can be determined, no such musical framework has been created for early childhood populations.

Additionally, the results of several studies reveal possible relationships among music achievement, music aptitude, and PI-HE (Atterbury & Silcox, 1993; Brand, 1986; Zdzinski et al., 2008; Zdzinski, 1992; Zdzinski, 1996; Zdzinski, 2008). Associations between these variables have also not been explored with preschool populations. Although a comparison between music achievement, music aptitude, and parent involvement is not the aim of the present study, results from these studies demonstrate the importance of parent involvement in music and possible outcomes of such involvement. As with the early childhood music research, only a limited number of studies explored the relationship between musical PI-HE and demographic characteristics (Zdzinski, 1992; Zdzinski, 1996; Zdzinski et al., 2008).

Musical parent involvement frameworks. Two researchers have conducted research resulting in a PI framework in music. Brand (1985) conducted a study in which he developed a valid and reliable home musical environment scale for the early elementary level. The Home Musical Environment Scale (HOMES) is a self-reporting measure to be completed by parents or primary caregivers.

The scale was circulated to second grade children in two elementary schools ($N = 201$) in an urban area of the southwestern United States. The majority of the participants were Hispanic (75%), while a smaller portion were Caucasian or African-American (25% and 5% respectively). The Cronbach’s alpha reliability of the HOMES is .86 (Brand, 1985). The initial item pool was submitted for content validity to four music educators who were experts in the field at the elementary and early childhood levels. After
revisions, the panel agreed on 15 items, which became the final item pool for the HOMES (Brand, 1985). Concurrent validity was also established by comparing the parents’ evaluations (results of the HOMES) with the music teacher’s rating of the children’s home musical environment.

After gathering the results of the survey, Brand completed a factor analysis to identify important factors related to music in the home. A total of four factors were revealed that accounted for 63% of the total variance. These factors were: parent’s attitude toward music and musical involvement with child; parental concert attendance; parent/child ownership and use of record/tape player, records or tapes; and parent plays a musical instrument (Brand, 1985). This study was one of the first to result in a valid and reliable scale for musical home environment and resulted in a four-factor framework for musical home environment for elementary children. This framework became one of the first to describe the various factors of the musical home environment of children.

While Brand (1985) sought to explore the musical home environment of elementary children, Zdzinski (2008) was interested in examining PI-HE for music students in grades 4 through 12. General music, orchestra, band, and chorus students from grades 4 through 12 (N = 523) made up the participant pool for this study. A researcher-constructed measure, the Parent Involvement Home Environment Measure (PI-HEM), was developed for use in this study. Items were all based on previously created measures including the HOMES (Zdzinski, 2008).

The categories represented in the PI-HEM include Parental Aspirations and Expectations, Participating in Music and School, Musical Home Environment and
Structure, Musical Home Learning Activities, and Personal Parental Support. A factor analysis was again performed and a seven-factor solution was revealed and factors were named: Home Structure, Parental Expectations, Musical Participation, Musical Environment, Family Musical Background, Attitudes About Music, and Music Program Support. The reported alpha reliability for the scale was .88 (Zdzinski, 2008).

These results, along with those found by Brand (1985) support the notion that musical PI-HE can be broken down into several distinct factors. This finding provides further evidence of the multifaceted nature of PI-HE. Both studies produced a valid and reliable scale for measuring musical home environment. Research that resulted in a similar framework for preschool-aged children would benefit the field of music education by giving a more complete view of musical home environment throughout childhood. Such a framework would also allow researchers and educators to identify how musical home environment may change from birth through high school.

**Relationships among PI-HE, music achievement, and music aptitude.** In addition to creating scales to accurately measure PI-HE in music, researchers have also examined if PI-HE influences music achievement and aptitude. Although this area has not been explored with early childhood populations, it has implications for the importance of parent involvement during childhood. Because parent involvement may influence future musical success, these areas of research have important implications for both educators and researchers. Namely, many studies in this area suggest that increased PI will increase music achievement and music aptitude.
The HOMES, described above, was later used in another study by Brand (1986) who sought to determine the relationship among tonal and rhythmic aural perception, musical achievement in general music classes, and home environment. The sample included 7-year-old children and their parents ($N = 116$). Participants were predominantly Mexican-American and were drawn from an urban, disadvantaged population (Brand, 1986).

As mentioned above, the HOMES was used to measure home musical environments. Brand created another measure called the Music Achievement Assessment Form (MAAF), that measured musical achievement with an alpha reliability coefficient of .73 (Brand, 1986). To measure musical aptitude, Brand used the Primary Measures of Musical Aptitude (PMMA) (Gordon, 1979).

Central tendency statistics, correlation, and regression procedures were performed to analyze the results. Results suggest that the HOMES was not a significant predictor of tonal or rhythmic perception as measured by the PMMA. The HOMES was, however, significantly related to the results of the MAAF ($p = <.001$) accounting for 20% of the variance on achievement scores. Specifically, the strongest relationship found was between musical achievement and HOMES factor 1: parental attitudes toward music and musical involvement with the child (Brand, 1986). These findings suggest that, for this population, achievement was linked to home environment but music aptitude was not.

Zdzinski also explored the relationship between achievement, aptitude, and PI in music (Zdzinski, 1992). This research targeted woodwind and brass students in grades six through eight ($N = 113$). Participants were drawn from four, north-central
Pennsylvania middle schools (Zdzinski, 1992). Several measures were utilized in this study. The researcher constructed a measure called the *Parental Involvement Measure (PIM)*. Content validity was demonstrated through several case studies of high achieving wind instrumentalists (Zdzinski, 1992).

To measure music achievement, subsets of *Colwell’s Music Achievement Tests (MAT)* (Colwell, 1969) were administered, and the *Watkins-Farnum Performance Scale (WFPS)* (Watkins & Farnum, 1954) was used to measure performance achievement. Reliability was reported for all measures at a high range (> .85) (Zdzinski, 1992) and results were analyzed through correlations and MANOVA.

Findings of this study conflict with those of Brand (1986). Although the researcher found positive correlations between *PIM* and *MAT* scores, correlations were low suggesting little practical significance. These results suggest that although music achievement and PI are positively correlated, the relationship may not be as strong as Brand (1986) suggests. Zdzinski (1992) and Brand (1986) also found conflicting results related to the relationship between PI and music aptitude. Zdzinski found that middle school students with higher levels of PI also had higher music aptitude scores (Zdzinski, 1992) however, no such relationship was revealed by Brand (1986).

These conflicting findings could be due to the difference in age of the participants as Brand used 2nd-grade students. Results suggest that the influence of musical home environment and parent involvement may change with the age of the child. This disparity could also be due to the fact that Brand collected data on the home from teacher
perceptions and Zdzinski used student perceptions. Zdzinski and Brand are not the only researchers to examine the connections between the home and music outcomes.

Atterbury and Silcox (1993) also studied the relationship between musical home environment and music aptitude. In this two-year study, these two variables, as well as singing ability of 66 kindergarten students, were compared. The researcher reported no other participant information. All kindergarteners at one school were tested for singing ability during the first four weeks of school. All children sang the same four-phrase song and were evaluated using a 4-point scale by two evaluators. An interrater correlation was reported as .747 (Atterbury and Silcox, 1993). Children were then classified as a presinger, uncertain singer, partial singer or singer in correspondence with their score on the singing test. Out of the initial participant pool, 33 non-singers (score of 1 out of 4) and 33 singers (score of 4 out of 4) were selected for participation in the study (Atturbury & Silcox, 1993).

Based on the four factors found in Brand’s HOMES, a 13-item form was developed to measure home musical environment. The researcher did not report validity or reliability statistics for this measure. Once again, the PMMA was used to measure musical aptitude.

Results of a t-test analysis indicated that there was a significant difference between the home musical environment of presingers and singers ($p = .02$). Specifically, children who were classified as singers scored higher on the home environment measure than those who were classified as non-singers. This suggests that children who have a richer musical home environment may be more skilled singers upon entrance into school.
Similarly to Brand (1986), but in contrast to Zdzinski (1992), Atterbury and Silcox found no relationship between home musical environment and aptitude as well as no difference between the aptitude of the presingers and nonsingers (Atterbury & Silcox, 1993). These results suggest that musical HE has a greater influence than music aptitude on singing ability. This important finding suggests that the home environment of children prior to age 5 can have a significant and positive impact on their musical ability.

In a later study by Zdzinski (1996), instrumental students again served as the participants spanning a larger age group with participants in grades 4 through 12. This study sought to examine relationships between PI, music aptitude, grade level and gender as they related to musical, performance, and cognitive music outcomes (Zdzinski, 1996).

The three dependent variables, affective outcomes, cognitive musical achievement, and performance achievement, were measured using several instruments, both standardized and researcher created. Independent variables including parental involvement, music aptitude, and gender were also measured. Parental involvement was measured using the PIM created by Zdzinski (1992). Music aptitude was again measured using the Musical Aptitude Profile (MAP) (Gordon, 1965).

Results of the study revealed a positive correlation between parent involvement and cognitive, affective, and performance outcomes in instrumental music. A significantly positive relationship was also found between PI and achievement as well as PI and aptitude. These associations were significant, but moderately low (i.e., < 5% shared variance) suggesting only modest practical significance (Zdzinski, 1996).
In another large-scale study, Zdzinski et al., (2008) examined the role of parent involvement, home musical environment, family background, and parenting style on success in school and music. The participants \( (N = 1,223) \) were drawn from grades 4 through 12 across a variety of school settings and socioeconomic/ethnic groups. Home environment was measured using the *PI-HEM* described above. Academic success was measured through grade reports and a student-reported measure. All other measures were standardized measures and were thoroughly described by the researchers (Zdzinski et al., 2008).

Results suggest that *PI-HEM* scores had significantly positive correlations with music achievement, academic success, student attitudes, and educational expectations. Composite scores from all measures revealed that the *PI-HEM* was positively correlated to parenting style, psychosocial maturity, academic outcomes, and musical outcomes (Zdzinski et al., 2008).

While most effect sizes were small (i.e., \( r = .10-.29 \)) in this study, moderate effect sizes (i.e., \( r = .30-.49 \)) were found between music achievement and family music background, parental music attitudes, and musical home structure (Zdzinski et al., 2008). The results of this study bolster support for the claim that aspects of PI-HE, including parental music experience, are positively related to several aspects of music success including music achievement.

Results from the several studies above suggest that various aspects of the home environment, as well as parent involvement in the home, have some influence on achievement and aptitude in music. Significantly positive relationships between HE and
music aptitude were noted in some studies (Zdzinski, 1992; 1996), but were refuted in others (Atturbury & Silcox, 1993; Brand, 1986). Again, this disparity could be due to differences in participant age, as suggested by Zdzinski (1996), since both studies that found no relationship between these variables only involved elementary music students while the studies by Zdzinski and Zdzinski et al. (1992; 1996; 2008) surveyed junior high and high school students. The studies that compared music achievement consistently identified a positive relationship between the two variables.

Although the present study is not aimed at exploring the relationship between music aptitude, music achievement, and musical home environment, comparisons between these variables are an important part of the body of research on musical parenting. These studies have resulted in the construction of several important measures that examine musical home environment. Because the majority of these measures were validated and examined for reliability, they can serve as a basis for constructing similar measures for preschool children. Construction of a similarly reliable scale to measure musical home environment for preschool children could allow future researchers to examine relationships between PI-HE, music aptitude, and music achievement with younger children.

**Demographic characteristics and musical PI-HE.** In addition to examining relationships between musical achievement, aptitude, and PI-HE, music researchers have also explored how various demographic characteristics such as age and gender influence PI-HE and musical outcomes. As far as can be determined, Zdzinski alone has conducted the literature found in this area. This research, along with the research conducted with
early childhood music populations provided evidence that demographic characteristics influence parent involvement and musical home environments. Unfortunately, studies related to the relationship between demographic characteristics and PI-HE in music were very limited.

An early study by Zdzinski (1992) revealed a significant three-way interaction between PI, music aptitude, music performance achievement, and gender. Specifically, females with low music aptitude and high parent involvement scored lower on the Watson-Farnum Performance Scale (i.e., the scale used to measure musical achievement) than females with low music aptitude and low parent involvement (Zdzinski, 1992). This interesting finding suggests that for females, increased parent involvement may actually negatively effect music performance scores. This was not the case for male students. Males with low aptitude scores and high parent involvement received higher achievement scores than male students with low aptitude and low parental involvement. Results were calculated using a median split between low and high MAP scores. When scores of the parent involvement measure, the PIM, were compared among the female low scoring group on the MAP, female students with lower parent involvement scored better.

Later, Zdzinski (1996) found that the relationship between the PIM and outcome variables differed with child age. For instance, correlations between affective outcomes and the PIM increased from .19 for elementary students to .33 for senior high students. However, the correlation between certain performance measures and the PIM were stronger at the elementary level. Results suggest that the age of the student is an
important factor in the effect parental involvement has on various musical outcomes

(Zdzinski, 1996).

Finally, the study by Zdzinski et al. (2008) explored connections between musical PI-HE and musical, as well as academic, outcomes. Regression results from this study revealed that SES, gender, parenting style, family structure, and parental musical expectations were significant predictors for academic outcomes. Additionally, parenting attitudes toward music study, home musical structure, family musical background, SES and school level (student age) were significant predictors of musical outcomes.

Based on the research found in this area, evidence suggests that demographic characteristics, including age and gender of students, may interact with musical home environment and parent involvement in music. While these limited results are intriguing, little research exists to compare demographic characteristics and music PI-HE. Although limited, these results suggest that demographic characteristics do influence the outcome of PI-HE on educational outcomes, further research in this area is warranted. Additionally, because these relationships appear to change with age, comparisons of these variables should be conducted with various age groups.

**Implications.** This section of the literature review describes the measures that have been constructed to measure PI-HE in music. Studies with school-aged music students have resulted in several valid and reliable measures that can be used as a basis for construction of a similar measure for preschool-aged children. Two of these studies have also used measures to create frameworks in order to further the understanding of the underlying structure of the musical home (Brand, 1985; Zdzinski, 2008).
PI-HE may also influence a number of musical outcomes including music achievement and music aptitude. Until a reliable measure has been created for preschool-aged children, however, no such comparisons can be made for early childhood populations. Finally, results of this research also suggested that demographic characteristics influence the relationship between PI-HE, musical, and academic outcomes.

**Parent Involvement and Home Environment in General Education**

In contrast to the lack of preschool, related musical PI-HE literature, researchers in general education and education psychology have produced a great deal of research related to parent involvement and the home environment of preschool children. Due to the lack of music research involving the target population for this study, general education research will be explored in the final section of this literature review. Although researchers in this area have examined a variety of topics related to PI-HE with preschool populations, two main topics have been explored that relate to the current study. General education researchers have explored the relationship between demographic characteristics and PI-HE, as well as the creation of parent involvement frameworks. Results of these studies will be explored further to understand preschool PI-HE.

**Demographic characteristics and parent involvement.** The current body of literature available from general education provides evidence that demographic characteristics powerfully influence PI-HE. Although music researchers have examined how socioeconomic status (SES), child age, birth-order, family composition, and gender may influence PI, related research is extremely limited and has only been conducted by a few researchers. Not only is there a larger body of research by general educators, they
have also explored additional comparisons between PI and demographic characteristics including parent employment status, parent education level, and parent program satisfaction.

Within the general education body of literature, SES has been linked with PI. Arnold et al. (2008) sought to explore the relationship between PI and preschool literacy skills. Preschool children from mostly low-income families, parents, and teachers participated in the study ($N = 163$). Researchers in this study also found that SES (for this study SES was considered a combination of parent education level and income) was positively correlated with involvement ($p < .02$). These results suggest that higher SES levels may be associated with higher levels of parent involvement (Arnold et al., 2008).

The findings of Arnold et al. (2008) conflict with Marcon (1999) who found no significant differences in PI for families with varying income levels. Participants in this study were 708 randomly selected parents of preschool children, the vast majority of which were African-American and from a disadvantaged population (95%). As with Arnold et al. (2008), teachers at the preschool provided the information for the PI measure. Therefore, these studies only take into account school-based PI. These incongruent findings suggest a need for more comparisons of PI and SES with preschool children.

found, however, that parents from two-parent families were more involved than those from single-parent families ($p < .001$).

Fantuzzo et al. (2000) also found that family composition influences PI. This study was conducted in order to create a valid multivariate scale for family involvement for urban students in preschool through first grade. Results of this study suggested that married couples participate in significantly more home-based activities with their children, as well as home-school conferencing ($p = .05$), when compared with unmarried parents (Fantuzzo et al., 2000).

In studies that compare parent employment status and PI, more conflicting results were found. Fantuzzo et al. (2000) found that employment status was not significantly correlated with frequency of PI. However, in a study by Castro et al. (2004) findings suggest that employed parents were less likely to be involved in school-based PI ($p < .001$).

This disparity in results could be due to the type of PI being examined, because while Fantuzzo et al. (2000) examined home and school-based involvement, Castro et al. (2004) only measured school-based PI. This conflict in the research further strengthens the argument that PI is multifaceted and will often result in varying research outcomes.

Parent education level is yet another demographic characteristic that is continuously examined by PI researchers. Several researchers have found that parent education is positively correlated with PI (Arnold et al., 2008; Castro et al., 2004; Englund et al., 2004; Fantuzzo et al., 2000). Most of these studies reported a positive association between higher levels of PI and higher levels of parental education (Arnold et
Interestingly, Castro et al. (2004) found that parents with more education were less likely to be involved in school-based activities. Again, this could be due to the fact that Castro et al. (2004) only examined school-based PI and did not take into account home-based PI.

The relationship between gender and PI has also been explored. For example, the findings of two different studies suggest that PI is influenced by parent gender (Mcbride et al., 2009; Huntsinger & Jose, 2009). Mcbride et al. (2009) sought to explore the effects of early parenting on later school-based PI and student achievement. The mother and a “secondary caregiver,” (the father or father-figure) as defined by the researcher, completed questionnaires. Researchers found that increased PI by fathers was negatively associated with later achievement, while higher levels of PI by mothers were positively associated with achievement (Mcbride et al., 2009). Results also revealed different trends in how mothers and fathers chose to be involved with their children.

In another study that explored the relationship between PI and gender, Huntsinger and Jose (2009) sought to examine various types of PI (i.e., communication, volunteering at school, and home learning) between two different ethnic groups (Immigrant Chinese Americans and European Americans) in the United States. They found that, regardless of ethnicity, mothers were more involved with their child’s schooling than fathers.

One final demographic characteristic that has been frequently examined by PI researchers is ethnicity. In a study focused on ethnic factors, Keels (2009) surveyed 1,198 mothers representing four different ethnic groups (English-speaking Hispanic, Spanish-Speaking Hispanic, European-American, and African-American). The purpose
of this study was to explore the relationships between ethnic group differences in parenting beliefs and behaviors, and early cognitive development, as well as several other academic factors.

Findings revealed significant ethnic group differences in parenting beliefs. European-American mothers were found to have the most knowledge of child development and also had the highest parent behavior scores suggesting a higher level of PI for this ethnic group (Keels, 2009). The researcher suggested that trends in this study point toward acculturation playing a role in how involved parents are in their child’s education. Interestingly, this study also found that lexical knowledge (which was used as way to measure the mothers’ cognitive skills) significantly reduced the significance of ethnic group differences (Keels, 2009).

