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Abstract

In this review of literature, the author explored the representation of music in early childhood education researcher and practitioner journal articles. Thirty-eight pertinent journal articles were identified in a keyword search for “music” in eight journals. The search was limited to a 5-year period, 2005–2010. Article summaries were categorized into seven themes: extramusical benefits, music strategies, musical parenting, musical practices at home, musical lives of children, musical practices at school, and integration. The majority of articles reviewed addressed extramusical benefits of music instruction in early childhood classrooms. Implications of the literature review are discussed and suggestions for adding to this literature are shared.

Keywords

early childhood education, extramusical benefits, general classroom teachers, music education, music strategies

Early childhood is a critical period of musical development and a rich learning environment can be a crucial factor during this time (Gembris & Davidson, 2002). Those that shape children's musical environments, which might include parents, general classroom teachers, and music educators, have varying degrees of influence. As students are with their general classroom teacher for a majority of educational hours, possibly even more than parents, these educators may have the largest role in fostering musical development. Previous studies have indicated that the preponderance of preschool curriculums include music (Golden, 1989; Nardo, Custodero, Persellin, & Brink Fox, 2006; Tarnowski & Barrett, 1992). However, the quantity and quality of early childhood music instruction varies greatly. In a national survey study (Nardo et al., 2006) 69% of preschool classroom teachers were found to be responsible for designing and leading music instruction. Only 28% of early childhood centers staffed a music specialist. With the bulk of responsibility for early childhood music education in the hands of preschool classroom teachers, music educators must identify ways to support these colleagues.

Several suggestions emerge from the literature. These include preschool-specific methods courses (Daniels, 1992; McDonald, 1984), in-service music training and outreach for classroom teachers (Daniels, 1992; Nardo, 1995; Tarnowski & Barrett, 1992), alignment of music educator and early childhood educator goals (Tarnowski

& Barrett, 1992), and increased communication between music and early childhood fields (Daniels, 1992; Tarnowski & Barrett, 1992). Professional journals provide one venue for building communication between both communities of educators. However, is music's current representation in early childhood educator journals sufficient and effective? This question was investigated through a literature review of the following researcher and practitioner publications between 2005 and 2010: *Young Children*, *Early Childhood Education Journal*, *Early Childhood Research and Practice*, *Early Childhood Research Quarterly*, *Childhood*, *Child Development*, *Journal of Early Childhood Research*, and *Early Child Development and Care*.

Articles were obtained in the following manner. Each early childhood publication was searched using the keyword *music*. Resulting articles were then scanned for pertinence. Articles that mentioned music in passing, such as describing the schedule of a child's school day, were not reviewed. Therefore, the search yielded 38 relevant articles out of the original 90 identified in the keyword search. Information gleaned revealed seven

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themes—extramusical benefits, music strategies, musical parenting, musical practices at home, musical lives of children, musical practices at school, and integration. Following the literature review below, implications based on results will be identified and suggestions for ways music educators can add to this literature will be shared.

Review of Literature

Extramusical Benefits

The majority of articles reviewed (9 of 38 total) discussed the extramusical benefits of using music in early childhood education. All but one (i.e., Hui, 2006) supported using music to promote skill development in other disciplines. These authors referred to experimental evidence or best practices learned through teaching experience. Connections to literacy were abundant and include the work of Bolduc (2008), Galicia Moyeda, Contreras Gomez, and Pena Flores (2006), Paquette and Rieg (2008), Salmon (2010), and Wiggins (2007).

Bolduc (2008) reviewed interdisciplinary literature discussing music instruction's effect on emergent literacy skills of 4- through 6-year-olds. Focusing on 13 studies, Bolduc looked at both correlational and quasi-experimental designs. Correlational studies reviewed appeared to identify a relationship between emergent written language and musical aptitudes. Quasi-experimental studies supported the use of music to promote the development of linguistic abilities, though the author cautions readers to interpret results with care due to limits of method design. All research mentioned was summarized to conclude that "musical activities promote the development of three important components that are equally involved in the development of linguistic abilities: *auditory perception, phonological memory, and metacognitive knowledge*" (para. 21).

