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Can Music Enhance School-Readiness Socioemotional Skills?

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This study examines the effects of a school-readiness music program on preschool children's socioemotional readiness to transition to kindergarten. Young children ($N = 102$) attending a preschool program (four classes) in a children's center run by a state university in the south-western United States participated in this study. Two of the classes were assigned to the music school-readiness group and two classes were assigned to the control group (no music school-readiness curriculum). Baseline measures of children's development and readiness for school across multiple domains (cognitive, language, socioemotional, motor, self-help) were established before the implementation of the music program and the measures were readministered after the program to examine change over time. The study examined (1) the impact of the school-readiness music program on children's acquisition of social skills as reported by teachers and parents and (2) the impact of the program on teacher reporting of school readiness that include measures assessing language, learning, and self-help skills. The results indicated that the music group improved on the social skills (total score) and specifically on the social cooperation, social interaction, and social independence scales. Using music-based curriculum facilitates the learning of the social skills needed to transition to kindergarten.

Keywords: early childhood education, social-emotional learning, readiness, music

School readiness, defined as a child's ability to successfully transition to kindergarten, has been a national education goal in the United States since the Charlottesville summit in 1989 declared that "All children in America will start school ready to learn" (National Education Goals Panel, 1991). And yet more than one third of preschoolers are still considered unprepared to transition into kindergarten, due to problems in behavioral and emotional skills (Knitzer, 2001). In fact, "approximately 10-15% of typically developing children have chronic mild to moderate levels of behavior problems" (Timm & Fox, 2006, p. 1). According to a 2002 report by the Frank Porter Graham (FPG) Child Development Institute, "40% of preschoolers exhibit at least one antisocial behavior each day, 24% exhibit three or more per day and 10% exhibit six or more antisocial behaviors each day" (p. 7). Being ready to transition to school may mean less confusion and stress, along with fewer maladaptive behaviors. The importance of school-readiness skills

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was highlighted in *Readiness: School, Family and Community Connections* (National Center for Family and Community Connections With Schools, 2004), which indicated that children who get off to a good start in kindergarten tend to maintain that advantage as they progress through school. Because of this research showing the importance of school readiness, programs are needed that promote such skills in preschools.

WHAT ARE SCHOOL-READINESS SKILLS?

School readiness refers to “the social, political, organizational, educational, and personal resources that support children’s success at school entry” (Piotrkowski, Botsko, & Matthews, 2000, p. 540). There are neighborhood, school, family, and child levels of readiness that need to be considered when addressing school readiness. The music-based school-readiness program specifically addresses the child’s level of readiness and refers to the specific set of skills that help determine a child’s overall “school readiness” or ability to transition to kindergarten. Piotrkowski et al. (2000) argued that school readiness consists of health and self-care, emotion and behavior regulation, interactions with and attitudes toward adults and children, effective communication of needs and feelings, an interest and engagement of the child in the world around them, motivation to learn, motor skills, cognitive knowledge, and ability to adjust to the kindergarten classroom’s demands.

Importance of Socioemotional Skills

In a study examining the views of 3,000 kindergarten teachers, Lin, Lawrence, and Gorrell (2003) found that the teachers’ concerns in regard to school readiness centered on children’s social skills and self-regulation behaviors (henceforth referred to as socioemotional skills) in schools (communicates wants and thoughts, 83.9%; not disruptive of the class, 78.6%; follows directions, 77.5%; takes turns and shares, 73.6%; sits still and alert, 61%; finishes tasks, 53.6%; problem-solving skills, 35.1%; sensitive to others, 61.8%). Less emphasis was put on specific academic skills (counts to 20 or more, 14.6%; knows most of the alphabet, 21.4%; names colors and shapes, 32.3%; and uses pencil, brushes, 36.0%). Surveying 1,448 kindergarten teachers about the characteristics important for school readiness, the National Center for Education Statistics (NCES) in 1993 reported that 64% of teachers valued social skills (e.g., ability to take turns, share) more than academic skills (e.g., reading) (Meisels, 1998). Hence, kindergarten teachers put more emphasis on socioemotional self-regulation skills for school readiness, and less emphasis on specific academic skills.