Huntsinger and Jose (2009) also found that PI varied based on ethnicity. This study was one of the few that found in the general PI literature that targeted middle class, highly educated parents for participation. The researchers found that Chinese American parents used more traditional methods of instruction in the home as compared with European American parents (Huntsinger & Jose, 2009). They also found that European American parents participated at a significantly higher rate ($p < .001$) than Chinese American parents in school-based activities.

While many different demographic characteristics have been compared with PI, no such comparisons were found for parent age and PI. Also, only one study by Marcon (1999) examined the relationship between parent satisfaction with the program in which their child is enrolled and PI. In this case, parent satisfaction was found to be a significant
predictor of PI ($p < .001$). The limited research with these demographic characteristics suggests a need for more studies that compare demographic characteristics and PI.

The same study found that parents of children enrolled in Head Start had significantly higher PI scores ($p < .001$) than parents whose child was enrolled in other programs (Marcon, 1999). This finding could be due to the fact that parent involvement is an important focus of all Head Start programs. These encouraging results suggest that school policy makers and teachers have the power to increase parent involvement in schools. It would behoove education researchers to further examine the relationship between program characteristics and PI to provide support for the importance of school and parent partnerships.

Examination of the literature that compared demographic characteristics and parent involvement as a whole suggested that families from different backgrounds approach PI in different ways. Although many studies report strong associations between various demographic characteristics and PI, almost as many refute these associations. Some of these discrepancies appear to be due to different definitions for PI (i.e., school-based vs. home-based, active vs. passive etc). The frequent conflicts found in the results of these studies imply a need for more research that compares demographic characteristics including family composition, ethnicity, gender, parental education level, parent age, and socioeconomic status. Also, most of the research in this area only examines school-based parent involvement, while a more limited number of studies examine home-based PI.

It should also be noted that while the general education literature may often conflict, more studies exist in this area than in the music education literature. Currently,
the study of demographic characteristics and musical PI with preschool children is almost non-existent. The paucity of research makes it difficult to generalize, and indicates a strong need for study of this relationship in the field of music education. This is especially true for home-based musical PI.

**The creation of parent involvement frameworks.** In order to better define PI, several researchers have created multi-factor frameworks that further reveal different types of parent involvement. Epstein (1995) created one of the most influential of these frameworks. This six-factor framework describes the types of involvement seen in school, family, and community partnerships for children aged 5 through 18. These factors include parenting, communicating, volunteering, learning at home, decision-making, and collaborating with community. Many of these factors were explored in the studies discussed in the literature review. In fact, this framework is often used as a basis for the creation of PI measures used in the research found in this literature review. Therefore, even though this framework was not designed specifically for preschool populations, it was influential to several researchers and is, therefore, included in this review.

As far as can be determined, one researcher has created a parent involvement framework for preschool children. Fantuzzo et al., (2000) created the Family Involvement Questionnaire (FIQ) in combination with a research committee that included university researchers, school administrators, teachers, and parents. The FIQ was then completed by 641 primary caregivers of urban, disadvantaged youth from preschool through first grade. A factor analysis of the results revealed three factors: home-based
involvement, home-school conferencing, and school-based involvement. In this case, partnerships with the community were not featured as they were in Epstein (1995).

**Summary**

Both educators and researchers value knowledge about parent involvement and home environment. Although an extensive amount of research has been conducted in the field of music education related to parental involvement and home environment, only limited research has focused on parents with children aged 3 to 5 years. This scarcity of research has resulted in no valid and reliable scales exist to measure musical home environment at the preschool age. Without such a measure, researchers cannot accurately assess the musical home environment of this population.

Investigation into the musical home environment of preschool children using a reliable measure would provide important information to both researchers and educators. Early childhood music educators could benefit by increasing their knowledge of the musical home environment of the families they serve. Educators would be able to use such a measure to determine what types of families (based on information related to demographic characteristics and parental musical background) participate in these programs and also what type of families provide the most music in the home. These findings would provide more information about what populations to target when trying to increase musical interactions in the home through instruction. Because the home environment is so influential, especially for children who have not yet entered school, increasing musical interactions in the home is the goal of many early childhood music
educators. This measure would, therefore, be a valuable tool for educators that wish to promote music making in the homes of the families they serve.

Music researchers would also benefit from this type of research by gaining a more complete view of musical parent involvement with preschool-aged children. Such information could lead to a better understanding of how parent involvement varies in different age groups. In addition, several music researchers are interested in how home environment and parent involvement may influence music achievement, music aptitude, and music retention. A musical home environment scale that could reliably measure home environment could be used to explore the relationship between PI-HE and music achievement and music aptitude during the preschool years.

In addition to a lack of reliable measures, no researchers have attempted to examine the underlying structure of the musical home environment of preschool children through the creation of a framework. Such a venture would serve to reveal the underlying characteristics of the musical home environment for this population. Such a tool would provide future researchers with more information about what specific characteristics comprise the musical home environments of preschool children. Also, this framework could be compared with other frameworks to determine how home musical environment may change throughout a child’s development.

Several educators have suggested that early childhood music programs could increase musical interactions in the home. However, no research-based evidence currently exists to support this theory. Because parents are often directly involved in the music making and instruction that occurs in the early childhood music setting, this type of
parent involvement differs from other types, such as volunteering at school or checking homework. This type of participation is rare in music education and is likely to affect the home environment in a different way than other types of parent involvement.

Unfortunately, a paucity of music research has investigated the connection between parental participation in instruction and the home environment.

In general, little is known about parent views on early childhood music instruction. As far as can be determined, no research has focused on parents who have enrolled their child in an early childhood music enrichment program. Although researchers and educators suggest that parent involvement in this programs is beneficial, no research has been conducted that explores parent perceptions of their experience. Therefore, an initial exploration that gathered information about parent attitudes and perceptions of the benefits of early childhood music enrichment programs would be beneficial to the early childhood music field. This information can also be used to determine how and if music class participation influences the home.

In both the general education and music literature, the vast majority of parent involvement and home environment research is focused on the effect that PI-HE has on the school environment or child success (i.e., achievement, retention, etc.), while substantially less research has focused on how instruction influences the home. This research has been completed using a variety of research designs, participant types, and varying definitions of what exactly constitutes PI-HE. Due to the variance in how these studies were completed, a great deal of inconsistency is evident in the findings, making generalization of results difficult.
Finally, the findings discussed in this review suggest family demographic characteristics such as gender, age, family composition, socioeconomic status, education level, and ethnicity affect parental involvement and the home environment. This is another area where researchers have often reported conflicting findings. Furthermore, substantial evidence suggests that parental music experience affects musical interaction and home environment. Research has been conducted in this area; however, this review reveals that these variables have not been examined using the preschool early childhood music population. This lack of research warrants further investigation.

A great deal of research has been done concerning PI-HE; however, clear gaps and a general trend of inconsistent findings are evident in the research. These gaps have resulted in an unclear picture of how music is experienced by preschool children and the people who care for them. Through the creation of a valid and reliable measure from which the underlying structure of musical PI-HE can be derived, several gaps in the research will be addressed.

The present study will seek to determine how preschool children and parents are using music in the home. This information will then be used to create a proposed home environment framework for the target population, which will describe how the home musical environment is structured. Finally, the results related to musical home environment will then be correlated with various other factors including demographic characteristics, parental music experiences, and early childhood classroom music experiences to determine how these variables may influence the home.
Information about what contributes to that environment would provide educators with more opportunities to increase music in the homes of young children. Therefore, a study that explores not only the home environment, but also to what extent that environment is influenced by parental music experience, music class experiences, and demographic characteristics, would greatly increase the knowledge for parents, educators, and researchers about the musical home environment of preschool children.
Chapter 3

Method

The purpose of this study was to examine the musical home environment of preschool children aged 3 to 5 years old enrolled in an early childhood music class. This study also examined how the musical home environment was affected by demographic characteristics, parental musical experience, and early childhood music instruction.

1. What are the characteristics of the musical home environment (i.e., musical interactions and musical materials) and parental personal musical experience?

2. What are the attitudes of parents involved in early childhood music classes in regards to their level of satisfaction, their motivation for enrolling their child, and their perception of the benefits of the music program in which their child is enrolled?

3. What do parents involved in early childhood music classes perceive as the most enjoyable, most interesting, and most challenging aspects of their early childhood music program participation?

4. What are the underlying factor structures of the musical home environment, parental music experience, and early childhood music class experiences for preschool children?

5. What independent variables (i.e., parental musical experience, early childhood classroom experiences, and demographic characteristics) best predict the musical home environment factors determined via research question 4?

Participants

Recruitment

Participants in this study were drawn from intact early childhood music programs that were offered through a university or college in the United States. Specifically, the
programs used for recruitment include the University of Miami MusicTime program in Miami, Fl, The Early Childhood Music Program at Eastman School of Music in Rochester, NY, and MusicPlay at Oberlin College in Oberlin, Ohio. Participants were recruited by contacting the program administrator of each program outlined. The researcher and the directors of the programs opted not to use an online survey instrument due to the likelihood of a low response rate from parents with young children.

All administrators were contacted via a participant request letter (see Appendix A). Once the administrator agreed to participate in the study via email confirmation they were asked to provide the number of individuals enrolled in their respective programs that met the inclusion criteria (i.e., parents or primary caregivers of children aged 3-5 currently enrolled in the program who could read/understand English) for the study. For the sites that distributed paper surveys, the researcher sent survey and consent forms to the recruitment site.

For the phone interview recruitment, the initial contact with the program director was the same as outlined above. Once the number of potential participants who met the inclusion criteria was determined, the program director sent an email to the potential participants (see Appendix B) asking them to participate in the study. The program director then compiled a list of willing individuals that included their name and contact information for use in setting up phone interviews. The researcher then contacted the individuals on the list to confirm their willingness to participate and to set up an interview using a recruitment script (see Appendix C).
Population and Sample Selection

The population targeted in this study was parents or primary care givers, who lived with children between the ages of 3-5 years who were enrolled in university-based early childhood music program at the time of study. Participants represented three areas of the United States including New York, Florida, and Ohio.

The early childhood sites utilized were selected for several reasons. First, they all serviced the population being studied. Also, the sites were similar in that they are all affiliated with a college or university program. These programs also have distinct differences. Some programs use a well-known published curriculum such as *Musikgarten™* while others use non-published curricula developed by the program directors. The variation in types of curricula used provides a greater amount of variability and generalizability to the study. Furthermore, the general populations in these areas differed greatly providing a more varied demographic and increasing the generalizability of this study. Furthermore, the directors of these programs are all experts in the field of early childhood educational research and the instructors in the programs all hold music degrees.

Participation in the study was on a volunteer basis and no compensation for participation was provided. Gender of the parent or child, age of parent, socio-economic status, educational level, race, or ethnicity did not impact eligibility for participation. The measurement instrument was distributed to all persons who at each site whose child was between the ages of 3 and 5 years to ensure the highest number of participants.
possible. Based on enrollment in all three programs when data collection took place, 242 families meet the inclusion criteria for this study.

**Consent**

The parent or primary caregiver completing the measure gave informed consent. A waiver of signed consent was approved through University of Miami’s Institutional Review Board. Consent was established using a consent letter attached to the measure explaining the purpose of the study, possible risks and benefits, how the information was to be used, and the rights of the participant (see Appendix D). For phone interviews, a consent letter was read to the participant prior to conducting the interview (see Appendix E). No personal information was published as part of this study and participant information was gathered anonymously. For reporting purposes, surveys were coded by site so that results could be separated for each individual program. Participation in this study was on a volunteer basis so prospective participants had the right to deny consent and/or terminate their participation in the study at any time.

**Pilot Study**

The PUMPS was piloted using a subset of the participants from the Florida recruitment site \((n = 12)\) in order to check for language and content errors. These participants were then excluded from participation in the full study. Based on the responses from the pilot, one change was made to the measure prior to distributing it to the full sample. The direction “Please select only one option” was added to question 40 (What is your favorite musical activity to enjoy with the child?) and question 41 (What is your favorite genre of music to enjoy with the child?) in order to clarify that only one choice was to be selected.
Response Rate

For the Eastman Early Childhood Music Program in Rochester, NY a total of 117 surveys were distributed to families of which 49 were returned for a response rate of 42%. For UM Musictime in Miami, FL, a total of 107 surveys were distributed to families for recruitment of which 45 surveys were returned. This represents a 42% response rate. Finally, for MusicPlay in Oberlin, OH, a total of 24 families were initially contacted for recruitment. A total of nine families completed an interview for a response rate of 38%. The total number of respondents for this study \( (N = 103) \) represents a 43% response rate.

Responding Participant Personal Demographics

Table 1 represents the personal demographics for each recruitment site as well as the sample as a whole.

**Personal demographics of NY sample.** The vast majority of participants from NY were parents (97.9%) of a child enrolled in the Eastman Early Childhood Music Program in Rochester, NY. The remaining participant was a grandparent \( (n = 1) \). Participants were mostly women (83.7%). The age of the sample ranged from under 20 to 59 with the majority between 30-49 (95.9%). Most were married (91.8%) and lived in homes with two caregivers (91.8%). Participants from this location represented four different races/ethnicities including Caucasian/White (65.3%), Asian/Pacific Islander (26.5%), Hispanic (6.1%), and African-American (2.0%).
Table 1

**Personal Demographic Characteristics of Participants**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>NY site  (n = 49)</th>
<th>FL site  (n = 45)</th>
<th>OH Site  (n = 9)</th>
<th>Total (N = 103)</th>
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<td><strong>Relationship to Child</strong></td>
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<td>21</td>
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<td>30</td>
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<td>11</td>
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<td>27</td>
<td>3</td>
<td>65</td>
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<td>Part-Time Outside the Home</td>
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<tr>
<td>Other</td>
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<tr>
<td>Unemployed</td>
<td>1</td>
<td>2</td>
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</tbody>
</table>
The greatest percentage of the sample (63.3%) reported their annual total household income to be $70,000 or above. Fewer participants (24.5%) reported their annual total household income to be between $50,000-$70,000. Only 12.2% of participants reported an annual income below $50,000. In terms of education level, 61.2% of participants reported their highest level of education to be an advanced/professional degree.

Fewer participants (22.4%) had obtained a 4-year college degree, 14.3% had completed some college and 2.0% had obtained a high-school diploma/GED. In general, participants from NY were highly educated, the majority having obtained a bachelors degree or higher (83.6%).

Participants also reported current employment status. Employment status varied from full-time outside the home (71.4%), stay-at-home caregiver (12.2%), part-time outside the home (10.2%) or otherwise employed (4.1%). Participants who selected the “other” option on the survey described their employment status as a student (2%) or self-employed (2%). Finally, only 2% of the participants reported being unemployed.

Participants reported demographic information for the child they enrolled in music class. The highest percentage of children were 3-years-old (46.9%) followed closely by 4-year-old children (42.9%). The number of participants with children who were 5 years of age (10.2%) was considerably less. The gender of the children was fairly evenly distributed within the sample (44.9% male children and 55.1% female children).

**Personal demographic characteristics of the FL sample.** Demographic characteristics for the FL sample were similar to the NY sample. The majority of the FL participants (n = 45) were parents (97.8%) and the remaining 2.2% were grandparents of
the children enrolled in UM MusicTime located in Miami, FL. Again, a greater number of participants were women (84.4%). Respondents ranged in age from 20 to over 60. The majority of participants (95.6%) were between 30 and 49 years of age. Also similar to the NY participants, most were married (88.9%) and most children enrolled in a music class lived with two caregivers (88.9%). Finally, participants reported their race/ethnicity as Hispanic (53.3%), Caucasian/White (42.2 %), or Asian/Pacific Islander (4.4%).

The majority of FL participants reported their annual household income level as $70,000 or above (82.2%) with less reporting annual incomes of $50,000-$70,000 (13.3%) and $30,000-$50,000 (2.2%). Just as with the NY participants, education levels reported were generally high with 66.7% of participants having obtained an advanced or professional degree. Remaining participants obtained a 4-year college degree (22.2%) completed some college (6.7%) or an associate’s degree (4.4%). Participants worked full-time outside of the home (60%) or part-time outside the home (11.1%). Stay-at-home caregivers represented 24.4% of the sample at this location and 4.4% of participants were unemployed.

Finally, FL participants provided demographic information about the child currently enrolled in music class with 53.3% being female. At the time of the study, nearly half of the children were 3-years-olds (48.9%), 37.8% were 4-year-olds and the remaining 13.3% were 5-year-olds.

**Personal demographic characteristics of the OH sample.** The final subset of participants ($n = 9$) was drawn from MusicPlay at Oberlin College in Oberlin, OH. Respondents from this location were nearly all parents (88.9%) with only one participant being a grandparent (11.1%). All respondents were women between the ages of 30-59.
All but one participant (88.9%) were married and all participants reported that the child enrolled in MusicPlay lived in a home with two caregivers. The vast majority of participants from OH were Caucasian/White (88.9%) and the ethnicity of the remaining participant was Asian/Pacific Islander (11.1%).

All participants from OH reported an annual household income at or above $30,000 with 82.2% of the sample reporting an annual income of $70,000 or higher. This subset of the full sample also reported high levels of education. Advanced/Professional degrees were obtained by 44.4% of the sample, 22.2% obtained a 4-year college degree and 11.1% had completed some college. OH participants reported various employment statuses including full-time outside the home (33.3%), stay-at-home caregiver (22.2%) part-time outside the home (22.2%), or unemployed (11.1%).

Participants reported demographic information for the child whom they brought to MusicPlay. The gender of the children was equally distributed among these participants (55.6% females and 44.4% males). The ages of children were more evenly distributed than at the other two sites. Four-year-olds represented 44.4% of the sample, 33.3% were 3 years of age, and the remaining children (22.2%) were 5 years old.

**Total sample demographic characteristics.** In general, the majority of participants were married mothers between the ages of 30-49. Participants overall represent a high SES level. The majority (71.8%) reported an annual household income of $70,000 or above and had also obtained an advanced or professional degree (62.1%) or traditional 4-year college degree (22.3%). Most are also employed full-time outside the home (63.1%). There were far more Caucasian and Hispanic respondents (83.5%) than African-American or Asian respondents (16.5%).
Overall, there was an even distribution of male (46.6%) and female (53.4%) children enrolled in early childhood music classes among the respondents from all three locations. Most of the children were 3-year-olds (45.6%) followed closely by 4-year-olds (40.8%) and 5-year-olds (13.6%) were the lowest numbers in the total sample.

**Instrumentation**

The instrument used in the study was a researcher-constructed survey titled *Parents’ Use of Music with Preschool Students (PUMPS)* (see Appendix F). Due to a lack of measures for this age group, the survey was based on several previously created measures designed for other ages, including Custodero’s (2003) *Parent Use of Music With Infants Survey (PUMIS)*, Brand’s (1985) *Home Musical Environment Scale (HOMES)*, Zdzinski’s (2008) *Parent-Involvement and Home Music Environment Scale (PI-HEM)* and the research questions of this study. A survey specifications matrix was created to demonstrate that all the independent and dependent were featured in the measure (see Appendix G).