Galicia Moyeda et al. (2006) used a pretest/posttest experiment to test the effects of musical activities on preschool children's vocabulary. Three groups of children with an average age of 5.5 years took the Peabody Vocabulary Image Test before experiencing one of three conditions: a music program tailored to emphasize language development; activities from a standard Rhythm, Songs, and Games subject; or no music activities. The Peabody was administered again after children experienced the condition. Results seemed to demonstrate that only musical activities specifically geared toward language development significantly increased Peabody test scores.

In an article of teaching strategies that is grounded in literacy research literature, Paquette and Rieg (2008) suggested music activities that support literacy in the

classroom. Suggestions included using songs for teaching language skills, developing reading fluency through children's song-based literature, and improving writing skills by creating new lyrics or describing music. Creating musical instruments and exposing children to multiple musical genres was also recommended. In addition, Paquette and Rieg shared a procedure for teaching a new song, the only mention of this specific skill.

Using a combination of classroom examples from an action research project and groundings in the literature, Salmon (2010) made a case for the use of music to enhance children's thinking and promote their literacy development. Data were gathered in a school serving pre-kindergarten through first-grade students that is inspired by the Reggio Emilia Approach to early childhood education and a K-2 summer reading camp. Educators incorporated strategies obtained at a workshop and documented their effectiveness through teacher journaling, videotaping and photographing children, and collecting student work from music-literacy activities. Salmon reported that these strategies activated students' prior knowledge and encouraged mental imagery, important elements for language development and comprehension. She concluded with a list of summarizing points that may prove useful for music advocacy efforts in an early childhood setting.

Wiggins (2007) highlighted the relationship between emergent literacy and music and stated that a standards-based approach is best to develop music-integrated literacy experiences. Parallels between music and literacy include developing sensitivity to units of sound (phonological awareness), an ability to express ideas easily (fluency), attentive listening, and encouraging vocabulary development. Teaching strategies are shared and needs of the teacher to create a music-enhanced literacy environment are identified. The author suggested that integrated music and literacy experiences should be crafted with an awareness of the Pre-K MENC Standards. Wiggins also identified resources in the form of books, CDs, song collections, and people (music specialists, university programs, and so forth).

Two studies concerned physical education and music. In a study of 95 preschool children, Pollatou, Karadimos, and Gerodimos (2005) investigated possible gender differences in musical aptitude, rhythmic ability, and motor performance. The authors used three different measures to collect data—the Primary Measures of Music Audiation (Gordon, 1986) for musical aptitude, the High/Scope Rhythmic Competence Analysis Test (Weikart, 1989) for rhythmic ability, and the Test of Gross Motor Development 2 (Ulrich, 2000) for gross motor performance. Results appeared to find no significant differences between gender in musical aptitude and motor performance. However, girls' rhythmic ability appeared to be superior, as scores were higher than boys' for four

of six rhythmic ability components. The authors concluded with a suggestion of incorporating more rhythmic activities in preschool physical education programs.

Written primarily for the physical education teacher, Deli, Bakle, and Zachopoulou (2006) reported on the effects of two intervention movement programs on locomotor skill performance of kindergarten children. The sample of children ($n = 75$) was composed of all who attended each lesson over the 10-week period. Participants were divided into three groups: Group A (movement program), Group B (music and movement program), and Group C (free play). Using the Test of Gross Motor Development (Ulrich, 1985) as a pretest and posttest measure, data were analyzed and they revealed significant performance improvement in both Groups A and B compared with the free-play group (C). Results implied both interventions could contribute to achievement in fundamental motor skills.

Geist and Geist (2008) discussed math and music connections, identifying several musical elements and exploring how they relate to mathematical concepts. Sample music experiences were shared along with tips for incorporating such experiences in the classroom. In the only article not to support the extramusical benefits of music, Hui (2006) investigated the possible influence of the “Mozart effect” on preschool children ($N = 41$). Using the initial “Mozart effect” study (Rauscher, Shaw, & Ky, 1993) and its replications as a methodological guide, participants completed a spatial-temporal task after listening to one of three conditions, Mozart’s Piano Concerto in A Major (K 488), popular music, or silence. Results indicated no statistically significant differences in spatial-temporal abilities across conditions.

In summary, the majority of researchers who discuss music in early childhood educator journals laud the use of music to promote extramusical skills. Music was found to encourage the development of auditory perception, phonological memory, metacognitive knowledge (Bolduc, 2008), and mental imagery (Salmon, 2010). Researchers reported that music helps to activate students’ prior knowledge (Salmon, 2010) and contributes to achievement in fundamental motor skills (Deli et al., 2006). Though any “Mozart effect” on preschool children was rejected (Hui, 2006), instructional strategies for the inclusion of music to promote extramusical learning abound (Paquette & Rieg, 2008; Wiggins, 2007).