Role of Music in Education

Music has the potential to be an ideal tool for enhancing school readiness. It can affect a child’s approach to learning by increasing enthusiasm for and engagement in learning new skills. Robinson (2002) stated that movement and music are joyful for children and therefore can be used effectively to teach children. The National Association of Child Care Resource and Referral Agencies (NACCRRA; 2008) described music as a universal connector that inspires, soothes,

excites, and bonds human beings of all ages and cultures. Beginning in infancy, musicality exists at the core of family interactions and forms the basis for social and emotional communication throughout the life span (Dissanayake, 2000; Papousek, 1996; Trevarthen & Malloch, 2000; Zur & Johnson-Green, 2008). Zentner and Eerola (2010) found that preverbal infants had increased rhythmic response to music compared to speech. This supports the idea that children, from a very young age, find connections to music that may not develop solely from verbalizations, and that rhythmic music could potentially serve as a way to engage children in learning. Bjørkvold (1989) asserted that spontaneous musical behavior is essential and a central element of play. Encouraging music helps one's ability to function and learn. In addition, musical play has been described as promoting the highest levels of creativity and social and cognitive development (Stevenson, 2003). NACCRRRA (2008) recommended using music as part of the daily routine to help children transition smoothly from one activity to another and adjust to demands. In addition, there is extensive research highlighting the benefits music has for building self-regulation and new skills (Custodero & Johnson-Green, 2008), making it appropriately suited for use in developing school-readiness skills.

Research is now establishing the link between music education and school readiness across specific developmental domains. Yazejian, Peisner-Feinberg, and Heyge (2009) agreed that music education affects children's development across an array of domains. For example, music and movement activities promote fine motor skills, large motor skills, and the sensorimotor, eye-hand coordination skills. According to Robinson (2002), music helps children's socioemotional development in that music experiences and interactions with other children provide children who have difficulty initiating an interaction with another child the motivation and context for practice of this skill. In addition, music activities (e.g., song texts, rhyming words, rhythmic patterns, steady beat, dramatization of stories through movement and instruments) have a dramatic effect on reading and literacy. Several studies have demonstrated that music helps children learn cognitive skills and general knowledge (Bilhartz, Bruh, & Olson, 2000; Standley, Walworth, & Nguyen, 2009). For example, Harris (2008) found that young children who were enrolled in a Montessori program and had experienced music-enriched curriculum had higher achievement scores in mathematics than those who had experienced only the Montessori program. Increases in abstract reasoning ability and memory were found among young children who were exposed to early music instruction compared to children in the control group (Bilhartz et al., 2000).

THIS STUDY

The purpose of this study is to examine the impact of a school-readiness music program on children's social skills and school-readiness skills, including language, learning, and self-help skills. The music-based school-readiness program was created in collaboration with a PhD-level early childhood education expert and a local music production business. It is referred to as the Circle of Education music-based school-readiness program. Songs were created following research recommendations showing the importance of socioemotional skills for school readiness (Howes et al., 2008; Lin et al., 2003). Thus, 15 out of the 20 songs focus on socioemotional skills (taking turns, waiting to get the permission to talk, keeping your hands to yourself, sitting and being ready to learn), daily routines (signing-in, saying hello and goodbye), self-esteem (loving self, being different, having friends), and self-care (eating fruits and veggies, washing hands, exercising,

practicing self-hygiene, being green), only five songs address academic skills, such as knowledge of alphabet, numbers, colors, shapes, reading, and writing. The specific behaviors around which these 20 songs were created were based on the Desired Results Developmental Profile (DRDP) used by the California Department of Education (2010). This tool is used by all California state-funded early education programs assessing and monitoring a child's progress on 39 skills deemed necessary for school readiness. The desired result domains include personal and social competence, effective learning, physical and motor competence, safety and health, family support of learning and development, and achievement of goals.

To examine the effectiveness of the Circle of Education music-based school-readiness program, a research study using quasi-experimental design was implemented for two semesters, during which one group of preschoolers received the music-based curriculum while the other group did not. The study examined (1) the impact of the school-readiness music program on children's acquisition of social skills as reported by teachers and parents and (2) the impact of the program on teacher reporting of school readiness, which included measures assessing language, learning, and self-help skills. It was hypothesized that (1) children participating in the music school-readiness program would demonstrate increases in social emotional developmental outcomes compared to children in the control group and (2) children in the music group would be rated higher on school-readiness skills that included self-help skills, learning, and emotional regulation, than the children who are in the control group.

METHOD

Participants

One hundred and two children (53 boys, 49 girls; age 36–60 months) and their parents and teachers were recruited from a state university campus child care center in the southwestern United States. Parents were approached and asked to participate, as well as to allow their children to participate. The participants represented a variety of ethnicities: 52% were White, 17% were Hispanic, 11% were Asian, and 20% were Native American/Alaskan Native, African American, or unknown. Fifty-five of the children and parents were recruited from two classrooms that received the music intervention; the other 47 children and their parents were recruited from two other classrooms assigned to the wait-list control group and did not receive the music intervention. Both parents and teachers were recruited, along with children, to receive a variety of information sources regarding the behavior of the child.