The measure consists of four sections including demographic information, parental personal music experience, early childhood music experiences, and musical home environment. The *PUMPS* included multiple choice, likert-scale, and open-ended items. The *PUMPS* measures several variables, including: (a) demographic information, (b) parental personal musical experience, (c) early childhood music class experiences, and (d) musical home environment.
Demographic Information

The measure gathers demographic information through 11 items related to age of child and parent, gender of child and parent, race, family composition, socio-economic status, and level of parental education. This demographic information provides information about the generalizability of the participant population, and the relationship between home environment and demographic information for research question five.

Parental Music Experience

Parental music experiences were measured using nine items. One item identified if participants were sung to as a child in order to define their personal early musical home environment. The item was adapted from the PUMIS (Custodero, 2003). Three items determine past musical experiences with singing, playing an instrument, and personal music study (i.e., musical lessons). These items were adapted from similar items found on the PUMIS (Custodero, 2003) and PIHEM (Zdzinski, 2008). Three items inquire about the musical practices of the parents and children related to singing, playing an instrument, and attending musical events. Similar items can be found on the PIHEM (Zdzinski, 2008), PUMIS (Custodero, 2003), and the HOMES (Brand, 1985). Finally, two items focus on the parental attitude toward music. The first item was used to determine whether or not participants felt their musical experiences led them to enroll their child in a music class. The final item will be used to gauge the participant’s general feelings towards music.

Early Childhood Music Experiences

Items in section two of the PUMPS provided information about early childhood music class experiences. The most enjoyable, interesting, and challenging aspects of early
child music participation were determined using three open-ended items on the \textit{PUMPS}. These questions were adapted from a measure by Zdzinski (2004). Items in section two inquire about parental attitudes about the parent’s perception of the child’s level of musical skill as a result of early childhood music instruction and the parent’s perception of their own knowledge of age-appropriate music as a result of early childhood music instruction. Items also determined the parent’s level of satisfaction with their child’s early childhood music class, and their motivation for enrollment of their child in a music class.

The final four items in this section of the survey were used to obtain information about participation in early childhood music classes and instruction. Specifically, the items were used to determine how long the child had participated in early childhood music, what activities were featured during instruction, what musical materials were given to the families enrolled in the program, and the parent’s level of participation in music class.

\textbf{Musical Home Environment}

Several items on the \textit{PUMPS} were used to ascertain the home environment. Eight items on the \textit{PUMPS} inquire about the type and frequency of musical interaction in the home. These items were adapted from similar items found on the \textit{HOMES} (Brand, 1985) and the \textit{PUMIS} (Custodero, 2003). Types of musical interactions being addressed include singing, playing of instruments, moving to music, reading and writing music, listening to music, attendance at musical events, and early childhood music activities practiced in the home.
To determine what musical materials exist in the home, three items gathered information about the number of musical instruments, musical toys, and music listening materials (CD player/MP3 player etc.) in the home. These items were also based on items on the HOMES (Brand, 1985) and the PIHEM (Zdzinski, 2008).

**Reliability**

Reliability was determined using an *alpha* coefficient. An inter-item reliability analysis of the entire measure was not possible due to its multidimensional nature. Also the demographic information collected from the survey was also not suitable for reliability analysis. Therefore, three sub-sections of the survey (i.e., parental music experience, early childhood music experiences, and music home environment) were individually tested for reliability.

**Parental music experience reliability analysis.** Items included in this subset were items 12-20 on the PUMPS. Items with multiple selection options (i.e., please mark all that apply questions) were separated into individual yes/no items for analysis. Parental music experience items were also standardized so they would be on the same metric and were all analyzed together which produced a Chronbach’s *Alpha* of .663. In order to increase the reliability of this subset, items with the lowest reliability were deleted. Several items related to current instrument playing activities were deleted because no respondents reported participating in these activities, which resulted in zero variance. These items included 15a, (Do you currently play an instrument in an ensemble?) 15b, (Do you currently play an instrument in a small group?) and 15d (Do you currently play an instrument in music lessons?). Two other items were also removed due to poor reliability. These items were 18 (How often do you attend concerts or other
musical events?), 20 (How much do you like music?) After these items were removed, the parental music experience subset was re-analyzed and produced a Cronbach’s Alpha of .686.

**Early childhood music experiences reliability analysis.** Items related to early childhood music experiences on the PUMPS (i.e., items 21-28 excluding item 25 which was an open-ended question) were also analyzed for reliability. Items with multiple selection options (i.e., “please mark all that apply” questions) were separated into individual yes/no items for analysis. An initial analysis with all items produced a Cronbach’s Alpha of .566. Items were then removed to improve reliability. Item 22 (How do you participate in the child’s music class?) was altered. Three options were removed from reliability analysis (i.e., I drop them off, I observe the class, and I participate in part of the class). One option on question 24 (i.e., handouts/written musical notation of songs and poetry) was also removed. These choices were removed because they were either not selected at all or were selected by everyone resulting in no variance for these items. After these items were removed the Cronbach’s Alpha was .701.

**Musical home environment reliability analysis.** Reliability analysis of the home environment questions on the PUMPS, excluding open-ended questions (i.e., items 33-44) resulted in a Cronbach’s Alpha of .498. Eliminating two items that sought to gauge parent’s favorite genre of music and musical activity to enjoy with their child (i.e., items 40-41) resulted in a Cronbach’s Alpha of .707. These items had poor reliability due to participant error. Many misread the directions and mistakenly selected more than one option.
Validity

Validity was demonstrated in several ways. Content validity was established through the use of a survey specifications matrix (see Appendix G). Also, content validity was further established through a panel of experts who examined the initial survey developed by the researcher. They suggested revisions, additions, and eliminations of items. This panel included the program directors of the early childhood music programs from which participants were recruited. All program directors hold advanced degrees in music education and have both conducted research and taught in the field of early childhood music. Finally, Stephen Zdzinski, who is an expert in home environment and parent involvement, was also included in the panel. Other home environment studies have used this form of validity, such as Brand’s survey, the HOMES (1985).

Data Collection

Data collection was completed via paper surveys or phone interviews. The time taken to do this was minimal because it is a self-reporting measure. Participants in the study were expected to commit an average of 10-15 minutes to complete the measure. This time estimate is based on Custodero’s (2003) findings, which is the basis for the measure used in this study. During this process the only costs were postage, shipping, phone usage, and the materials used to produce the paper surveys. Because participation in this study was on a volunteer basis, the researcher assumed responsibility for all costs.

The program director or teaching staff at two of the sites distributed paper surveys along with a consent form. The parents were given two weeks to complete the measure before they were to return it to the staff member at the site. After all measures were been
collected, they were returned via mail or in person to the researcher. If participant surveys were completed via phone interview, interviews were recorded and a verbatim transcript was created for each participant.

Data Analysis

All data collected using the PUMPS was coded and entered into spreadsheets for analysis. Participants with missing data were excluded from the related analysis. The completed spreadsheets were then imported to the software program Statistical Packages for the Social Sciences v. 19 (SPSS). Survey responses were first analyzed using descriptive statistics to check for normality of continuous distributions and to obtain descriptive information on the demographic characteristics of the sample.

Research Question One

In order to determine the characteristics of the music home environment and parental music experience, descriptive statistics including mean, standard deviation, skewness, percentages, and frequency counts were utilized to analyze survey responses. Characteristics of home environment and parental music experience were determined with PUMPS items 12-20 and 33-44 (See Appendix F).

Research Question Two

The attitudes of parents with regard to the level of satisfaction, the motivation for enrolling their child in a music class, and their perception on the benefits of the program in which their child is enrolled were determined using descriptive statistics. Mean, standard deviation, skewness, percentages, and frequency counts were utilized to analyze survey responses. Characteristics of early childhood music experiences were determined with PUMPS items 21-28 (See Appendix F).
Research Question Three

To determine what parents felt the most enjoyable, interesting, and challenging aspects of their early childhood music participation were, content analysis of the open-ended responses provided for PUMPS items 29-31 was performed (See Appendix F). The researcher coded the responses, searched for common themes, and then extracted thematic elements. Content analysis results were then analyzed using frequency counts and percentages.

Research Question Four

In order to determine the underlying factor structure of the various subsets of the PUMPS including parental music experience, musical home environment, and early childhood music experience, an exploratory factor analysis was conducted. Only continuous data (i.e., linear variables) from each of the subsets were used, as categorical variables are inappropriate for factor analysis. In order to determine if the data were appropriate, a correlation matrix was produced and examined for stability. Any variables that did not correlate with the majority of other variables at the appropriate level (.05 to .9 preferred) were eliminated from analysis. The significance of the correlations between variables was also examined to ensure the majority of the correlations were significant ($p \leq .05$) (Field, 2005).

This data set was also analyzed to ensure the sample size was sufficient using Kaiser-Meyer-Okin (KMO) which must exceed .05 for factor analysis to be appropriate. Finally, Barlett’s Test of Sphericity was conducted to ensure that the correlation matrix was not an identify matrix (i.e., all correlations = 0). The result of this test must be significant ($p = < .001$) in order to continue with factor analysis (Field, 2005).
Once the data were deemed appropriate, an exploratory factor analysis was conducted using Principle Axis Factoring, also known as common variance factoring. This type of factor analysis was chosen because it is used when factors are expected to share variance. Because the subsets of the PUMPS are meant to examine one area, it was assumed the items would be related (Asmus, 1989).

The number of factors was determined utilizing a scree test to produce eigen values. Eigen values were charted and visually dropped off after a certain number of items. This drop off point determined the number of factors that were produced for each factor analysis. Factors were initially produced in an unrotated form. Again, because the factors are logically related, oblique rotation was used. Items that had a loading of $\geq .3$ were considered as part of the factor. Finally, the factors produced were described in detail (Asmus, 1989).

**Research Question Five**

To explore what independent variables (i.e., parental musical experience, early childhood classroom experiences, and demographic characteristics) best predict the dependent variables (i.e., musical home environment factors determined via research question 4) this study utilized simultaneous multiple regressions. After factor analysis, composite variables were created based on the items that loaded onto each individual factor. Because the research scored items on the PUMPS were scored using different metrics, standardized values (i.e., z-score computations) were used to create the composites. These composite variables then represented the average score for each individual on any given factor. Because a factor analysis of the demographic subset was
not appropriate, individual items from the demographic section of the PUMPS served as independent variables.

Separate multiple regressions were conducted by the researcher to determine how the independent variables predicted each of the factors found for musical home environment. A final multiple regression was done to determine how the independent variables predicted musical environment as a whole. In order to do this, a new composite variable was created which combined all of the musical home environment factors into a single variable.
Chapter 4

Results and Discussion

The purpose of this study was to examine the musical home environment of preschool children aged 3 to 5 years old enrolled in early childhood music classes. This study also examined how musical home environment was affected by demographic characteristics, parental musical experience, and early childhood music instruction. In order to accomplish this purpose, five research questions were proposed. Results discussed in this chapter, therefore, address the following:

1. What are the characteristics of the musical home environment (i.e., musical interactions and musical materials) and parental personal musical experience?

2. What are the attitudes of parents involved in early childhood music classes in regards to their level of satisfaction, their motivation for enrolling their child, and their perception of the benefits of the music program in which their child is enrolled?

3. What do parents involved in early childhood music classes perceive as the most enjoyable, most interesting, and most challenging aspects of their early childhood music program participation?

4. What are the underlying factor structures of the musical home environment, parental music experience, and early childhood music class experiences for preschool children?

5. What independent variables (i.e., parental musical experience, early childhood classroom experiences, and demographic characteristics) best predict the musical home environment factors determined via research question 4?
Results

Preschool Musical Home Environment

Research question 1 focused on characteristics of musical home environment as well as the participant’s level of music experience. The first characteristic analyzed was musical interactions between the child and caregiver in the home.

Musical interactions in the home. Table 2 shows the descriptive analysis of the home musical interaction items from the PUMPS. All of these items were scored on a scale from 1 (0-1 times a week) to 5 (several times daily). Singing was found to have the highest overall mean ($M = 3.83; SD = 1.072$). Singing was followed closely by playing recordings for/with the child ($M = 3.62; SD = 1.152$), and moving to music with the child ($M = 2.84; SD = 1.152$) respectively.

Performing music from early childhood music classes ($M = 1.96; SD = 1.014$) and playing instruments ($M = 1.76; SD = 1.101$) occurred less often, overall, but was still occurring in most homes on a weekly basis. The type of interaction that occurred least often was composing or reading musical notation ($M = 1.14; SD = .546$).

Although not occurring in the home, child attendance at musical events was included because it is a musical activity experienced by the child. This item was scored on a scale from 0 (never) to 2 (often) and served to demonstrate how often caregivers choose to expose the child to new musical experiences. The average response ($M = .98; SD = .507$) to this item suggests that children in this sample attend musical events somewhere between never and often. The choice on the PUMPS that corresponds to this mean was “sometimes.”
Table 2
Musical Interactions in the Home Means

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sing with Child</td>
<td>102</td>
<td>3.83</td>
<td>1.072</td>
<td>-.790</td>
</tr>
<tr>
<td>Play Recordings for Child</td>
<td>102</td>
<td>3.62</td>
<td>1.152</td>
<td>-.789</td>
</tr>
<tr>
<td>Move to Music with Child</td>
<td>102</td>
<td>2.84</td>
<td>1.295</td>
<td>-.036</td>
</tr>
<tr>
<td>Perform Activities from Class with Child</td>
<td>102</td>
<td>1.96</td>
<td>1.014</td>
<td>.951</td>
</tr>
<tr>
<td>Play an Instrument For or With Child</td>
<td>102</td>
<td>1.76</td>
<td>1.101</td>
<td>1.255</td>
</tr>
<tr>
<td>Write or Read Music with Child</td>
<td>102</td>
<td>1.14</td>
<td>.546</td>
<td>4.558</td>
</tr>
<tr>
<td>Child Attendance at Musical Events</td>
<td>102</td>
<td>.98</td>
<td>.507</td>
<td>-.037</td>
</tr>
</tbody>
</table>

Note: Participants with missing home musical environment data (n = 2) were excluded from analysis.

The researcher also examined frequency counts to determine how often various musical interactions occurred in the home on a weekly basis among the participants (see Appendix H). This analysis revealed that 72.5% of caregivers sang with their child at least once a day. Participants most often reported that they sang with the child once a day (43.1%). Music listening also occurred frequently in the homes of the sample. Music listening occurred once a day or more in 65.7% of homes. The most frequently reported response for music listening was once a day accounting for 44.1% of the sample.

Moving to music also occurred on a fairly regular basis with 38.2% of respondents moving to music on a daily basis or more. This variable had the most variance in responses. The most frequently selected response was “daily” which accounted for 29.1% of the sample.

Early childhood music class activities were less prevalent in the home on a weekly basis. Only 8.9% of respondents reported doing these activities on a daily basis. In fact, 74.5% of participants reported doing class activities 3 times a week or less. Use of musical instruments was also relatively infrequent in the homes of the participants. The majority of participants (58.8%) reported playing instruments for or with their child.
0-1 times a week. Only a small number of participants (13.7%) reported using instruments on a daily basis or more in their home. The most infrequent musical interaction reported by the sample was composing or reading music. The vast majority of participants reported that they compose or read music with the child 0-1 times a week (92.2%).

**Musical materials in the home.** Because items related to musical materials were scored using different metrics, these items were analyzed using frequency statistics in order to make comparisons among items (see Table 3). Overall, participants reported having a variety of musical materials in their homes. The majority of participants surveyed revealed that they had several music listening devices (67.0%) in their home. All participants reported that they had at least some musical listening devices in their home. All families surveyed also had at least some musical toys in their home with the majority (64%) reporting that they had a lot of musical toys in their home.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Musical Materials in the Home Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
<td>n</td>
</tr>
<tr>
<td>Musical Listening Devices</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Some</td>
<td>34</td>
</tr>
<tr>
<td>Several</td>
<td>67</td>
</tr>
<tr>
<td>Number of Musical Toys</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Some</td>
<td>37</td>
</tr>
<tr>
<td>A lot</td>
<td>64</td>
</tr>
<tr>
<td>Number of Musical Instruments</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>3 or more</td>
<td>54</td>
</tr>
</tbody>
</table>
The most variation was found in response to the item related to the number of musical instruments present in the home. Responses ranged from no instruments to three or more. Participants most frequently reported having three or more instruments in their home (53.5%). The vast majority of participants had at least one instrument (88.1%).

Music activity and music genre preferences. Two items on the musical home environment subset of the PUMPS asked participants to report their favorite music activity and musical genre to enjoy with their child in the home. The frequency of responses was reported in Table 4. Moving to music was selected by the most respondents (40.8%) as their favorite activity followed closely by singing (32%) and dancing (26.2%). Playing instruments (12.6%), making up music (11.7%), and rhymes and fingerplays (9.7%) were selected less often.

A wide variety of responses emerged for favorite music genre among the participants. Other children’s music (i.e., music that was not from the early childhood music program in which the child was enrolled) was selected as the most popular genre to enjoy with the child (37.9%). Songs from music class were selected by 19.4% of respondents; therefore, some form of children’s music was preferred by 57.3% of the participants. Several participants (12.6%) chose the “other” option for this item. When asked to describe their favorite genre they gave a variety of responses including church/praise music, Disney™ soundtracks, folk, Latin, and R & B. The least popular genre among the participants was country music, which accounted for only 3.9% of responses.
Table 4
Musical Activity and Genre Preferences Percentages

<table>
<thead>
<tr>
<th>Category</th>
<th>n</th>
<th>% of total responses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Favorite Music Activity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moving to Music</td>
<td>42</td>
<td>40.8</td>
</tr>
<tr>
<td>Singing</td>
<td>33</td>
<td>32.0</td>
</tr>
<tr>
<td>Listening to Music</td>
<td>27</td>
<td>26.2</td>
</tr>
<tr>
<td>Playing Instruments</td>
<td>13</td>
<td>12.6</td>
</tr>
<tr>
<td>Making Up Music</td>
<td>12</td>
<td>11.7</td>
</tr>
<tr>
<td>Rhymes and Fingerplays</td>
<td>10</td>
<td>9.7</td>
</tr>
<tr>
<td><strong>Favorite Genre of Music</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Children’s Music</td>
<td>39</td>
<td>37.9</td>
</tr>
<tr>
<td>Songs From Music Class</td>
<td>20</td>
<td>19.4</td>
</tr>
<tr>
<td>Classical</td>
<td>18</td>
<td>17.5</td>
</tr>
<tr>
<td>Rock</td>
<td>17</td>
<td>16.5</td>
</tr>
<tr>
<td>Pop</td>
<td>17</td>
<td>16.5</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>12.6</td>
</tr>
<tr>
<td>Jazz</td>
<td>5</td>
<td>4.9</td>
</tr>
<tr>
<td>Country</td>
<td>4</td>
<td>3.9</td>
</tr>
</tbody>
</table>

*Note:* The combined frequencies do not total 100%

**Parental music experience.** Parental music experience characteristics were analyzed using descriptive statistics as shown in Table 5. Participants were asked to recall how often they were sung to as a child using a scale from 0 (never) to 2 (often) as a means to gauge their own early childhood music experience in the home. Participants reported an average score of $M = 1.31; SD = .710$. This suggests that the sample was sung to slightly more than sometimes.