Music Strategies

A music-focused issue of *Young Children*, a peer-reviewed journal published bimonthly by the National Association of the Education of Young Children, shared several articles aimed to provide music strategies to early childhood educators. Parlakian and Lerner (2010) discussed

how music “promotes growth in the various developmental domains and how infant/toddler professionals can use music experiences to support children’s early learning” (p. 14). Specifically, they list social-emotional skills (practicing self-regulation and building relationships), motor skills (fine and gross motor development), cognitive skills (patterning and observation of difference), and literacy skills (receptive language and phonemic awareness). A chart described possible music activities based on age and developmental domain to be used in preschool classrooms. Within the same journal, Rae Pica’s reoccurring segment, “Learning by Leaps and Bounds,” remarked about the extramusical benefits of music instruction and shared a quote supporting music for music’s sake. She suggested a move and freeze musical game and directed educators to a few music resources (Pica, 2009).

Susan Friedman (2010), senior editor at the National Association for the Education of Young Children, conducted interviews with artists and arts education directors to discuss the use of performances for young audiences. All interviewees stressed the importance of brief, participatory experiences (30 minutes or less) and suggested visiting local, smaller venues to match the comfort and interest level of children. In another interview article, Koralek (2010) spoke with arts educator Mimi Brodsky Chenfeld about the performing arts in early childhood. Her dialogue shared why she believes the performing arts should be included in early childhood education, strategies for using these subjects in the classroom, and a resource list of articles. One major point made repeatedly is the importance of teachers having a positive self-efficacy about their ability to teach music, dance, and theater.

Early childhood music educators Kim and Robinson (2010) shared steps for knowing and using the National Association for Music Education’s (NAfME) early music standards for 4-year-olds in their article, “Four Steps for Becoming Familiar with Early Music Standards.” The four steps referred to in the title are (a) read the music standards, (b) learn the vocabulary associated with the standards, (c) implement the standards, and (d) reflect on your use of the standards and plan accordingly. In the article, NAfME standards were stated, definitions of music vocabulary were given, and examples for implementing the standards were shared. This article is an exemplar of how NAfME can bridge the gap between early childhood educators and music specialists.

Looking at music strategies in early childhood researcher journals, two studies emerged. Wheeler and Stultz (2008) aimed to illustrate similarities between the behaviors of typically developing infants and children with disabilities in a research project completed over several years. Using the first three stages of Greenspan’s

model of psychosocial development (Greenspan & Wieder, 1998) for analysis, Wheeler and Stultz examined videotapes of musical play sessions with both groups of children. The researchers suggested that observational data revealed the same needs and themes of both groups. Therefore, they concluded that knowledge of typical child development could inform music therapy practices.

Persellin and Bateman (2009) compared the effectiveness of two song-teaching approaches, holistic and phrase-by-phrase. Participants ($N = 32$) were evenly distributed across two first-grade music classes. Each class was taught two folksongs using both approaches; one class learned the first song phrase-by-phrase and the second song holistically. The reverse was true of the second class. All participants were then evaluated on each song individually and vocal accuracy was compared across classes. Although results indicated fewer errors in songs learned holistically, the difference was not shown to be statistically significant.

Musical Parenting

Primarily seen in researcher journals, authors of five studies discussed aspects of musical parenting. Custodero and Johnson-Green (2008) analyzed data taken from one question on the Parents Use of Music with Infants Survey. This survey was used in a national telephone survey of parents of 4- to 6-month-old infants ($n = 904$) and in a follow-up written survey with the same participant pool several months later ($n = 339$). Answers to the one question, "Is there anything else you want to tell me about how or why you use music with your baby?" were coded in an inductive coding process.

Findings of the telephone survey reported that parents of 4- to 6-month-old infants use music to assist with their child's general care and socialization. The follow-up written survey indicated that parents respond to children's musicking with both teaching and socialization. Both data sets were consistent with the literature, revealing that musical parenting adapts to the needs of a developing infant over time. Taking this finding further, this study seemed to indicate that musical interactions of parent and child are also guided by the development of parenting skill and responsiveness, in addition to development of the infant.