Participants also responded to additional items to divulge their previous experience with music. They reported the amount of personal music study they had experienced in their lifetime on a scale from 0 (none) to 3 (a lot). The mean score ($M = 1.31; SD = 1.020$) was approximately in the middle of the scale suggesting that the sample had a moderate amount of personal music study. Participants were also asked to
report whether or not they had ever played an instrument or sung in a choir using a scale from 0 (no) to 1 (yes).

Table 5

*Parental Music Experience Means*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sung To As a Child</td>
<td>1.13</td>
<td>.710</td>
<td>-.186</td>
</tr>
<tr>
<td>Amount of Personal Music Study</td>
<td>1.31</td>
<td>1.020</td>
<td>.189</td>
</tr>
<tr>
<td>Played a Musical Instrument</td>
<td>.63</td>
<td>.485</td>
<td>-.551</td>
</tr>
<tr>
<td>Sung in a Choir</td>
<td>.53</td>
<td>.501</td>
<td>-.138</td>
</tr>
<tr>
<td>Currently Play an Instrument</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Own</td>
<td>.10</td>
<td>.298</td>
<td>2.762</td>
</tr>
<tr>
<td>Other</td>
<td>.04</td>
<td>.194</td>
<td>4.845</td>
</tr>
<tr>
<td>In an Ensemble</td>
<td>.00</td>
<td>.000</td>
<td>-</td>
</tr>
<tr>
<td>In a Small Group</td>
<td>.00</td>
<td>.000</td>
<td>-</td>
</tr>
<tr>
<td>In Music Lessons</td>
<td>.00</td>
<td>.000</td>
<td>-</td>
</tr>
<tr>
<td>Currently Sing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Own</td>
<td>.30</td>
<td>.461</td>
<td>.881</td>
</tr>
<tr>
<td>Other</td>
<td>.09</td>
<td>.284</td>
<td>2.966</td>
</tr>
<tr>
<td>In an Ensemble</td>
<td>.04</td>
<td>.194</td>
<td>4.845</td>
</tr>
<tr>
<td>In a Small Group</td>
<td>.01</td>
<td>.099</td>
<td>10.149</td>
</tr>
<tr>
<td>In Music Lessons</td>
<td>.01</td>
<td>.099</td>
<td>10.149</td>
</tr>
<tr>
<td>Past Music Experience Composite</td>
<td>1.17</td>
<td>.781</td>
<td>-.229</td>
</tr>
<tr>
<td>Current Vocal Composite</td>
<td>.447</td>
<td>.573</td>
<td>1.171</td>
</tr>
<tr>
<td>Current Instrumental Composite</td>
<td>.136</td>
<td>.344</td>
<td>2.156</td>
</tr>
<tr>
<td>Current Music Experience Composite</td>
<td>.583</td>
<td>.748</td>
<td>1.576</td>
</tr>
<tr>
<td>Attendance at Music Events</td>
<td>1.85</td>
<td>.663</td>
<td>-.038</td>
</tr>
<tr>
<td>Value of Music</td>
<td>4.68</td>
<td>.598</td>
<td>-1.996</td>
</tr>
</tbody>
</table>

More participants had played an instrument \(M = .63; SD = .485\) than sung in a choir \(M = .53; SD = .501\) in their lifetime. Results revealed that more than 50% of respondents had been involved in some type of music ensemble in the past.

Participants provided information on their current engagement in musical activities using a series of yes/no items. Although respondents had participated in music in the past, the majority of participants did not engage in instrumental or vocal music at the time of the study. Respondents to the survey most often reported that they sang on their own \(M = .30; SD = .461\). A small number of participants also played an
instrument on their own ($M = .10; SD = .298$), sang in an ensemble ($M = .04; SD = .194$), sang in a small group ($M = .01; SD = .099$), or took vocal music lessons ($M = .01; SD = .099$). No participants reported that they played an instrument in an ensemble, small group, or in music lessons at the time of the study.

Some participants also reported doing other vocal ($M = .09; SD = .284$) or instrumental ($M = .04; SD = .194$) activities by selecting “other” for items 15 and/or 17 on the PUMPS. When asked to clarify in what other singing activities they engaged participants revealed that they “sang in the car” ($n = 3$), “sang in church” ($n = 1$), “sang at home/to children” ($n = 3$), or that they “sang at work/were a professional musician” ($n = 2$). When participants were asked what other instrumental activities they participated in they reported they played “at home/with children” ($n = 3$) or “were a professional musician” ($n = 1$).

Overall, participants had more past musical experiences than current musical experiences. Former music experiences (i.e., items 14 and 16 on the PUMPS) were combined to create a past musical experience composite variable with possible scores ranging from 0 to 2. Responses indicate that most participants were enrolled in one ensemble ($M = 1.17$) in the past. Current musical experiences were also combined into a composite with a possible range of scores from 0 (no experiences) to 10 (all current instrumental and vocal experiences including the “other” option). Scores on this composite were low ($M = .583$) suggesting participants were not frequently involved in personal music making at the time of this study.

This study also examined how often participants reported attending musical events. Responses were scored using a scale from 0 (never) to 3 (often). Results
revealed that participants attended somewhere between rarely and sometimes \((M = 1.85, \ SD = .663)\). Finally, participants were asked to report how much they liked music using a 5-point likert scale item. Participants overall seemed to value music \((M = 4.68)\).

**Participant Perceptions of Early Childhood Music Experiences**

The second research question in this study was related to participant perceptions of their experiences with an early childhood music program. Participants were asked to rate their level of satisfaction, reflect on their motivation for enrolling the child, and report their perception of how the program benefited both themselves and the child. Table 6 contains the results of the descriptive analysis completed for this research question.

In order to gain a better understanding of early childhood music experiences, the early childhood music subset of the *PUMPS* gathered additional descriptive information not directly related to the research questions of the current study. This information can be found in Table 23 (see Appendix I).

The participants were asked to rate their level of satisfaction with their early childhood music experiences using a 5-point likert scale where 1 was “very unhappy” and 5 was “very happy.” The average participant response \((M = 4.75; \ SD = .521)\) suggests that participants were quite happy with their music class experience since enrolling their child.

Two items on the measure (items 28 and 29) asked participants to gauge how beneficial early childhood music instruction had been for both them and the child enrolled in the class. In response to item 28, participants reported how much the child’s musical abilities, interest, or spontaneous music making had increased as a result of
attending music class on a scale from 0 (not at all) to 3 (a lot). The average response was high \((M = 2.34; SD = .764)\) suggesting that the sample felt that the child’s interest, ability, and/or music making had increased somewhere between “some” and “a lot” due to early childhood music class participation.

Table 6

<table>
<thead>
<tr>
<th>Topic</th>
<th>(n)</th>
<th>(M)</th>
<th>(SD)</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Attendance</td>
<td>103</td>
<td>2.08</td>
<td>.893</td>
<td>.435</td>
</tr>
<tr>
<td>Satisfaction Level</td>
<td>102</td>
<td>4.75</td>
<td>.521</td>
<td>-2.389</td>
</tr>
<tr>
<td>Perceived Benefit for Child</td>
<td>102</td>
<td>2.34</td>
<td>.764</td>
<td>-.947</td>
</tr>
<tr>
<td>Perceived Benefit for Adult</td>
<td>102</td>
<td>2.23</td>
<td>.843</td>
<td>-.956</td>
</tr>
<tr>
<td>Activities Featured in Class</td>
<td>103</td>
<td>4.06</td>
<td>1.178</td>
<td>-.628</td>
</tr>
<tr>
<td>Composite</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials Provided for Home</td>
<td>103</td>
<td>1.88</td>
<td>1.331</td>
<td>2.000</td>
</tr>
<tr>
<td>Composite</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* Participants with missing data for early childhood experience variables \((n = 1)\) were excluded from analysis.

Participants were also asked to report how much their knowledge of age-appropriate music activities had increased as a result of the child’s music class. The average response to this item was also high \((M = 2.23; SD = .843)\). This indicates that participants had learned somewhere between “some” and “a lot” about age-appropriate music activities as a result of the child’s enrollment in a music class.

Two items in the early childhood music subset of the *PUMPS* gauged participant motivation for enrolling their child. Results are shown in Table 7. One item (Item no. 19 on the *PUMPS*) asked participants if their own past musical experiences led them to enroll the child in a music class. The most frequent response to this item was “yes” (44.7%). Others felt that their musical experience did not motivate them to enroll the child (35.0%) or were unsure (20.4%).
Table 7  
*Motivation to Enroll in an Early Childhood Music Class Percentages*

<table>
<thead>
<tr>
<th>Category</th>
<th>n</th>
<th>% of total responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because of my personal past music experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>46</td>
<td>44.7</td>
</tr>
<tr>
<td>No</td>
<td>36</td>
<td>35.0</td>
</tr>
<tr>
<td>Maybe</td>
<td>21</td>
<td>20.4</td>
</tr>
<tr>
<td>To expose my child to music/ to increase their musical knowledge or skill</td>
<td>46</td>
<td>44.7</td>
</tr>
<tr>
<td>I and/or my child enjoys/shows an interest in music</td>
<td>35</td>
<td>34.0</td>
</tr>
<tr>
<td>To enhance my child’s overall development/ extra-musical skills</td>
<td>31</td>
<td>30.1</td>
</tr>
<tr>
<td>I wanted my child to participate in a structured activity/socialize with other children</td>
<td>17</td>
<td>16.5</td>
</tr>
<tr>
<td>To do an activity along with my child</td>
<td>8</td>
<td>7.8</td>
</tr>
<tr>
<td>It was recommended to me</td>
<td>8</td>
<td>7.8</td>
</tr>
<tr>
<td>To help prepare my child for future music study</td>
<td>5</td>
<td>4.9</td>
</tr>
<tr>
<td>I did not have music as a child and I want my child to have it</td>
<td>3</td>
<td>2.9</td>
</tr>
<tr>
<td>No response</td>
<td>3</td>
<td>2.9</td>
</tr>
</tbody>
</table>

*Note:* The combined frequencies do not total 100%.

An additional item (no. 25 on the *PUMPS*) elicited an open-ended response in order to further explain the participant’s motivation for enrolling their child or grandchild in an early childhood music program. The most frequent response was related to wanting the child to be exposed to music and/or to increase their musical skill or knowledge (44.7%). An additional 34% of participants explained that the child and/or the participant enjoyed music or demonstrated an interest in music.

Although the two most frequent responses were music-related, several other responses were not. Several participants (30.1%) reported that they enrolled the child in a music class in order to enhance the child’s overall development and/or extra-musical skills. Responses in this category included “Music improves math skills”, “Music enhances brain development,” or “I want my child to be well-rounded.”
The next most frequent response was also not directly related to music. Fewer participants (16.5%) indicated that their motivation for enrolling the child was to give him or her an opportunity to socialize with other children and participate in a structured activity. Participants also reported that they had a desire to do an activity with the child (i.e., to bond with the child) (7.8%). Other participants revealed they enrolled the child based on a recommendation from someone else (7.8%).

A small number of participants (4.9%) explained that they wished to prepare the child for future music study. Responses in this category included explanations such as “I want my child to play an instrument in the future” or “I want them to reach their highest potential so they can study music in school”. An even smaller number of participants (2.9%) expressed that they enrolled their child as a way to share music with them because they themselves had not had a great deal of music experience as a child. The remaining participants (n = 3) did not respond.

**Most Enjoyable, Interesting, and Challenging Aspects of Music Class Participation**

Research question three was answered using content analysis of open-ended items to determine the most enjoyable, interesting, and challenging aspects of early childhood music participation for the sample. Table 8 shows the results for most enjoyable aspect.

**Most enjoyable aspect.** Participants (n = 96) volunteered responses concerning what they found to be the most enjoyable aspect of their early childhood music class experience. The most frequent response (40%) was related to the joy and happiness music class brought to the child who was enrolled. Examples of such responses included:

1. “Seeing my child’s love for the class and teacher – I love the way she feels comfortable to stand up and express herself.”
2. “To see my child’s love and excitement for music grow is the most amazing thing. I cannot explain how enjoyable it is to hear and see that enthusiasm!”

Table 8

<table>
<thead>
<tr>
<th>Most Enjoyable Aspect of Music Class Participation Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
</tr>
<tr>
<td>Seeing how happy class makes my child/how much they enjoy it</td>
</tr>
<tr>
<td>Seeing my child learn new things about music/increase their musical skills</td>
</tr>
<tr>
<td>Seeing my child’s musical behaviors have increased outside of class/getting new ideas for how to use music at home</td>
</tr>
<tr>
<td>Spending time/sharing an experience with my child</td>
</tr>
<tr>
<td>Participating in the various activities in class</td>
</tr>
<tr>
<td>Seeing my child interact with other children and/or the teacher</td>
</tr>
<tr>
<td>The teacher</td>
</tr>
<tr>
<td>Seeing my child’s confidence increase</td>
</tr>
<tr>
<td>No response</td>
</tr>
<tr>
<td>Seeing how my child’s non-musical skills have increased</td>
</tr>
<tr>
<td>Exposure to real instruments and quality music models</td>
</tr>
</tbody>
</table>

*Note: The combined frequencies do not total 100%.*

The next most frequent response (25.2%) was that it was enjoyable to see the child learn new things about music and/or increase their musical skill. Many participants gave specific examples such as “She is now able to keep the beat” or “He is singing along with all of the songs in class.” Other participants wrote about the type of information the child learned, for example, “My child loves to learn about the different instruments each week” or “I was surprised to see how much they are learning about the different composers.”

Several respondents (14.6%) most enjoyed how their child’s musical behaviors had increased outside of class, such as in the car or at home. These participants explained...
that they noticed the child singing more during daily activities or that they were eager to
share songs from music class during the week. Some of the participants also explained
that they got ideas from class about how to use music with their children at home. They
described that they were able to enjoy games, songs, and playing instruments with the
child after experiencing such activities in class.  

Nearly the same amount of participants (13.6%) most enjoyed spending time with
their child during the class. These participants appreciated the time they had in class to
“experience something together as a family” and to “bond using music.” Others (8.7%)
cited specific activities from class as the most enjoyable aspect such as “singing” or
“playing the instruments.”

Some participants (7.8%) enjoyed seeing their child interact with other children or
the teacher. One participant explained, “It is wonderful to see the kids being silly
together and interacting.” Some respondents (6.8%) described the teacher of the class as
the most enjoyable aspect. This same percentage of people explained that they most
enjoyed seeing their child’s confidence increase. Many described this as, “My child now
participates more in class and is less shy during music.” The same percentage of people
(6.8%) gave no response to this question.

Fewer participants (4.9%) reported that they enjoyed seeing their child’s non-
musical behaviors increase (i.e., following directions or listening to the teacher). Finally,
some parents (3.9%) most enjoyed that the child was exposed to real instruments and
quality musical models. These responses were gathered from the NY site that features a
class in which a guest musician introduces children to a new instrument every week.
Most interesting aspect. Table 9 shows the content analysis results for the most interesting aspect of music class. Participants \((n = 81)\) also reported what they felt was the most interesting aspect of their early childhood music experience as displayed in Table 9. The most frequent response (38.8%) related to observing the child’s increase his/her musical knowledge and skill. Several participants (21.4%) left this item blank. The use of instruments or guest instrumentalists was also frequently cited as the most interesting aspect of early childhood music participation (16.5%). This is also related to the music class at the NY site.

Table 9
Most Interesting Aspect of Music Class Participation Percentages

<table>
<thead>
<tr>
<th>Category</th>
<th>(n)</th>
<th>% of total response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeing my child learn new music concepts/increase their musical skills</td>
<td>40</td>
<td>38.8</td>
</tr>
<tr>
<td>No response</td>
<td>22</td>
<td>21.4</td>
</tr>
<tr>
<td>Use of instruments/ guest instrumentalists</td>
<td>17</td>
<td>16.5</td>
</tr>
<tr>
<td>Seeing how concepts and skills are sequenced/introduced</td>
<td>9</td>
<td>8.7</td>
</tr>
<tr>
<td>Seeing how much/how quickly young children are able to learn about music</td>
<td>9</td>
<td>8.7</td>
</tr>
<tr>
<td>Seeing how my child’s musical behaviors have increased outside of class</td>
<td>8</td>
<td>7.8</td>
</tr>
<tr>
<td>Interactions between children, families, and teachers</td>
<td>7</td>
<td>6.8</td>
</tr>
<tr>
<td>Seeing my child’s confidence/enthusiasm increase</td>
<td>5</td>
<td>4.9</td>
</tr>
</tbody>
</table>

Note: The combined frequencies do not total 100%.

A smaller portion of participants was most interested by observing how much young children were able to learn about music (8.7%). The same percentage of individuals (8.7%) was most interested in seeing how new skills or concepts were introduced and sequenced by the teacher. Responses in this category were related to how instructors chose to teach a concept in an age appropriate way (i.e., with a game or play activity). Some respondents were interested in the child’s increase of musical behaviors
outside of class (7.8%). Interactions between the teacher, children, and families were reported as the most interesting aspect of music class by 6.8% of participants. Finally, a small number of participants (4.9%) were most interested by the increase of confidence or enthusiasm exhibited by the child since enrolling in an early childhood music class.

**Most challenging aspect.** Results for challenging aspects of early childhood music participation were also reported (see Table 10). The least number of participants ($n = 75$) reported what aspect they found most challenging about their experiences in early childhood music classes. Of the respondents who completed this item on the PUMPS, 26.1% found that getting the child to focus or pay attention during class was the most challenging aspect. Several respondents (13.6%) found it most challenging to get the child to participate in class activities. Many of these respondents explained that their child is “shy” or “hesitant” during music class. The same number of respondents (13.6%) found the most challenging aspects of music instruction to be logistical elements, such as the class schedule or location.

Other participants (12.6%) found it challenging to help the child with something when they were struggling in the music class. Respondents in this category explained that because they had limited knowledge of how to perform musical tasks themselves, they found it difficult to help the child at home. A smaller number of participants (4.9%) found it challenging to complete the assigned homework or to practice at home. Finally, participants also found it challenging for the child to share or take turns (3.9%) or had an issue with a teacher or the teaching process (1.9%).
Table 10

Most Challenging Aspect of Music Class Participation Percentages

<table>
<thead>
<tr>
<th>Category</th>
<th>n</th>
<th>% of total responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Response</td>
<td>28</td>
<td>27.2</td>
</tr>
<tr>
<td>Getting my child to focus/pay attention</td>
<td>27</td>
<td>26.1</td>
</tr>
<tr>
<td>Getting my child to participate in class</td>
<td>14</td>
<td>13.6</td>
</tr>
<tr>
<td>Class Logistics (i.e., schedule or location)</td>
<td>14</td>
<td>13.6</td>
</tr>
<tr>
<td>Helping my child with an activity that is difficult for him/her</td>
<td>13</td>
<td>12.6</td>
</tr>
<tr>
<td>Completing the homework/practicing at home</td>
<td>5</td>
<td>4.9</td>
</tr>
<tr>
<td>Sharing/taking turns</td>
<td>4</td>
<td>3.9</td>
</tr>
<tr>
<td>Issues with teacher/teaching process</td>
<td>2</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Note: The combined frequencies do not total 100%

Underlying Structure of the PUMPS

In order to explore the underlying factor structure of various subsets of the PUMPS (i.e., musical home environment, parental music experience, and early childhood music experiences) several exploratory factor analyses were conducted. The following results, therefore, address research question four for the study.

Musical Home Environment Factor Analysis

All linear variables from the musical home environment subset (i.e., items 33-39, 41-44) were included in the analysis. Items were first put into a correlation matrix to determine if the data were appropriate for analysis. All variables had a majority of correlations with the other variables over .05 with no correlations exceeding .9. The significance of the correlations between variables was also examined and all variables were correlated significantly \( p \leq .05 \) with the majority of the other variables. This analysis revealed that the correlation matrix for this subset was stable enough to perform an exploratory factor analysis (Field, 2005).

This data set was also analyzed to ensure the sample size was sufficient using Kaiser-Meyer-Okin (KMO) which must exceed .05 for factor analysis to be appropriate.
(Keith, 2005). This test resulted in a .686 suggesting that the sample size was sufficient. Finally, Barlett’s Test of Sphericity was conducted to ensure that the correlation matrix was not an identify matrix. The result was significant ($p = < .001$) suggesting that this matrix is not an identify matrix and is therefore appropriate for analysis.

A common variance factor analysis (i.e., Principle Axis Factoring) was conducted using oblique rotation. Results of this factor analysis resulted in three factors. These factors are shown in both a pattern matrix (see Table 11) and a structure matrix (see Table 12).

**Factor 1: Musical Interactions.** Using a scree plot as well as the structure and pattern matrices, three factors were revealed. Factor 1: Musical Interactions included the same five items in both the structure and pattern matrix and accounted for 23% of the variance in the home environment subset of the PUMPS. Upon examination, all of the variables that loaded onto the Musical Interactions factor related to musical interactions occurring between the caregiver and child in the home. They also all represent active music making in the home.

Interestingly, the variable for composing or reading notation at home did not have a high loading (i.e., $< .3$) onto any factor. Logically, it would load onto the Musical Interaction Factor as it also represents a musical interaction in the home. Descriptive analysis of this variable revealed that the vast majority of participants did not participate in this activity on a regular basis causing this variable to have very low variability and a low overall score. Due to this response from the sample, this item did not load as expected onto the factor.
Table 11  
*Pattern Matrix for Musical Home Environment*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1: <em>Musical Interactions</em></th>
<th>Factor 2: <em>Musical Materials</em></th>
<th>Factor 3: <em>Child’s attendance at Musical Events</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dancing</td>
<td>.770</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listening to Recordings</td>
<td>.580</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing Instruments</td>
<td>.579</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing Activities from Class</td>
<td>.550</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singing</td>
<td>.523</td>
<td></td>
<td>- .373</td>
</tr>
<tr>
<td>Composing/Reading Musical Notation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Toys</td>
<td></td>
<td></td>
<td>.959 - .401</td>
</tr>
<tr>
<td>Number of Musical Instruments</td>
<td></td>
<td></td>
<td>.492 - .470</td>
</tr>
<tr>
<td>Number of Listening Devices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Attendance at Musical Events</td>
<td></td>
<td></td>
<td>.268</td>
</tr>
</tbody>
</table>


Table 12  
*Structure Matrix for Musical Home Environment*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1: <em>Musical Interactions</em></th>
<th>Factor 2: <em>Musical Materials</em></th>
<th>Factor 3: <em>Child’s attendance at Musical Events</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dancing</td>
<td>.737</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing Instruments</td>
<td>.669</td>
<td>.461</td>
<td></td>
</tr>
<tr>
<td>Performing Activities from Class</td>
<td>.564</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listening to Recordings</td>
<td>.557</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singing</td>
<td>.501</td>
<td></td>
<td>- .357</td>
</tr>
<tr>
<td>Composing/Reading Musical Notation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Toys</td>
<td></td>
<td></td>
<td>.890 - .336</td>
</tr>
<tr>
<td>Number of Musical Instruments</td>
<td></td>
<td></td>
<td>.519 - .460</td>
</tr>
<tr>
<td>Number of Listening Devices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Attendance at Musical Events</td>
<td></td>
<td></td>
<td>.285</td>
</tr>
</tbody>
</table>

**Factor 2: Musical Materials.** Two items loaded onto Factor 2: Musical Materials and explained 10.2% of the variance in the data set. These variables were “Number of Toys” and “Number of Musical Instruments.” Based on these loadings, this factor seems to be related to the types of musical materials in the home. Interestingly, the other item expected to be included (i.e., music listening devices) did not have an adequate loading for this factor. This could be due to the way the musical materials are used in the home. Both musical toys and musical instruments are items that are physically used to create music, an active activity. Music listening devices are used for music listening, a passive activity.

**Factor 3: Child Attendance at Musical Events.** The final factor for musical home environment was the most difficult to interpret and accounted for only 6% of the variance in the data set. Even though items typically are not considered as part of a factor unless they have a loading of > .3, the variable, “child attendance at musical events” was retained as part of the factor along with “number of listening devices” as a means to further explain the factor. Because “number of listening devices” showed a negative loading onto the factor and “child attendance at musical events” was positively loaded onto the factor, the two variables are likely inversely related. It seems possible that the more listening devices that are present in the home, the less the child attends musical events. This can be logically explained as some individuals prefer to listen to music in their home, and some prefer to listen to music outside of the home (i.e., at musical events).
Parental Music Experience Factor Analysis

In order to determine the underlying factor structure of the parental music experience subset of the PUMPS, the same type of exploratory factor analysis procedure was conducted. This factor analysis utilized the continuous variables related to parental music experience. This included data from items 12, 13, 18, and 20 on the PUMPS. Items 14 (Have you ever played a musical instrument?) and 16 (Have you ever sung in a choir?) were combined to form a “past musical experience” composite variable. Likewise, item 15 (Do you currently play an instrument?) and 17 (Do you currently sing?) were combined into a “current music experience” composite variable.

Upon examination, the correlation matrix produced for the parental music experience variables was deemed stable using the same criteria described for the previous factor analysis. The Kaiser-Meyer-Olkin sampling adequacy test was adequate (KMO = .583). Finally, Bartlett’s Test of Sphericity was significant. All of this information suggests that the data were appropriate for factor analysis (Field, 2005). An exploratory factor analysis was done using Principle Axis Factoring with oblique rotation, which resulted in two factors (see Table 13 and Table 14).

Factor 1: Music Participation. The items and composites with the highest loadings on Factor 1: Music Participation relate to active music making experiences. This combination of variables accounted for 26.2% of the variance in the data set. They are all related to active ensemble or solo music performance or musical interactions. This factor was therefore titled, “Music Participation.”

Factor 2: Value of Music. The second factor was also fairly straightforward and accounted for 6.9% of the variance for this subset. The two items that loaded onto this
factor relate to concert attendance and how much the participants reported liking music.

These two variables both relate to how much the participant values music. Items in this factor differed from the variables that were retained by the Music Participation factor in that they did not relate to the participants personal music making, but rather their viewpoint on music and their preference for attending events involving music. Therefore, this factor was titled “Value of Music.”

Table 13
*Pattern Matrix for Parental Music Experience*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Music Participation”</td>
<td>“Value of Music”</td>
</tr>
<tr>
<td>Amount of Personal Music Study</td>
<td>.877</td>
<td></td>
</tr>
<tr>
<td>Past Music Experience Composite</td>
<td>.747</td>
<td></td>
</tr>
<tr>
<td>Participant Sung to as a Child</td>
<td>.378</td>
<td></td>
</tr>
<tr>
<td>Current Music Experience Composite</td>
<td>.336</td>
<td></td>
</tr>
<tr>
<td>Adult Attendance at Musical Events</td>
<td></td>
<td>.515</td>
</tr>
<tr>
<td>How Much Do you Like Music?</td>
<td></td>
<td>.349</td>
</tr>
</tbody>
</table>


Table 14
*Structure Matrix for Parental Music Experience*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Music Participation”</td>
<td>“Value of Music”</td>
</tr>
<tr>
<td>Amount of Personal Music Study</td>
<td>.870</td>
<td></td>
</tr>
<tr>
<td>Past Music Experience Composite</td>
<td>.700</td>
<td></td>
</tr>
<tr>
<td>Participant Sung to as a Child</td>
<td>.411</td>
<td>.227</td>
</tr>
<tr>
<td>Current Music Experience Composite</td>
<td>.353</td>
<td></td>
</tr>
<tr>
<td>Adult Attendance at Musical Events</td>
<td></td>
<td>.504</td>
</tr>
<tr>
<td>How Much Do you Like Music?</td>
<td></td>
<td>.363</td>
</tr>
</tbody>
</table>

Early Childhood Music Experience Factor Analysis

The final data set that was analyzed using exploratory factor analysis was the early childhood music experience variables. All continuous data from this subset of the PUMPS was included. Specifically, this factor analysis utilized data from items 21, 26, 27, 28. Composites were also created for questions 23 (What types of activities do you/the child participate in during music class?) and 24 (With what musical materials are you provided to use at home as part of music class?) by combining responses for each individual answer choice to get a single score for each item. This was because these items allowed for multiple answer choices to be selected.

The correlation matrix met the same assumptions as described in the above two analyses and was deemed appropriate for factor analysis. The sample size was adequate (KMO = .740) and the matrix was not an identity matrix (Bartlett’s Test of Sphericity = $p < .0001$). Therefore the researcher was able to proceed with factor analysis. Table 15 shows the results.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits of Music Class for the Child</td>
<td>.803</td>
</tr>
<tr>
<td>Benefits of Music Class for the Adult</td>
<td>.646</td>
</tr>
<tr>
<td>Level of Satisfaction with Music Class</td>
<td>.484</td>
</tr>
<tr>
<td>Music Class Activities</td>
<td>.451</td>
</tr>
<tr>
<td>Length of Class Participation</td>
<td>.384</td>
</tr>
<tr>
<td>Music Class Materials</td>
<td>.341</td>
</tr>
</tbody>
</table>


**Factor: Early Childhood Music Experiences.** The factor analysis revealed only one factor, which eliminated the possibility of a rotated factor matrix. It seems that all of
the items related to early childhood music experiences are all strongly related. This factor accounted for 29.4% of the variance in the data set. Attitudes of participants (i.e., perception of benefits and level of satisfaction) received the highest loadings. Type of activities and length of participation were the next highest loadings followed by materials used in class.

**Musical Home Environment and Parental Music Experiences Combined Factor Analysis**

Music education researchers (Brand, 1985; Zdzinski, 2008) have included parental musical experience variables in their factor analysis of home environment measures in music. This suggests that parental music experience is important to consider when examining home environment. Two subsets of the measure, musical home environment and parental music experience, were combined for a final factor analysis in order to compare the results with previous research.

Before analysis was conducted, a correlation matrix for all of the variables used in the factor analysis of the parental music experience and music home environment subsets of the *PUMPS* was produced. Due to a low level of correlation with the other variables, item number 37 (How often do you write (compose) or read music with the child?) was eliminated from the data set. After the deletion of the home composing variable the correlation matrix was deemed appropriate for factor analysis. The sample size was once again deemed adequate (KMO = .657) and Bartlett’s Test of Sphericity was significant ($p < .0001$).

The data set was factor analyzed using Principle Axis Factoring with an oblique rotation. This analysis resulted in a total of six factors, which together accounted for
47.5% of the variance in the data. Table 16 shows the resulting pattern matrix and Table 
17 shows the structure matrix.

Table 16

*Pattern Matrix for Combined Factor Analysis*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Dancing with the Child</td>
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<tr>
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<tr>
<td>Performing Activities from Class with the Child</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
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<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount of Personal Music Study (Adult)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past Music Experience Composite (Adult)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant Sung to as a Child</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Attendance at Musical Events</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
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<tr>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Number of Listening Devices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Music Experience Composite (Adult)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How Much Do you Like Music?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.467</td>
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</table>
Table 17
Structure Matrix for Combined Factor Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td></td>
<td>Musical Interactions in the Home</td>
<td>Adult Music Participation</td>
<td>Concert Attendance</td>
<td>Musical Materials in the Home</td>
<td>Music Listening</td>
<td>Adult Value of Music</td>
</tr>
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<td>Dancing with the Child</td>
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<tr>
<td>Singing with the Child</td>
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<td></td>
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<tr>
<td>Playing</td>
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<td>.455</td>
<td></td>
<td>.334</td>
<td></td>
</tr>
<tr>
<td>Instruments with the Child</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing</td>
<td>.544</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activities from Class with the Child</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listening to Recordings with the Child</td>
<td>.522</td>
<td>- .334</td>
<td></td>
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<td>Past Music Experience Composite (Adult)</td>
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<td>Participant Sung to as a Child</td>
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<td>Child Attendance at Musical Events</td>
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<td>- .780</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Adult Attendance at Musical Events</td>
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<td></td>
<td>- .593</td>
<td>.337</td>
<td>.416</td>
<td></td>
</tr>
<tr>
<td>Number of Toys</td>
<td></td>
<td></td>
<td></td>
<td>.808</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Musical Instruments</td>
<td></td>
<td></td>
<td></td>
<td>.553</td>
<td></td>
<td></td>
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<tr>
<td>Number of Listening Devices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.635</td>
<td></td>
</tr>
<tr>
<td>Current Music Experience Composite (Adult)</td>
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<td></td>
<td></td>
<td></td>
<td>.351</td>
<td>- .406</td>
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<tr>
<td>How Much Do you Like Music?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.469</td>
</tr>
</tbody>
</table>
**Factor 1: Musical Interactions In the Home.** Factor 1 includes the same variables as Music Home Environment Factor 1 “Musical Interactions.” These five variables all relate to musical interactions that occurred between the child and caregiver in the home on a weekly basis. This factor accounted for the largest percentage of variance in the analysis (18.5%).

**Factor 2: Adult Music Experience.** This factor also remained the unchanged when combined with the other subset. This factor explains 10.5% of the variance in the data set. All variables that loaded onto this factor were related to the participants’ past or current musical experiences with music making. Therefore, this factor was named “Adult Music Experience.”

**Factor 3: Concert Attendance.** Factor 3 was unique to this factor analysis. Two variables loaded onto this factor in both the structure and pattern matrix. Both variables related to attendance at musical events. The structure matrix, but not the pattern matrix, shows a cross loading of “Playing Instruments with the Child in the Home” and “Listening to Recordings with the Child in the Home.” Because these variables are cross-loaded and they are only shown by one matrix, explanation of this factor will focus on the two variables related to attendance at musical events. Therefore, this factor was titled, “Concert Attendance” and accounted for 6.7% of the variance.

**Factor 4: Musical Materials in the Home.** This factor also remained relatively the same as the separate factor analyses. Two variables, “Number of Musical Toys” and “Number of Musical Instruments” produced high loadings onto this factor in both the pattern and structure matrix. The structure matrix shows lower secondary loadings for “Playing Instruments with the Child” and “Adult Attendance at Musical Events.” Again,
because these items were cross-loaded with other factors, it is difficult to determine how much they influence this factor. The cross-loaded factors had lower loadings than the musical material variables. Because of these considerations, this factor is likely related to musical materials in the home and accounts for 5.7% of the variance.

**Factor 5: Music Listening.** Factor 5 is also unique to this combined factor analysis. Interestingly, both the pattern and structure matrix showed that the “Number of Music Listening Devices in the Home” was related to lower levels of “Current Music Experience” for participants. Interpretation of this factor suggests that participants who were involved with less active music making at the time of the study had more listening devices in their home. This factor was named “Music Listening” and accounted for only 3.5% of the variance.

**Factor 6: Adult Value of Music.** Finally, the sixth factor is the same as Factor 2: Value of Music in the parental music experience factor analysis. The structure matrix shows that “Playing Instruments with the Child in the Home” is cross-loaded onto this factor. Because this variable cross-loaded onto four different factors, it was not considered heavily in interpreting the factor. The two other variables, “Adult Attendance at Musical Events” and “How Much Do You Like Music” both relate to participant value of music. This factor accounted for a small amount of the total variance (2.7%).

**Predictors of Musical Home Environment Factors**

In order to address research question five, multiple regressions were performed. Each factor produced by the factor analysis of the musical home environment subset of the *PUMPS* (i.e., Musical Interactions, Musical Materials, and Child’s Attendance at Musical Events) served as a dependent variable in three separate multiple regressions.
After each factor had been examined individually, factors were combined to determine what independent variables significantly predicted musical home environment overall.

**Predictors of Factor 1: Musical Interactions.** Multiple regressions were performed in order to identify the predictors of Factor 1: Musical Interactions. Results are displayed in Table 18. The overall model was significant and explained nearly 38% of the variance in musical interactions in the home ($R^2 = .378$, $F(91) = 5.527$, $p < .001$).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stand. $B$</th>
<th>$t$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity (Asian)</td>
<td>-.378</td>
<td>4.345</td>
<td>&lt; .001</td>
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<tr>
<td>Music Participation*</td>
<td>.273</td>
<td>2.987</td>
<td>.004</td>
</tr>
<tr>
<td>Child Age</td>
<td>-.262</td>
<td>3.104</td>
<td>.003</td>
</tr>
<tr>
<td>Adult Gender</td>
<td>.216</td>
<td>2.392</td>
<td>.02</td>
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<tr>
<td>Race/Ethnicity (Hispanic)</td>
<td>-.162</td>
<td>1.694</td>
<td>NS</td>
</tr>
<tr>
<td>Early Childhood Music Factor</td>
<td>.138</td>
<td>1.484</td>
<td>NS</td>
</tr>
<tr>
<td>Value of Music **</td>
<td>.070</td>
<td>.763</td>
<td>NS</td>
</tr>
<tr>
<td>Child Gender</td>
<td>.007</td>
<td>.085</td>
<td>NS</td>
</tr>
</tbody>
</table>

*Note: * = Parental Music Experience Factor 1 ** = Parental Music Experience Factor 2

Ethnicity was found to be a significant predictor of musical interactions. Dummy variables were created in order to compare ethnic groups (for the purposes of this study, all ethnic groups were compared to Caucasians). There was no significant difference between the Caucasian and Hispanic ethnic groups with regard to musical interaction. There was, however, a significant ($p < .001$) difference between Asian and Caucasian groups. Specifically, results suggest that Asian participants reported fewer instances of musical interactions in the home between caregivers and children when compared to Caucasians.

Child age was also a significant predictor of musical interactions in the home. A one standardized unit increase in child age was associated with a .26 $SD$ decrease in musical interactions in the home ($p = .003$). This result suggests that as a child ages,
musical interaction between the child and caregiver in the home decreased. Parental value of music also significantly predicted musical interactions. A one standardized unit increase in parental value of music predicted a .27 SD increase in musical interactions.

Finally, adult gender significantly predicted musical interactions in the home. Specifically, female gender predicted a higher level of musical interaction in the home when compared to male gender. All other variables including Early Childhood Music Experience Factor, Parental Factor 1: Music Participation, and child gender, did not significantly predict musical interactions in the home.