Parent-researcher Peter de Vries (2005) shared a narrative detailing observations of how his son moved through the *Zone of Proximal Development* in vocal improvisation and song acquisition during his second year of life. Within Vygotsky's (1978) concept, parents play a role in development through social interaction as they guide their child through the *Zone of Proximal Development* via *scaffolding* (Wood, Bruner, & Ross, 1976). Specific scaffolding techniques used by de Vries

(2005) included "questioning, prompting, praising, confirming, giving feedback, expanding, repeating back, joint problem solving, and modeling" (p. 311). The author suggested that parents and early childhood educators use these techniques.

In another work by de Vries (2008), suggestions of previous studies (Custodero, Britto, & Brooks-Gunn, 2003) led him to investigate the use of music in storytelling and its influence on using music at home. An exploratory case study was completed using focus group interviews of parents/grandparents ($N = 8$) who attended a public library's storytelling sessions, the researcher's observational data of storytelling sessions, and interview data with the storyteller. Emergent themes included music enhancing social interactions, music being used for attention-getting and retention, music being embedded in storytelling, and storytelling with music providing ideas for use of both in the home. These results implied that storytelling sessions are a model opportunity to celebrate the use of music and offer strategies for using music in the home environment.

In an investigation of maternal beliefs and uses of music with infants, Ilari (2005) interviewed 100 mothers of infants aged 7 to 9 months about musical background, preferences, beliefs, and uses of music with their child. Results were consistent with previous literature, listing singing as the primary musical activity of mother-infant dyads. Other findings included a belief that baby-appropriate music exists, with no consensus of what that specific music might be, and a connection between occupation and previous musical experience of mothers to their musical interaction with their infants.

Using excerpts from journal entries, poetry, and sketches, Mackinlay (2009) presented an autoethnography of her musical world as a mother in this *Early Child Development and Care* article. Before exploring "how music becomes mothering" (Mackinlay, 2009, p. 718), she locates biases that are responsible for the lack of mothers' voices discussing motherhood in the literature. With a goal of making the musical worlds of mothers visible, Mackinlay shared her experience in six narratives. In conclusion, she suggested further areas of research that include exploring the diversity of musical mothering experiences and seeking father narratives.

Musical parenting is richly described in these reviewed articles. Findings detailed parents' use of music in general care and socialization (Custodero & Johnson-Green, 2008), scaffolding learning (de Vries, 2005), and musical mothering (Mackinlay, 2009). Data confirmed past research in identifying singing as the most frequent musical experience of mother-infant dyads (Ilari, 2005) and suggested storytelling as a platform for educating parents in the hopes of encouraging musical play in the home (de Vries, 2008). Although the target audience of these

journals is early childhood researchers/practitioners and not parents, these findings can and should be communicated to families via the school setting.

Musical Practices at Home

In addition to the 2008 study by de Vries already mentioned in the “Musical Parenting” section, five studies focused on musical practices at home. Lum (2009) studied a Chinese family in Singapore by collecting multiple sources of data, including observation field notes and audio and video recordings collected in the home and interviews with family members. Specific attention was given to the children of the household, aged 5 and 7 years. Results appeared to show an abundance of music from mass-media sources that influenced the family’s musical world. Lum concluded with thoughts for music educators, stating that teachers must work to validate children’s musical abilities and include children’s family music preferences in the classroom. Popular music was featured in this discussion.

A survey study by de Vries (2009) investigated the use of music in the home environment of families with children younger than 5 years. This study emerged from the authors’ parent workshops in which he makes suggestions for enhancing music making in the home. A brief survey about home musical practices ($n = 63$) was followed with focus group interviews ($n = 11$) designed to discover what affects such practices. Although the data indicated that parents value music, a number of obstacles to its use in the home were identified:

- (1) a lack of time to engage in music-making on a regular basis with young children;
- (2) parental belief that preschool and other educational settings provided a complete musical experience for children;
- (3) lack of parental knowledge about music;
- (4) reliance on commercially available products such as CDs and DVDs for music in the home; and
- (5) focus on the extramusical effects of music. (de Vries, 2009, p. 401)

The author concluded that these obstacles need to be addressed, making work between early childhood music educators and parents necessary.

Young (2009) discussed the concept of musical childhoods in relation to diversity and digital technologies. Young asked, “In times of cultural diversity and changes brought about by digital technologies how are musical childhoods conceived and constructed?” (p. 695). To illuminate her dialogue grounded in literature, she shared two recent research projects in which she aimed to gather an integrated perspective looking at data from a developmental psychological view and a sociological view. In

sharing these studies, Young focused on her interdisciplinary approach and theoretical framework, rather than results.

In her first study, Young interviewed a purposive sample of seven girls who reported singing karaoke at home. During the interviews the children were encouraged to demonstrate their use of karaoke equipment; recorded demonstrations were later analyzed for singing competences, singing style, singing in relation to karaoke technologies, and children’s understanding and relation to their cultural context. In her second study, she interviewed mothers with children in a center serving predominantly Muslim communities. Questions inquired about the quality and quantity of play at home and sought mothers’ views on musical play in early childhood education. From both sets of data, Young identified a growing gap between children’s musical lives and music education.

Studies by Addressi (2009) and Denac (2008) looked at musical practices both at home and in school. Addressi presented an action-research project under way at the University of Bologna, Italy. Future teachers enrolled in the 3-year degree course in early childhood education at the University of Bologna observed under-fours during daily routines at home and at nursery school. Results appeared to show differences in mother–child and father–child dyads during diaper change. Musical interaction between mother and child were more functional in nature, such as relating to language learning, and appeared to extinguish vocalizations. Father–child diaper changes were marked by an abundance of musical play that enhanced vocalizations. This father–child play allowed the child to finish a vocalization before beginning another imitation episode, and consequently encouraged greater frequency and duration of the child’s vocalization. Addressi hypothesized that fathers might be more motivated to play during this routine as it presents one of the few daily times they interact with their child. Mothers, who had multiple moments to share in musical play throughout the day, viewed diaper change as a functional activity, not a play opportunity.

Free play was investigated by looking at play episodes of a musician mother and her 3-year-old son while playing with toy instruments at home. Results implied the presence of extinguishing musical parenting behaviors by the mother as she tried to “teach” her son proper playing position, interrupting spontaneous exploration and correcting his fingers of a play keyboard. The researcher has planned future observations of this mother–child pair to explore the mother’s concept of a musical child and if this concept influences regulation of her child’s play.

Looking at children’s musical interests both at home and school, Denac (2008) asked kindergarten teachers to interview their students ($n = 176$), complete a questionnaire, distribute questionnaires to parents ($n = 176$),

turn-in lesson plans, and administer a test to students for establishing musical style preferences. The author interpreted results to indicate that kindergarten children like dancing/moving to music most, followed by singing songs and playing instruments at school. In the home, parents reported that children showed the greatest interest in listening to music and singing songs, closely followed by dancing/moving to music.

As one might expect, musical practices at home greatly vary. Some homes are filled with sounds of popular music (Lum, 2009) and karaoke singing (Young, 2009), while others experience music during daily routines (Addressi, 2009). Still others use music sparingly, possibly for reasons identified by de Vries (2009). What seems to be clear is that a growing gap between these home music experiences of children and music education practices exists (Young, 2009).

Musical Lives of Children

Although all studies in this literature review are connected to the musical lives of children in some capacity, four explore children's perspectives or use of music in their everyday experience. Yim and Ebbeck (2009) investigated young children's group musical activity preferences across two cultures using a mixed-methods experimental design. Four- and five-year-old children from the Hong Kong Special Administrative Region ($n = 115$) and Adelaide City of South Australia ($n = 113$) were interviewed about likes or dislikes of four selected musical activities: singing, listening, playing musical instruments, and dancing/moving. An initial quantitative question, "Do you like (musical activity)?" was followed by a qualitative question, "Why do/don't you like (musical activity)?" Results indicated that dancing/moving was the preferred musical activity of both groups of children. In addition, results of qualitative data demonstrated significant cultural differences between the other three musical activities (singing, listening, and playing instruments). Implications for educators included using dancing/moving activities, having an awareness of children's daily musical experiences, creating a predictable music listening environment through the use of routines, and making musical instruments and materials visible and accessible to children.

Pramling Samuelsson and Pramling (2009) questioned traditional models of assessment and development because they believe that assessment must focus on children's perspectives collected in an interactive, social process. They discussed the importance of children's perspectives in considering development. When attempting to understand children's construction of meaning, teachers must honor more than one "right" answer. Using data from three previous studies to describe how children

make sense of their world, Pramling Samuelsson and Pramling shared narratives from an observed episode of music, mathematics, and nature.