**Predictors of Factor 2: Musical Materials.** Simultaneous multiple regression was again conducted to determine what variables predicted Factor 2: Musical Materials. Results are shown in Table 19. The overall model was significant and the predictors accounted for 15.6% of the variance in scores for this factor ($R^2 = .156, F (92) = 2.130, p = .041$). Two independent variables significantly predicted musical materials in the home.

Once again, ethnic group differences were found. Asian participants differ significantly from Caucasians with regard to Musical Materials. Results reveal that Asian ethnicity predicted fewer musical materials in the home when compared to other ethnic groups ($p = .02$). The Music Participation factor significantly predicted musical materials in the home. A one standardized unit increase in Parental Factor 1: Music Participation predicted a .236 SD increase in Home Factor 2: Musical Materials.
Predictors of Musical Home Environment Factor: Musical Materials

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stand. B</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity (Asian)</td>
<td>-.240</td>
<td>-2.369</td>
<td>.02</td>
</tr>
<tr>
<td>Music Participation*</td>
<td>.236</td>
<td>2.298</td>
<td>.02</td>
</tr>
<tr>
<td>Value of Music**</td>
<td>.104</td>
<td>.983</td>
<td>NS</td>
</tr>
<tr>
<td>Race/Ethnicity (Hispanic)</td>
<td>.091</td>
<td>.838</td>
<td>NS</td>
</tr>
<tr>
<td>Child Age</td>
<td>-.043</td>
<td>- .440</td>
<td>NS</td>
</tr>
<tr>
<td>Adult Gender</td>
<td>.037</td>
<td>.357</td>
<td>NS</td>
</tr>
<tr>
<td>Early Childhood Music Factor</td>
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<td>.118</td>
<td>NS</td>
</tr>
<tr>
<td>Child Gender</td>
<td>-.009</td>
<td>-.096</td>
<td>NS</td>
</tr>
</tbody>
</table>

Note: * = Parental Music Experience Factor 1  ** = Parental Music Experience Factor 2

Predictors of Factor 3: Child Attendance at Musical Events. Simultaneous multiple regression was utilized to explore what independent variables predicted Factor 3: Child Attendance at Musical Events. The overall model was not significant ($p = .15$) suggesting no independent variables significantly predicted this factor. This assumption was confirmed by examining the significant results for the individual independent variables, all of which were not significant. Therefore, results of this study suggest that the independent variables did not significantly predict child attendance at musical events.

Predictors of musical home environment factors combined. The researcher performed one additional multiple regression to determine if the independent variables predicted the overall musical home environment subset of the PUMPS. Table 20 shows the results. This model was significant and explained 37.8% of the variance in musical home environment ($R^2 = .378, F(92) = 6.97, p < .01$).

Four of the independent variables significantly predicted musical home environment. Once again, ethnic differences were found. Asian ethnicity predicted a .376 $SD$ decrease in musical home environment. While the Asian group differed significantly from Caucasians ($p < .001$), Hispanic participants did not differ significantly from Caucasians in regards to musical home environment. Child age was also a
significant predictor of musical home environment overall. A one standardized unit increase in child age resulted in a .236 SD unit decrease in musical home environment for this population, suggesting musical home environment decreased with child age ($p = .006$).

Table 20
Predictors of Musical Home Environment Factors Combined

<table>
<thead>
<tr>
<th>Variable</th>
<th>Stand. $B$</th>
<th>$t$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity (Asian)</td>
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<td>-4.320</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Value of Music**</td>
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<td>.002</td>
</tr>
<tr>
<td>Child Age</td>
<td>-.236</td>
<td>-2.821</td>
<td>.006</td>
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<tr>
<td>Music Participation*</td>
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<td>2.037</td>
<td>.044</td>
</tr>
<tr>
<td>Adult Gender</td>
<td>.160</td>
<td>1.827</td>
<td>NS</td>
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<tr>
<td>Race/Ethnicity (Hispanic)</td>
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<td>-1.059</td>
<td>NS</td>
</tr>
<tr>
<td>Early Childhood Music Factor</td>
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</tr>
<tr>
<td>Child Gender</td>
<td>-.039</td>
<td>-.454</td>
<td>NS</td>
</tr>
</tbody>
</table>

* = Parental Music Experience Factor 1 ** = Parental Music Experience Factor 2

Results showed that both parental music experience factors predicted musical home environment significantly. A one standardized unit increase in Parent Value of Music predicted a .286 SD unit increase in musical home environment. A one standardized unit increase in Music Participation predicted a .180 SD unit increase in musical home environment. All other independent variables did not significantly predict musical home environment as a whole.

**Discussion**

**Musical Home Environment**

The rich musical home environment reported by the sample implies that preschool children were exposed to music via a variety of experiences. The examination of musical interactions between participants and children revealed several interesting findings. The majority of participants reported singing (72.5%) and playing music (65.7%) on a daily basis with their preschool child. Moving to music also occurred on a daily basis in many
homes (38.2%). These encouraging results suggest that most participants were utilizing music in their daily routine.

Frequency of singing and playing music in the home has previously been documented in the literature. Custodero (2003) reported that 64.5% ($N = 1,448$) of participants played music daily and 69% sang daily for their infants. Custodero et al. (2003) also found similar percentages in another study with children aged 3 and younger. As expected, results were dissimilar to De Vries (2007) who reported 18% of parents played music for their young child daily.

Other musical activities were not featured in the home as often as singing, dancing, and listening. When asked how often they played instruments, only 13.7% of participants said they did so on a daily basis. This finding could be attributed to the fact that very few participants were actively involved in instrumental music at the time of the study. This result does not seem to be related to a lack of musical instruments in the home; however, 88.1% of participants had at least one instrument in their home.

Activities from music class were also infrequently featured in the homes of the sample. It is unclear why so few people used activities from class in the home, especially because over 83% of participants reported being involved in the child’s music class through observation or direct participation. Participants also explained that they were provided musical materials to utilize at home (average response was between 1 and 2 materials provided.) Also, when asked to describe the most enjoyable or interesting aspect of the child’s music class, several participants (21.8%) reported their child had increased his or her musical behaviors outside of music class. It is possible that even though the child’s musical behaviors had increased, they were choosing different musical
stimuli over the music activities presented during instruction. Due to the lack of research in this area, it is not possible to compare these results with previous findings, therefore, replication of this study is needed to further validate findings.

Finally, results showed that preschool children and their caregivers do not spend much time composing or reading musical notation at home. In fact, over 90% of the sample reported that they write or read music one time a week or not at all. Composing and reading music was also not featured often in early childhood music classes. Only 21.4% of participants reported composing or reading music notation in music class. Results were similar for composition tasks, the types of activities prominently featured in the home align closely with activities featured in music class. Singing, moving to music, and listening to music were featured most often in both settings.

In addition to making music, the majority of participants had a variety of musical materials in their homes. Every child’s home had at least some musical toys and music listening devices. As described above, many homes had musical instruments. Over half of the participants had three or more instruments in their home (53.5%).

Participants were also asked to report their favorite musical activity and musical genre to enjoy with the child. Results revealed that participants enjoyed a wide variety of both activities and musical styles. The same three activities (singing, dancing, and moving to music) were selected as the three favorite activities for children and participants to enjoy together. Children’s music was the most popular genre. Interestingly, music from music class was revealed as the second most popular type of music to listen to with the child in the home. Most participants reported that they listened to music on a daily basis with their child and many participants revealed that they most
enjoy listening to music from class; however, fewer participants reported utilizing class
activities at home. It is possible participants do not consider listening to music from class
as “performing class activities.” This result is encouraging however because its shows
participants are utilizing some of the musical materials provided through class
instruction. Participants also revealed that most of the children in the study were
attending musical events on an occasional basis (74.5%).

Overall, participants in this study seemed to provide a musically, rich home
environment for preschool children. Children enrolled in university-based early
childhood music enrichment classes are attending music events, listening to and making
music in their homes on a regular basis, and are given ample opportunities to use musical
materials.

**Parental Music Experience**

In addition to describing their musical home environment, participants were asked
to describe their past and current musical experiences. Results showed that while many
participants were involved in personal music study in the past, the vast majority did not
engage in personal music making at the time of the study. For example, over half the
sample had participated in a music ensemble in their lifetime. In contrast, only 5% of the
sample reported currently singing in an ensemble and no respondents participated in an
instrumental group at the time of the study. Participants were also asked to reflect on
their musical home environment as a child by reporting how often their parents sang to
them. Most participants recalled being sung to at home, suggesting that the majority of
participants in this study had experiences with music from a young age.
When results were compared with those of Custodero (2003) parents in this sample seemed to have participated in more music during their lifetime. Custodero revealed that only 18.6% of parents reported ever playing an instrument and 41.6% had ever sung in a choir. Many more participants in the current study had played an instrument (63%) or sang in a choir (53%). It is possible that parents who enroll their child in a music class have more past musical experience than the general population.

While the majority of participants did not engage in active music making at the time of the study, they reported enjoying music a great deal. When asked to rate how much they liked music using a 5-point likert scale, the average response was high (M = 4.68). Most participants also attended musical events on at least an occasional basis. Therefore, while the sample did not play or sing music on a regular basis, they seemed to value and enjoy music. Based on these findings, it seems that parents who enroll their child in a music class have had some experience with music that has led them to value and enjoy music.

**Early Childhood Music Class Experiences**

Results from the second research question revealed several interesting findings. University-based early childhood music programs seem to attract families with very similar demographic characteristics. The vast majority of participants in the sample were married (90.3%), between the ages of 30 and 40, and most were women (85.4%). Participants were highly educated with nearly 85% having completed a traditional college degree and the majority of those (62.1%) had obtained an advanced or professional degree. More than half of the participants were employed full time (63.1%) and the majority of the sample reported their total household income to be $70,000 or above.
These results reveal that the music programs from which participants were recruited seem to enroll two-parent families who are generally wealthy and highly educated. There was little variety in the reporting of ethnic groups represented within the sample. The majority of participants were Caucasian (57.3%) or Hispanic (26.2%). Asian (15.5%) and African-American (1%) ethnicities were under-represented in the sample.

This study also gathered information about the characteristics of the music class environment. The average participant had enrolled their child in music class for one to two years at the time of the study. Considering that most of the children in the sample were 3 or 4 years old (86.4%) results suggest many of these children had been enrolled in music class for half of their lifetime or more. The early childhood music programs from which participants were recruited featured a variety of music activities during instruction and all of the programs provided some form of musical materials for home use. In regard to participant involvement in the class, most (67%) were able to participate along with their child for at least part of the class.

Participants were very happy with their music class experience (M = 4.75 on a 5-point likert scale). They also revealed that not only had their child benefited from music class instruction, but they themselves had also benefited. The vast majority of the sample reported that the child’s musical interest, skill, or level of spontaneous music making had increased as a result of attending music class. Interestingly, participants’ personal knowledge of age-appropriate musical activities had also increased. In fact, the child’s overall improvement (M = 2.34) was nearly the same as the adult’s overall improvement (M = 2.23) suggesting that parents and children were benefiting equally from music class instruction.
For items related to motivation for enrollment, participants described both musical and non-musical reasons for enrolling their children, although musical reasons outweighed non-musical reasons. The most common reasons given for enrolling the child were to expose the child to music, increase the child’s knowledge or musical skill, or for music enjoyment.

Some of the participants (30%) seemed to feel that music instruction would benefit the child in future academic success. Several parents explained that they wanted their child to be involved in music because it was “good for brain development” or “has been proven to improve math skills.” This finding is likely related to the well-known popularity of the “Mozart Effect.” These participants may have had been given information that music would make their child “smarter.” This particular finding suggests that popular culture and news may influence motivation to enroll a child in an early childhood music class, although it was unclear where parents had acquired this information.

Other participants also cited non-musical reasons for enrolling their child in music class, including the desire to have an opportunity for socialization, participate in a structured activity, or to bond with the child. These types of “extra-musical” benefits of early childhood music instruction were also described in relation to early childhood music instruction in Brazil (De Gräzer, 1999). In the current study, large portion of participants (44.7%) felt that their own musical experience led them to enroll their child in music class, but it was unclear if this was because they had musical experiences and enjoyed them, or did not have music and wish they had. Both types of responses were given to the open-ended item that gathered information about motivation for enrollment.
Participants were also given an opportunity to describe the most enjoyable, interesting, and challenging aspects of their early childhood music experience were. More people described enjoyable aspects \((n = 96)\) as compared to challenging aspects \((n = 75)\), which further confirms that participants were happy with their music class experience. Most of the enjoyable aspects reported by the sample were music related. The most frequent response was that participants enjoyed seeing the child have fun and enjoy music class. This finding suggests that music class is something that preschool children enjoyed. Participants also enjoyed seeing the child exhibit increased musical behaviors outside of class, which reveals that music instruction may influence musical interactions outside of class.

Responses revealed that participants enjoyed the extra-musical aspects of early childhood music instruction including observing the child’s increased confidence, improvement in non-musical skills (i.e., listening and following directions), bonding, and interactions with others. Such perceived benefits indicated that early childhood music instruction produced beyond introducing children to music.

A great deal of overlap in responses was noted between what participants found interesting and enjoyable, suggesting that participants noticed several of the same aspects of music class as important or noteworthy as well as pleasant. Responses related to the most interesting aspect were more geared toward the way class was structured or taught. Some participants \((17.4\%)\) were interested in how instruction was sequenced or were surprised how much young children could learn about music. This finding suggests that participants were able to reflect on instruction and noticed patterns in their child’s musical learning behaviors.
Several participants were intrigued by the opportunity to learn about musical instruments from guest musicians. This response was unique to the NY site. Many positive responses were related to this type of activity involving high-quality musicians and, as they put it, “real instruments.” In fact, many participants explained that these presentations taught them new information about music instruments. Parents revealed that children not only learned a great deal but also described this as their favorite part of music class.

This type of activity is easily featured at the NY site because it utilizes university students. This type of instruction may be unique to university-based programs. The higher rate of participants who did not respond to this question (21.4%) should be noted as well. It is unclear why participants chose not to describe what they found interesting about their music class experience.

Finally, a large portion of the participants did not respond to the item that asked participants to describe the most challenging aspect of the child’s music class, suggesting that they did not have a challenging aspect to report. In contrast to reports on interesting and enjoyable aspects, only two types of responses were related to music. Participants (12.6%) explained that due to their limited experience with music, they found it difficult to help their child when they struggled with a musical concept or skill. This finding suggests that having little or no musical experience acts as a barrier for participants when they wish to musically interact with their child. A small percentage of participants (4.9%) found it difficult to complete the music homework assigned in class, although it was not clear why they found it difficult.
Many participants cited logistical issues such as class time or schedule as the most challenging aspect, which does not related directly actual instruction. Several of the responses were related to normal developmental challenges associated with preschool-aged children, such as difficultly paying attention or maintaining focus, shyness or refusal to participate, or sharing and taking turns during class instruction. These challenges may emerge in any setting involving children between the ages of 3 and 5. Only a small fraction of the participants (1.9%) reported having issues with the teacher or the way the class was taught. Findings suggest that programs were well run with issues related to content, instruction, or musical aspects of class.

Two main conclusions can be made based on the information gathered from the early childhood music experience subset of the PUMPS. First, university-based early childhood music programs seem to attract and service a homogenous demographic group. There was little variety in the types of families who participate in such programs. This finding could possibly be attributed to the fact that all of the programs used for recruitment are tuition driven and many families are not able to financially afford these programs. Second, participants were very happy with their experiences and noted several benefits and positive outcomes with regard to the child’s participation in the music class. While music classes were geared toward children, adults also seemed to benefit from the instruction.

**Underlying Factor Structure of the PUMPS**

Factor analysis of the musical home environment subset of the PUMPS resulted in three factors. The first of these was related to musical interactions in the home. This included various musical activities that the child and participant did together. The second
factor for the musical home environment subset of the measure was musical materials. Interestingly, the music listening devices item did not load onto this factor along with the other musical materials items. The final factor for musical home environment was related to child attendance at musical events. A factor analysis of the parental music experiences subset of the measure resulted in two factors, “Parental Music Experiences” and “Parental Value of Music.” This analysis suggested that parental music experiences involved not only active music participation, but also parental attitudes toward music.

The factor analysis of the early childhood music experiences subset resulted in only one factor. As far as can be determined, no such analysis has been reported in the literature previously, so results cannot be verified. Because all of the variables included in the analysis had high loadings onto a single factor, it suggested that these variables are all related to a single construct. It is possible that items that were not included in the factor analysis on grounds that they produced categorical data and were thus unsuitable for this type of analysis could have resulted in additional factors. Further research on the underlying factor structure of early childhood music experiences is warranted in order to bolster support for these findings.

Both Brand (1985) and Zdzinski (2008) combined parent and music home variables in the factor analysis of the HOMES and PIHEM. Therefore, the two subsets of the PUMPS were combined in order to make comparisons between the factor structures of the PUMPS, PIHEM, and HOMES. The resulting factor analysis produced six factors including Music Interactions in the Home, Adult Music Experiences, Concert Attendance, Musical Materials in the Home, Music Listening, and Adult Value of Music. Table 21 shows a comparison of factors from the three measures.
Musical interactions were also highlighted in previous research that utilized factor analysis in order to examine musical home environment. Brand (1985) found that singing to or with a child was included in the first factor, “Parental Attitude Toward Musical Involvement with the Child” of his factor analysis of the HOMES. Zdzinski (2008) also found that variables related to musical interactions in the home were featured in his factor analysis of the PIHEM. Musical interactions between parents and children were included in Home Structure and Family Musical Participation factors.

This finding suggests that musical interactions in the home have consistently been found as an underlying factor of musical home environment for children in several different age groups from preschool through high school. There were also similarities between PUMPS Factor: Adult Music Participation and previous research findings. Brand’s analysis of the HOMES revealed a factor that he titled, “Parent play(ed) a
musical instrument”. This factor is also very similar to *PIHEM* Factor 6: Family Musical Participation and Factor 7: Family Musical Background.

*PUMPS* Factor 3: Concert Attendance, results were also related to previous research. Brand (1985) reported a nearly identical factor, which he named “Parental Concert Attendance.” The two variables from the *HOMES* included in this factor were parental and child concert attendance. This factor did not align closely with any of the factors for the *PIHEM*.

The analysis of both the *PIHEM* and *HOMES* resulted in factors related to *PUMPS* Factor 4: Musical Materials in the Home. This factor supports the previous findings of both prior studies (Brand, 1985; Zdzinski, 2008). This factor is most closely aligned with *HOMES* Factor 3: Parent/Child Ownership and the use of record/tape player, records, tapes and *PIHEM* Factor 1: Home Structure.

The music listening factor for the *PUMPS* was not related to the previous two studies. This factor suggested that participants who were more involved in active music making reported having fewer music listening devices in their homes. This factor should be further explored in additional studies to see if this result was due to chance or if music listening and experience are somehow inversely linked. Finally, the final factor on the *PUMPS*, Adult Value of Music, also supported previous findings by Zdzinski (2008). Zdzinski’s factor analysis of the *PIHEM* resulted in a similar factor “Attitudes towards music.”