In her study of young children's musical worlds, Lamont (2008) used *experience sampling methodology* (Csikszentmihalyi & Lefevre, 1989), an approach that collects data through random cell phone contact with participants throughout a specific time period. Lamont loaned participants (32 children and their caregivers) a mobile phone, which they were to keep turned on during child-appropriate hours. Researchers contacted participants for a maximum three times per day over a consecutive week and asked a series of questions about their present musical environment at the time of or 2 hours previous to the phone call. Results of the 437 episodes sampled indicated that 81% of young children's waking hours include exposure to music. Other detailed results are shared in an overall summary of percentages gathered from each question and through two case studies.

In a rare narrative inquiry study of music in early childhood, Barrett (2009) shed light on the everyday musical lives of one young child and his family. Based on her story, Barrett acknowledges five findings relevant to the field: (a) early music programs have a role in parenting education, (b) joint musicking functions as a mood and behavior regulator, (c) joint and individual music-making contributes to language development, (d) individual music-making plays a role in children's self-making, and (e) joint music-making fosters family unity. In addition to the data gathered, this study served as a model of narrative inquiry, a methodology scarcely used in early childhood music education research to date.

The musical lives of children have received great attention in recent years; these studies add to this literature in new ways. The variety of methodological approaches used illuminates personal stories and daily soundscapes. The importance of open-ended activities is suggested in focusing assessment on children's perspectives and making music materials visible and accessible to children. Allowing children to shape classroom musical experiences honors their capabilities and brings school experience closer to lived experience.

Musical Practices at School

In addition to the studies by Addressi (2009) and Denac (2008) that look at musical practices at school and in the home, two works emerged that focused solely on the school setting. Andang'o (2009), professor at Kenyatta University in Nairobi, Kenya, researched teaching practices in early childhood music education in her home country. Results of 130 questionnaires revealed that most early childhood educators in Nairobi believed the purpose of music is primarily for enjoyment and the primary

aim of music and movement is relaxation. Singing and dancing were the most popular activities during music and movement time and religious songs were chosen as the most frequently performed. Additional observational data showed that spontaneous music and movement sessions took place in a whole group, mixed-age format on the playground. Andang'o spoke of a concern for a lack of indigenous Kenyan music used in the schools and a lack of attending to individual differences, as she believes musical activities should be culturally relevant and developmentally appropriate. This article also shared general information about music education in Kenya, including history of the discipline, early childhood education, and musical experiences in early childhood education.

Gillespie and Gilder (2010) investigated the frequency and quality of music used in five preschool classrooms. Data were collected using an event sampling procedure and direct classroom observation, and categorized using a system based on field notes from another qualitative study (see Roulston, 2006). Results reported music being used 6.5 times per hour on average in each classroom. Teachers appeared to use music most frequently to scaffold learning, followed by using music to facilitate routine activities. Designated music and movement times accounted for only 14% of the music used through the school day. These two studies illuminate the differences of music use in preschools across cultures.

Integration

By chance, the two integration-related articles identified in the research detailed information about the same school—Kaleidoscope Preschool in Philadelphia, Pennsylvania. Armistead (2007), a now retired administrator from the Settlement Music School, described the arts enrichment preschool, Kaleidoscope, within the Settlement system. Children receive 35 minutes of music, dance, and art instruction a day, in addition to studying other disciplines in the homeroom setting. She, with researchers Brown and Benedett (2010), completed two studies investigating the effects of the arts integration program on school readiness. Results appear to indicate that arts enrichment may promote growth in children at risk.

Uncategorized

Four studies found in the music keyword search did not align with identified themes. Hefer, Weintraub, and Cohen (2009) searched for evidence of musical cognitive activity at birth in their study of 23 infants. Three stimulations were presented to participants one day during their first week of life (excluding the day of birth): music

compared with silence; tonal, structured music versus unorganized sounds; and an abrupt versus prepared ending in a musical example. The researchers used Mozart's Piano Concerto No. 8 in C major K. 246, 2nd movement to create the three desired sounds. An electroencephalogram measured the infant's brain activity and a video camera recorded motor responses during the treatment. Three case studies were shared to demonstrate significant difference in behavior to each stimulus. For example, one child remained relatively still with her eyes closed while hearing silence or random sounds. Conversely, on hearing the Mozart excerpt the infant used a variety of movements and opened her eyes. Results for the other two case studies were similar, noting an "astonishingly synchronized" (Hefer et al., 2009, p. 775) cyclical hand motion during Mozart's music for all three babies. Electroencephalogram results indicated that infants perceive random musical material differently than organized sound. The researchers suggested that this evidence of infants' musical cognitive processing should encourage exposure to music to develop their inborn musical capacity.

As a participant-observer, St. John (2009) explored musical experiences in an intergenerational study of infants/caregivers and elderly Sisters. Infants/caregivers, with a median age of 9.4 months, and Sisters, ranging in age from 70 to 94 years, participated in six hour-long music classes. As St. John explained her research purpose, "I was curious to explore how young and old might mutually engage in musical experiences, where the offering and receiving of musical responses was reciprocal, and where participants could potentially mirror musical discovery for each other" (p. 734). Data collection was manifested in the form of an information form, caregiver and Sister journals, an exit questionnaire, field notes from informal conversations with the researcher, and follow-up interviews with all Sisters. Triangulation of data resulted in emergent themes that included exchanging voices, mirrored subjects, and episodic interplay. Sisters reported having a renewed sense of purpose in life as a result of participating in the intergenerational music program. St. John (2009) expressed being "struck" by the "mirrored commonalities reflected in growing up and growing old" (p. 743). Suggestions for intergenerational teaching practice included providing choice for participants, inviting participants to music, providing time and space for responses, honoring multiple interpretations, and expressing sincerity and authenticity in communication.

Veteran educator Bell (2009) discussed her lived experiences as a student and teacher to illustrate her way of "being" in early childhood music education. Narrative data were shared in distinct memories and reflections throughout her musical life. She believed exploring her own teaching and learning experiences over 29 years in the field of early childhood music education would

inform her practice. Implications or applications were not made, as her personal data are not generalizable.

Schraer-Joiner and Chen-Hafteck (2009) completed a multiple case study of three 4-year-olds with cochlear implants. Experience with implants varied for each participant: Child A had them for 3 years, Child B for 1 year, and Child C for 1 month. Qualitative data were gathered during the several months of weekly music lessons. However, this article focused on data obtained during the final four lessons of the children's enrollment. Research objectives were to examine responses to musical activities and the effects of experience with implants on musical behavior. Results showed that all three children responded musically, though varied in their type of responses. The researchers inferred that cochlear implant experience effected musical behaviors of these children and concluded that music educators need to observe individual differences and modify their teaching strategies accordingly. Such accommodations will affect children's responsiveness, comfort level, and overall music development.

Implications and Suggestions for Further Research

Preschool classroom teachers bear the responsibility of providing young children with a well-rounded education that incorporates every academic discipline. Music educators should assist these colleagues with music instruction using all possible venues. This review of literature explored one such venue: communication via professional journal articles. Organizing themes indicated early childhood educator interest in the extramusical benefits of music, music strategies, musical parenting, and music practices in the home and at school. The higher prevalence of articles pertaining to the use of music to support other skills signals a belief in incorporating music in a subservient manner. Although all benefits of music are to be celebrated, using music to promote other skills should not supersede using music for music's sake. Music educators should continue to promote music instruction for the development of music skills and provide educators with strategies to achieve this goal.

In answering the research question "Is music's representation in early childhood educator journals efficient and effective?" a mixed response is appropriate. Efforts to increase the prevalence of music in these journals are clear and evidenced by two music-focused issues (one *Early Child Development and Care* and *Young Children*). However, these journal issues account for 15 of the 38 articles discussed, showing that music articles in other issues are few and far between. Although the breadth of information shared affords a basis of music education knowledge, the ratio of music articles does not represent an efficient model of music instruction.

Music educators must expand on this body of research. The majority of researchers whose publications were discussed are music educators, signaling that our field has already begun to recognize this pathway of communication to early childhood practitioners. In addition, a varied sampling of research methodologies indicates that these journals welcome qualitative research and untraditional approaches. Researchers interested in these methods can look to the models presented in these publications. Lastly, future researchers can follow their colleagues' lead, directly communicating to early childhood educators through this medium and increasing submissions to journals yet to publish music-related works.

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