In summary, the underlying music home environment structure as examined by the *PUMPS* seems strikingly similar to that found in previous research. This finding suggests that the *PUMPS* could be utilized to develop an educational framework for the
musical home environment of preschool children. Furthermore, the underlying structure of the home musical environment does not appear to undergo a great deal of change as a child ages. Although the type of interactions, materials, attitudes, and activities undoubtedly change as a child ages, the underlying structure seems relatively stable.

Predictors of Musical Home Environment

Regression results revealed if and how the independent variables (i.e., Parental Music Experience Factors: Value of Music and Music Participation, Early Childhood Music Experience Factor 1, and select demographic characteristics) predicted Musical Home Environment Factors: Musical Interactions, Musical Materials, and Child’s Attendance at Musical Events. Due to very low variability on several demographic variables, including employment status, income level, adult age, and family composition, these variables were not included in this portion of the analysis. Further research with a more varied sample is needed to explore how and if these demographic characteristics may predict home musical environment.

Several variables significantly predicted musical interactions in the home. Results revealed a significant difference between Asian and Caucasian families use of music in the home. Asian ethnicity predicted significantly less musical interaction in the home when compared with other ethnic groups ($p < .001$). This finding was especially interesting because no previous music research has found significant differences between ethnic groups in regard to musical interactions in the home. Also, there were far fewer Asian participants in the study. In fact, Custodero et al. (2003) reported finding no significant differences between ethnic groups related to the frequency of singing or playing music for children under the age of 3.
These results align with general education literature were researchers reported significant differences in parent involvement among various ethnic groups (Keels, 2009; Huntsinger & Jose, 2009). Both of these studies suggest that different ethnic groups approach parent involvement in different ways. For example, Hunsinger and Jose (2009) found that Chinese parents were more involved at home when compared with European Americans however, European American parents were more involved at school. Comparisons of musical parent involvement among ethnic groups have not been extensively studied.

Results further indicated that how often parents attended musical events and how much they reported liking music (i.e., Parental Music Experiences: Factor Two) significantly predicted musical interactions in the home. An increase in parental value of music also predicted an increase in musical interactions in the home. On the contrary, parental involvement in music making (i.e., Parental Music Experiences: Factor One) did not significantly predict musical interaction in the home. This finding suggested that how much participants valued music contributed more to musical interactions in the home than how much the participant had participated in various music activities.

The fact that parental experiences did not influence musical interactions was surprising. This could be due to the fact the sample, in general, was not currently involved with music. Findings contradicted with several studies in the literature. Custodero (2003) found that more musically experienced parents (i.e., participants who were sung to as a child, had reported past or current participation in choir or musical group, play(ed) a musical instrument, and participated in musical lessons) provided more music in their homes. Although not related specifically to musical interaction, Kelly and
Sutton-Smith (1987) found that parents who were “musically-oriented” or who were somehow involved with music at the time of the study produced more musical interactions in their homes. The findings of this study were more closely aligned with the findings of Ilari (2002) who found no correlation between parental musical background and frequency of singing or playing music for infants. Results also aligned with Galliford (2003) who found that parental music experiences did not significantly effect music interactions in the homes of preschool children.

Another significant predictor of musical interactions in the home was the child’s age. Results revealed that musical interactions in the home decreased with child age. Contrary to these findings on parental music experience, this result supports previous research in the field. Custodero et al. (2003) found that parents reported more instances of musically interacting with younger children than with older children. Zdzinski (1996) found differences between age groups with regard to parental involvement in music. In another study by Zdzinski et al. found that student age was a significant predictor of musical outcomes as measured by the PIHEM (Zdzinski et al., 2008). Overall, both past research and the current study suggest that as a child ages, musical interactions in the home decrease.

Another finding of this study that is in congruence with previous research is that adult gender significantly predicted musical interactions in the home. Results suggest that women provided more musical interactions than men in the sample. Custodero et al. (2003) reported similar findings. Gender was only significant for adults however; child gender was not a significant predictor of musical interactions.
Early childhood music experiences were not found to significantly predict musical interactions in the home. This finding could be attributed to the fact that all of the families who participated in this survey were currently participating in early childhood programs. Therefore, this result merely suggests that different degrees of early childhood music participation did not predict musical interactions. It is possible, however, that if results were compared with results from a group of individuals who did not participate in early childhood music instruction, the outcome could be different. Further studies should compare groups of participants who do and do not participate in early childhood music instruction in order to better examine the effect of early childhood music participation on musical interactions in the home.

Only two of the independent variables were significant predictors of musical materials in the home. Once again, ethnic group differences were found. Asian families differed significantly from Caucasians and Hispanics regarding musical materials in the home. Asian ethnicity predicted lower levels of musical materials in the home, although music researchers have not extensively explored differences between ethnic groups and to musical home environment so, these findings cannot be verified.

Interestingly, while parental music participation did not significantly predict musical interactions in the home, it did significantly predict musical materials in the home. This result reflected the trend in the literature, which suggested that parental music experience influences musical home environment. All other variables did not significantly predict musical materials in the home, including early childhood music experiences. This result was surprising considering nearly all participants reported being supplied with musical materials by the program in which the child was enrolled. This
could be due to the fact that families in the sample already had musical materials in the home.

None of the independent variables were shown to significantly predict musical home environment Factor 3: Child Attendance Musical Events. Therefore, it remains unclear what influences child attendance at musical events. Further investigation in this area is needed to better understand this aspect of home musical environment.

Finally, multiple regression was utilized to determine which independent variables predicted the overall musical home environment as measured by the PUMPS. Results revealed that parental music participation, parental value of music, child age, and ethnicity significantly predicted the musical home environment of preschool children. While parent gender was shown to predict the Musical Interactions Factor, when musical home environment factors were combined, parent gender results were insignificant. These results suggested that the influence of parental gender for this sample was unclear.

Overall, the independent variables explained a fairly large amount of variance in musical home environment ($R^2 = .378$), representing a medium effect size in the social sciences (Cohen, 1988).

**Limitations**

When interpreting the results of the current study, four limitations of the results should be noted. First, due to lower reliability results (i.e., $<.8 \ alpha$ coefficient) on the subsets of the PUMPS, data must be interpreted with caution and the current study should be replicated to validate results. Also, because the sample was very homogeneous with regard to demographic characteristics, results of this study cannot be generalized to all preschool children. Participants in this study represented a small subset of the general
population of the areas (e.g., South East, North East, and Midwest regions of the United States) from which participants were drawn.

Another limitation of this study was the relatively low sample size ($N = 103$). In order to generalize results, the sample size would need to be greater in future replications. Finally, it should be noted that participants were drawn only from university-based music enrichment programs and, therefore, results cannot be generalized to all children who participated in early childhood music enrichment classes.
Chapter 5

Conclusions and Recommendations

Purpose and Aims of the Study

The purpose of this study was to examine the musical home environment of preschool children aged 3 to 5 years old enrolled in an early childhood music class. This study also examined how musical home environment was affected by demographic characteristics, parental musical experience, and early childhood music instruction. Specifically the research questions were:

1. What are the characteristics of the musical home environment (i.e., musical interactions and musical materials) and parental personal musical experience?
2. What are the attitudes of parents involved in early childhood music classes in regards to their level of satisfaction, their motivation for enrolling their child, and their perception of the benefits of the music program in which their child is enrolled?
3. What do parents involved in early childhood music classes perceive as the most enjoyable, most interesting, and most challenging aspects of their early childhood music program participation?
4. What are the underlying factor structures of the musical home environment, parental music experience, and early childhood music class experiences for preschool children?
5. What independent variables (i.e., parental musical experience, early childhood classroom experiences, and demographic characteristics) best predict the musical home environment factors determined via research question 4?
Summary of the Method

Participants were parents or primary caregivers of children aged 3 to 5 years of age enrolled in an early childhood music program. Participants were recruited from three university-based early childhood music programs in Rochester, NY, Miami, FL, and Oberlin, OH. The researcher constructed a measure (i.e., The PUMPS) based on the research questions of this study and the research studies Brand (1985), Custodero (2003), and Zdzinski (2008). The measure sought to gather information on demographic characteristics, parental music experience, early childhood music experiences, and musical home environment. The researcher piloted the measure using a small number of participants from the Miami, FL site.

Validity was established through a table of specifications to ensure that the measure collected information related to all variables of interest in the study. Validity was further established through use of a panel of experts who critiqued the measure and offered suggestions for deletions, additions, and other changes. Members of this panel were administrators from each recruitment site and a university professor who is an expert on parent involvement in music.

Reliability was established through inter-item reliability of three of the subsets of the PUMPS. After removing items with low reliability, analysis of the subsets resulted in a Cronbach’s Alpha of .686 for the parental music experience subset, .701 for the early childhood music subset, and .707 for the Musical Home Environment subset. Lower reliability results could be attributed to the homogenous sample and the number of participants. Future replications of the study with a larger and more varied sample would likely result in more accurate assessment of the reliability for the measure.
Participants from the NY and FL sites were provided with a paper survey and consent form during music class instruction and were given two weeks to return surveys to their instructor or directly to the researcher by mail. Participants from the OH site were invited to participate in the study by the director of the program via email. Contact information for consenting individuals was provided to the researcher and the survey was completed via phone interviews. The final number of participants was $N = 103$ representing a 43% response rate. Results of the study are reported in chapter four. Descriptive statistics, exploratory factor analysis, and simultaneous multiple regressions were performed to analyze the data.

**Summary of Main Findings**

**Research question 1.**

Participants in the sample demonstrated that they provided a rich musical home environment for preschool children. The sample had a variety of musical interactions with their children on a regular basis and had a variety of musical materials in their homes including music instruments, musical toys, and music listening devices. Participants reported a wide variety of preferences for musical activities and musical genres. In general, participants reported a higher frequency of singing, listening to music, and dancing in the home and a lower frequency of playing instruments, performing music class activities, and composing or reading music. Participants also revealed that they sometimes provide opportunities for their preschool child to attend musical events.

The sample provided information about their past and present music experiences, the majority of whom had participated in some form of music activity during their
lifetime. Participants reported moderate levels of past musical experience and rather low levels of current music experience. Overall, it seemed that participants valued music but most did not participate in active music making at the time of the study.

**Research Questions 2 and 3**

The sample for this study was strikingly similar in demographic characteristics even though they attended programs from different areas of the United States. Because recruitment from university-based early childhood programs resulted in such a homogeneous sample, it seems that such programs attract families with similar traits.

There was a high level of satisfaction among the participants about their early childhood music class experiences. Nearly all of the participants felt their enrollment had benefited themselves and the child. Responses about how much the child or adult benefited were very similar suggesting that both parties benefited equally from class instruction.

Participants cited many reasons for enrolling their child in a music class including to expose the child to music, to increase their musical skills and knowledge, or for music enjoyment. Participants also provided non-musical reasons for enrolling their child, such as wanting to enhance their academic or overall development. As expected, many participants felt their prior experiences with music led them to enroll their child in a music class.

Many enjoyable, interesting, and challenging aspects of music class participation were described by the sample. Participants most enjoyed seeing their child have fun in music class. They were most interested in seeing their child increase in musical skills. Fewer participants reported having challenges with the class and many challenges that
were described were not related to content or instruction. The majority of challenges reported were associated with logistical grievances or normal developmental issues for preschool children. In general, the sample seemed to have a positive view of their experiences with early childhood music programs and took note of many musical and non-musical benefits to enrollment.

**Research Question 4**

Factor analysis of the *PUMPS* produced several factors, which were used to further examine the underlying structure of home environment, early childhood music experiences, and parental music experience. When parental music experience and musical home factors were combined, the resulting six-factor structure was similar to previous research in the field (Brand, 1985; Zdzinski, 2008). These factors could serve as the basis for a musical home environment framework for preschool children. Because researchers examining various age groups have found similar factor structures, it is possible that the underlying structure of musical home environment remains relatively stable from preschool through high school.

**Research Question 5**

Several of the independent variables significantly predicted musical home environment factors. Ethnicity, Parental Factor 2: Value of Music, child age, and adult gender significantly predicted Home Factor 1: Musical Interactions. Asian ethnicity was negatively associated with musical interactions in the home when compared with other ethnic groups. As expected, musical interactions decreased with child age. Also, females interacted musically with their child more regularly than male participants. Other variables include child gender, Parental Factor 1: Music Participation, the Early
Childhood Music Experiences Factor, and Hispanic ethnicity, all of which did not significantly predict Musical Interactions.

   Home Factor 2: Musical Materials was predicted by Asian ethnicity and Factor 1: Music Participation. Again, Asian ethnicity predicted a lower number of musical materials in the home when compared with Caucasian and Hispanic groups. Music Participation was positively associated with Musical Materials.

   None of the independent variables significantly predicted Home Factor 3: Child’s Attendance at Musical Events. When all three factors were combined for a single music home environment composite variable, four of the independent variables were revealed as significant predictors. Once again Asian ethnicity, child age, Music Participation and Musical Materials were all predictors of musical home environment as a whole. These variables accounted for 37.8% of the variance in musical home environment scores, yielding a medium effect size.

Conclusions and Implications For Instruction

Results of the study reveal that families who attend university-based early childhood music programs participate in many musical activities and have a variety of musical materials in their homes. Although participants reported frequent musical interactions in the home, music class activities were not often featured.

In general, caregivers who chose to enroll their child in this type of program value music greatly and most have had some form of music study during their lifetime. The vast majority of participants did not personally engage in music participation at the time of the study.
The sample was highly satisfied with their music class experience and both children and adults benefited from participation in a music enrichment program. Based on the demographic characteristics of the sample, university-based early childhood music programs cater to only a specific demographic group. In general, adults who enrolled a child in these programs were married, wealthy, and highly educated.

Both parental music experience factors, child age, adult gender, and ethnic group differences were all shown to significantly predict musical home environment factors. While early childhood music experiences were not shown to significantly predict musical home environment, other results in the study revealed that participants had noticed increased musical behaviors outside of class since enrolling their child.

Implications of this study must be interpreted with caution due to the homogenous sample and lower reliability results, the following suggestions for music educators can be made:

1. Because the demographic characteristics of the sample were so similar only certain types of families seem to be participating in university-based early childhood music programs. This could potentially be due to the fact that all of the programs used for recruitment in this study charge a fee for participation. It is likely that families with a lower level of SES may not be able to afford such a program. Marketing or publicity materials may only be reaching a small percentage of the local population. Administrators should consider ways in which more types of families could become involved in quality music programs for young children. Marketing strategies should focus on a more varied demographic group. If at all possible, programs may also
consider scholarship programs or alternative means for payment in order to encourage families of various SES levels to participate.

2. Although families reported a high level of satisfaction with the music classes, participants reported infrequently performing activities from the music class in the home. Early childhood music educators could attempt to develop new ways to encourage families to utilize class activities at home. Incorporating more music activities in the class that could easily and practically be done in the home would give parents a better idea of how to synchronize activities with daily routines. According to the results, participants most enjoyed singing, dancing, and listening to music at home with their child, so suggestions for using music at home should focus on these types of activities. Also, because “recordings from music class” was the second most frequent popular genre of music for participants to enjoy with their child, music CDs from class are likely to be used by participants in their home. Therefore, an effort should be made to provide parents with musical recordings from these enrichment classes.

3. Many participants from the NY site reported that they enjoyed learning about the musical instruments from university students acting as guest musicians. This use of university resources was appreciated by both parents and children and, therefore, should be incorporated into program instruction if possible.

4. Many participants explained that they enjoyed participating in music class along with their child. They also revealed that they had benefited from their participation and had learned more about age-appropriate music activities. Some form of parental participation should be encouraged and incorporated into early childhood music programs.
5. Musical interactions in the home were shown to decrease as a child ages in both this study and previous research; special attention should be focused on encouraging parents of older preschool children to incorporate music activities into their home routines.

6. Participants with more musical experience were shown to provide a more musically, enriched home environment for their children. Educators should consider providing caregivers with information about how to get involved in music in their community. Early childhood music educators should also consider providing information about other musical events, such as children’s concerts, that are happening in the area in order to further benefit families.

**Recommendations for Replication and Future Research**

1. A larger and more varied sample should be used in future replication of this study to improve the reliability and generalizability of the results. A larger sample could be obtained by recruiting from programs that serve a variety of families with diverse backgrounds.

2. Because of the homogeneous sample, the effect of several demographic characteristics such as SES, family composition and adult age on musical home environment was not examined in this study. Further replication and use of the *PUMPS* should examine these characteristics and how/if they predict musical home environment using a sample with a wider range of demographic characteristics.

3. Results of this study demonstrated that ethnic group differences predicted the musical home environment of preschool children. This represents a fairly unique finding in the field of music home environment research. Further replication of this study should be
conducted to confirm the findings related to the effect of ethnicity on use of music in the home.

4. It would be interesting to compare responses from participants who did and did not enroll their child in an early childhood music program to further explore the effect of early childhood music instruction on the home. Control group participants could be drawn from preschool programs in the same area as the early childhood music programs used for comparison.

5. Comparison of responses could also be made between university-based early childhood music programs and community-based or school-based early childhood music programs, such as programs that are run through church programs, community music schools, individuals or public and private preschools in order to determine how families who attend different types of programs use music in their home.

6. Parental music experience was shown to predict musical home environment. It would be interesting to survey participants with a wider range of current and past musical experiences. As far as could be determined, the sample of this study included only $n = 2$ professional musicians. Future examination of parental music experience at different levels (i.e., professional musicians or people not at all involved with music) would further explain the relationship between parental music experience and musical home environment.

7. Because this study only targeted preschool-aged children and showed that child age predicts musical home environment, further examination of the musical home environment could target different age groups to determine how early childhood music instruction, demographic characteristics, and parental music experience affects the
musical home environment throughout the early childhood years from birth through age 8.

8. Regression results showed that none of the independent variables from this study significantly predicted child’s attendance at musical events so it is unclear based on this study what motivates parents to bring their child to concerts and other events in their communities. Further exploration into the area is warranted.

9. Further research could examine the underlying factor structure of preschool musical home environment to further validate the findings of this study. It would also be beneficial to do a similar analysis with other early childhood populations such as infants or toddlers. This would serve to develop a framework for musical home environment for early childhood.

This study provided a glimpse into the musical lives of families who chose to enroll their preschool child in a university-based early childhood music program. These families clearly valued and enjoyed their music experiences as a whole and have made an effort to make music a part of their child’s life. The intriguing results of this study suggest that the musical home environment is shaped by several outside influences, including parental music experiences and demographic characteristics. Continued examination of the musical home environment will help both educators and researchers develop a deeper understanding of the families they serve and the role of music in the homes of young children.
References


APPENDIX A

PARTICIPANT REQUEST LETTER
Dear Dr.____________,

My name is Adrienne Wills and I am currently a graduate research assistant at the Frost School of Music, University of Miami. I am pursuing a Masters Degree in Music Education with an interest in early childhood music. I am an instructor for the University of Miami MusicTime Program, which serves children from birth to age 8. Before my studies at University of Miami I graduated from the Eastman School of Music with a Bachelors in Music Education. While there, I worked in the Eastman Early Childhood Music Program.

I am writing to you concerning my Masters Thesis. Because of my interest in the early childhood music field, my study is focused on preschool children who are enrolled in an early childhood music program. I wish to explore how participation in such a program effects the home musical environment. This study will survey the parents of children aged 3-5 about their participation in their child’s music class as well as their use of music in the home.

I wish to draw my participants from university based early childhood music programs from around the country. I hope to survey parents who attend a quality, well-established program such as yours. I believe your program is one of the most exemplary in the country. Therefore, I would be thrilled if you would consider having the parents in your program participate in this research endeavor.

Your participation in this study would involve distributing and collecting the measure and consent form to the parents in your program and returning it to me. All costs of materials, shipping and copying will be covered by me personally. If you are interested in participating or would like more information feel free to contact me at your convenience.

This is an opportunity to learn more about what parents think about their early childhood music experience, and how we as teachers effect their daily musical lives. If you can suggest any other university or college early childhood programs, I would love to hear your suggestions!

Thank you,
Adrienne Wills
Graduate Assistant
Music Education Department
University of Miami
adrienne.m.wills@gmail.com
973. 600. 5208
APPENDIX B

EMAIL TO PARENTS FOR PHONE INTERVIEWS
Dear MusicPlay Families,

What a wonderful last class this week! To see all the joyful laughing and dancing and (yes!) screeching during our musical activities felt like such a celebration! I only wish I had remembered to get a group photograph!

I write to you today to see if you would be willing to participate in a research project originating from the University of Miami. Adrienne Wills is a graduate student who is interested in parents’ opinions about how home environments may be affected by their children’s participation in early childhood music classes. I am attaching Adrienne’s preliminary letter of introduction and explanation for you to read.

If you would be willing to participate in a 20 minute phone interview, Adrienne would likely call you in early January. Please let me know of your willingness to contribute to the research base on early childhood music experiences by sending me your phone number and permission to share your email address with Adrienne. You will then be contacted directly by Adrienne to schedule this brief interview.

Thank you for considering this! You would be perfect subjects for this study!

Peggy D Bennett, PhD
Professor of Music Education
Oberlin Conservatory of Music
77 West College
Oberlin OH 44074
440.774.1648 H
440.775.8947 O
http://peggydbennett.com
http://new.oberlin.edu/conservatory/departments/music-education/faculty_detail.dot?id=20577
APPENDIX C

PHONE INTERVIEW RECRUITMENT SCRIPT
PHONE RECRUITMENT SCRIPT

Hello, my name is Adrienne Wills and I am a graduate student at the University of Miami. I received your contact information from Dr. Peggy Bennett, Director of the MusicPlay program in which you were enrolled in the fall. I am contacting you about your interest in participating in a study I am conducting for my master’s thesis. Would you like to hear more about how you can participate?

Your participation in the study would involve completion of a survey via a phone interview. The interview would take approximately 20 minutes of your time and we can schedule a time that is convenient to you.

The survey you would complete gathers information about how you use music in your home, your personal musical background, and your experience in MusicPlay. It will also gather basic demographic information. Your participation in this study is voluntary. Are you interested in setting up an interview to participate in the study?

If yes-

Thank you for your willingness to participate. Would you prefer an interview to be conducted in the morning, afternoon, or evening? I will be sending you an email at the following address [confirm email address] with several available times to set an interview that works for you during that time of day. Attached to that email will also be the consent letter and description of the study for you to review before our interview. I will read this same document to you at the start of our interview.

Should you have any questions before or after our scheduled time please do not hesitate to call me at (973) 600-5208 or contact me via email at adrienne.m.wills@gmail.com. Thank you for your time.
APPENDIX D

CONSENT LETTER FOR PAPER SURVEY DISTRIBUTION
CONSENT LETTER FOR PAPER SURVEY DISTRIBUTION

Dear Madame or Sir,

My name is Adrienne Wills and I am currently enrolled in the Graduate Music Education Program at the Frost School of Music at the University of Miami in Coral Gables, FL. I am involved in a research study examining the parental views of preschool musical home environment and early childhood music experiences. This study will serve to inform music educators as well as parents about the everyday musical lives of preschool children.

**Purpose of the Study**

You are being asked to participate in this study because we are attempting to learn more about both early childhood music program participation and musical experiences in the home. You will be asked to complete a brief survey about these topics as well as your personal musical experiences, as well as basic demographic information. The survey will take approximately 20 minutes to complete. There are no risks or direct benefits associated with participation in this study.

Upon completing the survey, you will place the paper survey into an envelope (provided) and return it to your teacher or program director for return. Any personal information you provide will be anonymous. Only the principal investigator and co-investigator will have access to the information collected during the survey. When the project is finished and results are reported, no individual will be identified in any way.

Your participation is voluntary. You may decline to participate, and you may terminate your participation at any time, should you wish to do so, without any negative consequences to you.

Completing and returning the survey attached to this letter indicates your consent to participate in this study. If you agree to participate, please complete and return the attached survey within two weeks of receiving it. If you have any questions about your participation in this study feel free to contact me at adrienne.m.wills@gmail.com at your convenience.

Any further questions or concerns about the research can be addressed by contacting Dr. Stephen Zdzinski, Principal Investigator and Faculty Sponsor at (305) 284-6252 or by email at szdzinski@miami.edu.

If you have questions regarding your rights as a research participant, contact the University of Miami, Human Subject Research Office at (305) 243-3195.
APPENDIX E

CONSENT LETTER FOR PHONE INTERVIEWS
CONSENT LETTER FOR PHONE INTERVIEWS

Dear Madame or Sir,

My name is Adrienne Wills and I am currently enrolled in the Graduate Music Education Program at the Frost School of Music at the University of Miami in Coral Gables, FL. I am involved in a research study examining the parental views of preschool musical home environment and early childhood music experiences. This study will serve to inform music educators as well as parents about the everyday musical lives of preschool children.

Purpose of the Study

You are being asked to participate in this study because we are attempting to learn more about both parent participation in early childhood music programs and musical experiences in the home. You will be asked to complete a brief survey about these topics, as well as your personal musical experiences, and demographic information. The survey will take approximately 20 minutes to complete. There are no risks or direct benefits associated with participation in the study.

The survey will be conducted by phone interview. Responses will be recorded by the researcher for research purposes only. Any personal information you provide will be anonymous. Only the principal investigator and co-investigator will have access to the information collected. When the project is finished and results are reported, no individual information will be identified in any way.

Your participation is voluntary. You may decline to participate, and you may terminate your participation at any time, should you wish to do so, without any negative consequences to you.

If you have any questions about participation in this study feel free to ask the researcher at the time of your phone interview. You may also contact me at adrienne.m.wills@gmail.com.

Any further questions or concerns about the research can be addressed by contacting Dr. Stephen Zdzinski, Principal Investigator and Faculty Sponsor at (305) 284-6252 or by email at szdzinski@miami.edu.

If you have questions regarding your rights as a research participant, contact the University of Miami, Human Subject Research Office at (305) 243-3195.

Adrienne Wills
APPENDIX F

PARENTS’ USE OF MUSIC WITH PRESCHOOL STUDENTS (PUMPS)
1. What is your relationship to the child you bring to music class?
   - Mother/Father
   - Grandparent
   - Aunt/Uncle
   - Primary Caregiver
   - Other: ______________________

2. Are you male or female?
   - Male
   - Female

3. What is your age?
   - Under 20
   - 20-29
   - 30-39
   - 40-49
   - 50-59
   - Over 60

4. What is your current marital status?
   - Single, never married
   - Married
   - Divorced/Separated
   - Widowed
   - Other: ______________________

5. How many adult caregivers currently live with the child?
   - 1
   - 2
   - 3 or more
6. What is the age of the child enrolled in music class?
   - 3
   - 4
   - 5
   - Other: ________________

7. What is the child’s gender?
   - Male
   - Female

8. What is the total current household income of the child’s home?
   - Less than $10,000
   - $10,000-$30,000
   - $30,000-$50,000
   - $50,000-$70,000
   - $70,000 and above

9. What is your ethnicity?
   - Caucasian/White
   - Hispanic
   - African-American
   - Asian/Pacific Islander
   - Native American
   - Other: ________________

10. What is the highest level of education you have completed?
    - Some High School
    - High School/GED
    - Trade School/2-year degree (Associates)
    - Some College
    - 4-year College Degree (Bachelors)
    - Advanced/Professional Degree (Masters, Doctoral, MD, JD)

11. What is your current employment status?
    - Full-time outside the home
    - Part-time outside the home
    - Stay-at-home parent/caregiver
    - Unemployed
    - Other: __________
12. Did your parents sing to you as a child?
   - Often
   - Sometimes
   - Never

13. How much personal music study have you had?
   - None
   - A little
   - Some
   - A lot

14. Have you ever played a musical instrument?
   - Yes
   - No

15. Do you currently play an instrument?
   *Please mark all that apply*
   - Yes, in an ensemble (band, orchestra)
   - Yes, in a small group
   - Yes, on my own
   - Yes, I take music lessons
   - No
   - Other: ____________________

16. Have you ever sung in a choir?
   - Yes
   - No

17. Do you currently sing?
   *Please mark all that apply*
   - Yes, in a choir (community, professional, church)
   - Yes, with a small group (rock band, jazz group etc.)
   - Yes, on my own
   - Yes, I take music lessons
   - No
   - Other: ____________________
18. How often do you attend concerts or other musical events?
   - Never
   - Rarely
   - Sometimes
   - Often

19. Do you feel your past musical experience led you to enroll your child in music class?
   - Yes
   - No
   - Maybe

20. How much do you like music?
   Please circle the appropriate number

<table>
<thead>
<tr>
<th>A little</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>A lot</th>
</tr>
</thead>
</table>

21. How long has the child been attending music classes?
   - 0-1 years
   - 1-2 years
   - 2-3 years
   - 3-4 years
   - 4-5 years

22. How do you participate in the child’s music class?
   Please mark all that apply
   - I drop them off
   - I observe the class
   - I participate in part of the class
   - I participate in the whole class

23. What types of activities do you/the child participate in during music class?
   Please mark all that apply
   - Singing
   - Playing instruments
   - Dancing/moving to music
   - Improvising/making up music
   - Reading/writing music
   - Listening to music
   - Other: ____________________
24. With what musical materials are you provided to use at home as part of music class? 
*Please mark all that apply*

- [ ] A CD
- [ ] Small rhythm instruments
- [ ] Colored scarves or other movement props
- [ ] Handouts/written musical notation of songs and poetry
- [ ] No materials are provided
- [ ] Other: ______________________

25. Why did you enroll your child in a music class?

- [ ]

26. How satisfied are you with your music class experience? 
*Please circle the appropriate number*

<table>
<thead>
<tr>
<th>Very Unhappy</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Very Happy</th>
</tr>
</thead>
</table>

27. How much have the child’s musical abilities, musical interest, or spontaneous music making increased as a result of attending music classes?

- [ ] Not at all
- [ ] A little
- [ ] Some
- [ ] A lot

28. How much has your knowledge of age-appropriate music activities increased because of your child’s music class?

- [ ] Not at all
- [ ] A little
- [ ] Some
- [ ] A lot
29. What has been the most enjoyable aspect of your child’s music class?

30. What has been the most interesting aspect of your child’s music class?

31. What has been the most challenging aspect of your child’s music class?

32. Is there anything else you would like to share about your music class experience?
33. How often do you sing with the child?
   - 0-1 times a week
   - 2-3 times a week
   - 3-4 times a week
   - Daily
   - Several times daily

34. How often do you play musical recordings for the child?
   - 0-1 times a week
   - 2-3 times a week
   - 3-4 times a week
   - Daily
   - Several times daily

35. How often do you play an instrument for or with the child?
   - 0-1 times a week
   - 2-3 times a week
   - 3-4 times a week
   - Daily
   - Several times daily

36. How often do you move to music (dance) with the child?
   - 0-1 times a week
   - 2-3 times a week
   - 3-4 times a week
   - Daily
   - Several times daily

37. How often do you write (compose) or read music with the child?
   - 0-1 times a week
   - 2-3 times a week
   - 3-4 times a week
   - Daily
   - Several times daily
38. How often do you perform the activities from music class with the child, while at home?
   ○ 0-1 times a week
   ○ 2-3 times a week
   ○ 3-4 times a week
   ○ Daily
   ○ Several times daily

39. How often do you take the child to musical events other than music class?
   ○ Never
   ○ Sometimes
   ○ Often

40. What is your favorite musical activity to enjoy with the child? 
   *Please select only one option.*
   ○ Moving to music
   ○ Listening to music
   ○ Playing instruments
   ○ Singing
   ○ Making up music
   ○ Rhymes and fingerplays

41. What is your favorite genre of music to enjoy with the child? 
   *Please select only one option.*
   ○ Songs from music class
   ○ Other children’s music
   ○ Rock
   ○ Pop
   ○ Jazz
   ○ Classical
   ○ Country
   ○ Other: ____________________

42. How many musical toys are in the child’s home?
   ○ None
   ○ Some
   ○ A lot
43. How many musical instruments are in the child’s home?
   - 0
   - 1
   - 2
   - 3 or more

44. How many CD, MP3, or other music players are in the child’s home?
   - None
   - Some
   - Several

45. Is there anything else you would like to share about your musical home environment?
APPENDIX G

SURVEY SPECIFICATIONS MATRIX FOR THE PUMPS
## SURVEY SPECIFICATIONS MATRIX

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Question Type</th>
<th>Total Content</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Multiple</td>
<td>Open-ended</td>
</tr>
<tr>
<td>Demographic Information</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>Parental Personal Music</td>
<td>13%</td>
<td>2%</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Childhood Music</td>
<td>13%</td>
<td>11%</td>
</tr>
<tr>
<td>Experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Musical Home Environment</td>
<td>27%</td>
<td>2%</td>
</tr>
<tr>
<td>Total Questions</td>
<td>77%</td>
<td>13%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Question Type</th>
<th>Total Content</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Multiple</td>
<td>Open-ended</td>
</tr>
<tr>
<td>Demographic Information</td>
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</tr>
<tr>
<td>Parental Personal Music</td>
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<td>1</td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Childhood Music</td>
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<td>5</td>
</tr>
<tr>
<td>Experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Musical Home Environment</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Total Questions</td>
<td>35</td>
<td>6</td>
</tr>
</tbody>
</table>
APPENDIX H

MUSICAL INTERACTIONS IN THE HOME PERCENTAGES
Table 22
Musical Interactions in the Home Percentages

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n</th>
<th>% of total responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sing with Child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1 times a week</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>15</td>
<td>14.7</td>
</tr>
<tr>
<td>3-4 times a week</td>
<td>11</td>
<td>10.8</td>
</tr>
<tr>
<td>Daily</td>
<td>44</td>
<td>43.1</td>
</tr>
<tr>
<td>Several Times Daily</td>
<td>30</td>
<td>29.4</td>
</tr>
<tr>
<td>Play Recordings for Child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1 times a week</td>
<td>7</td>
<td>6.9</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>12</td>
<td>11.8</td>
</tr>
<tr>
<td>3-4 times a week</td>
<td>16</td>
<td>15.7</td>
</tr>
<tr>
<td>Daily</td>
<td>45</td>
<td>44.1</td>
</tr>
<tr>
<td>Several Times Daily</td>
<td>22</td>
<td>21.6</td>
</tr>
<tr>
<td>Play Instrument For or With Child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1 times a week</td>
<td>60</td>
<td>58.8</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>21</td>
<td>20.6</td>
</tr>
<tr>
<td>3-4 times a week</td>
<td>7</td>
<td>6.9</td>
</tr>
<tr>
<td>Daily</td>
<td>13</td>
<td>12.7</td>
</tr>
<tr>
<td>Several Times Daily</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Move to Music with Child</td>
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<td></td>
</tr>
<tr>
<td>0-1 times a week</td>
<td>21</td>
<td>20.6</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>22</td>
<td>21.6</td>
</tr>
<tr>
<td>3-4 times a week</td>
<td>20</td>
<td>19.6</td>
</tr>
<tr>
<td>Daily</td>
<td>30</td>
<td>29.4</td>
</tr>
<tr>
<td>Several Times Daily</td>
<td>9</td>
<td>8.8</td>
</tr>
<tr>
<td>Write or Read Music with Child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1 times a week</td>
<td>94</td>
<td>92.2</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>5</td>
<td>4.9</td>
</tr>
<tr>
<td>3-4 times a week</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Daily</td>
<td>3</td>
<td>2.9</td>
</tr>
<tr>
<td>Several Times Daily</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Perform Activities From Class with Child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1 times a week</td>
<td>41</td>
<td>40.2</td>
</tr>
<tr>
<td>2-3 times a week</td>
<td>35</td>
<td>34.3</td>
</tr>
<tr>
<td>3-4 times a week</td>
<td>17</td>
<td>16.7</td>
</tr>
<tr>
<td>Daily</td>
<td>7</td>
<td>6.9</td>
</tr>
<tr>
<td>Several Times Daily</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>Child Attendance at Musical Events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>14</td>
<td>13.7</td>
</tr>
<tr>
<td>Sometimes</td>
<td>76</td>
<td>74.5</td>
</tr>
<tr>
<td>Often</td>
<td>12</td>
<td>11.8</td>
</tr>
</tbody>
</table>

Note: Participants with missing values for musical home environment items were not included in frequency analysis.
APPENDIX I

EARLY CHILDHOOD MUSIC CLASS EXPERIENCE PERCENTAGES
Table 23

*Early Childhood Music Class Experience Percentages*

<table>
<thead>
<tr>
<th>Category</th>
<th>n</th>
<th>% of Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of Parent Participation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in the Whole Class</td>
<td>49</td>
<td>47.6</td>
</tr>
<tr>
<td>Observe the Class</td>
<td>33</td>
<td>32.0</td>
</tr>
<tr>
<td>Participate in Part of the Class</td>
<td>20</td>
<td>19.4</td>
</tr>
<tr>
<td>Drop Child Off</td>
<td>17</td>
<td>16.5</td>
</tr>
<tr>
<td><strong>Type of Activities Featured in Music Class</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dancing/Moving To Music</td>
<td>102</td>
<td>99.0</td>
</tr>
<tr>
<td>Singing</td>
<td>96</td>
<td>93.2</td>
</tr>
<tr>
<td>Listening To Music</td>
<td>92</td>
<td>89.3</td>
</tr>
<tr>
<td>Playing Instruments</td>
<td>75</td>
<td>72.8</td>
</tr>
<tr>
<td>Improvise/Make Up Music</td>
<td>26</td>
<td>25.2</td>
</tr>
<tr>
<td>Reading/Writing Music</td>
<td>22</td>
<td>21.4</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>4.9</td>
</tr>
<tr>
<td><strong>Musical Materials Provided for Music Class</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handouts/Written Notation of Songs or Poems</td>
<td>71</td>
<td>69.6</td>
</tr>
<tr>
<td>CD</td>
<td>53</td>
<td>52</td>
</tr>
<tr>
<td>Small Rhythm Instrument</td>
<td>31</td>
<td>30.4</td>
</tr>
<tr>
<td>Colored Scarves/Movement Prop</td>
<td>21</td>
<td>20.6</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>9.7</td>
</tr>
</tbody>
</table>

*Note:* The combined frequencies do not total 100%.