Procedures

The parents in four classrooms at the child care center were given packets that described the music program and evaluation procedures, and parental permission and consent forms for their own participation. The packet also included surveys measuring parent reports of their child's social skills and problem behavior, parent-child relationships, and their own parental involvement in their child's education. Teachers in each classroom completed the same surveys measuring their reporting of each child's social skills and problem behavior, as well as additional surveys

measuring the child's school-readiness skills, and the teacher's view of parental involvement in the child's education. Only the measures assessing social skills and kindergarten readiness skills are discussed here.

Description of intervention and implementation procedures. The songs included in the music-based curriculum were created based on the skills of the DRDP. A set of 20 songs was created to encompass as many DRDP school-readiness skills as possible, while focusing on socioemotional skills. These songs were written through a collaborative effort between an early childhood education expert and a local music production business, considering musicality, instrumentation, tonality, lyrical content, and age appropriateness. The background melodies used included public domain songs and original music. The vocalists, one male and one female, sang solo on some songs while dueting or accompanying on others.

Songs were accessed by participants through prerecorded CDs containing all 20 songs, which were distributed to teachers and parents in the Music groups. Teachers either played the recordings on CD players in their classrooms when they felt it was appropriate, or they sang the song (either in whole or in part) to the class without CD accompaniment. Parents were allowed the same options. The songs were used either as integrated aspects of the preschool/home curriculum/routine, or as quick reminders for certain behaviors at the appropriate time by teachers and parents. For instance, a teacher may play or sing a certain song every time the students sit down for "circle time," or they may sing a snippet of the song to remind a child to sit down at the appropriate time. Teachers and parents were encouraged by research staff to incorporate the songs into their daily routines, especially when addressing the specific behaviors of each song.

To train parents and teachers in ways to include the music-based curriculum in their daily routines, both parties attended a training sessions with the songwriters at the beginning of the intervention. The songwriter visited each treatment classroom 3 times over a 2-week period to teach and practice the songs with the children. Teachers attended several trainings with the songwriter to learn the songs. They also met with a professor specializing in early childhood education, to learn ways to utilize the songs during daily routines and as part of the curriculum focused on teaching the school-readiness skills addressed by the songs.

Assessment procedures. Initial assessments (preintervention tests) were completed between October and December; 4 to 8 months later, assessments (postintervention tests) were completed (April–June). For the postassessments, 98 participants returned (52 from the treatment group, 46 from the control group). The four participants who did not complete surveys had not returned to the children's center in the spring.

Measures

The Preschool and Kindergarten Behavioral Scale (2nd ed.; PKBS-2; Merrell, 2003) is a 76-item scale designed to measure social skills and problem behaviors of children age 3 to 6. For the purposes of this study, the PKBS-2 social skills scales were used to assess positive social skills. Parents and teachers completed the measure, which takes about 10 minutes to complete. The total social skills scale comprises three subscales assessing: social cooperation, social interaction, and social independence. Sample social cooperation items include "Follows instructions from

adults,” “Shows self-control,” and “Takes turns with toys and other objects.” Sample social interactions items are “Makes friend easily,” “Follows rules,” and “Accepts decisions made by adults.” Sample social independence items include “Is able to separate from parent without extreme distress,” “Adapts well to different environments,” and “Stands up for his or her rights.” Each item is rated on a scale from 0 to 3, labeled *never*, *rarely*, *sometimes*, and *often*. The PKBS was developed based on sample size of 3,313 children. Test–retest reliability ranged from 0.62 to 0.87, inter-rater reliability from .036 to 0.63, and internal consistency reliability from 0.84 to 0.97. For this sample, Cronbach’s alphas for parents’ PKBS were .92 for the Total Social Skill Scale, .88 for the Social Cooperation subscale, .83 for the Social Interaction subscale, and .73 for the Social Independence subscale. For teachers’ PKBS, alphas were .97 for the Total Social Skill Scale, .95 for the Social Cooperation subscale, .92 for the Social Interaction subscale, and .92 for the Social Independence subscale.

The Kindergarten Readiness Survey (Piotrkowski, 1998) is a 46-item scale completed by teachers to assess a variety of school-readiness skills. There are seven subscales: Physical and Motor Development (e.g., “Throws ball, skips, runs, hops, walks up/down stairs,” “Stacks 5-6 blocks by him/herself”), Self-Care (e.g., “Feeds self with fork,” “Zips own jacket”), Social and Emotional Development (e.g., “Is self-confident. Proud of his/her work,” “Takes turns”), Approach to Learning (e.g., “Is eager to learn,” “Is curious”), School Routines and Work Habits (e.g., “Pays attention to teacher,” “Cleans up work space and spills”), Language and Reading (e.g., “Knows ABCs,” “Can express feelings/needs in English”), and General Knowledge (e.g., “Understands big/small. Sorts by color/size,” “Can count to 10 or 15”). Teachers rated each item on a 4-point scale labeled: 1 (*the child does not master the skill*), 2 (*the child had emerging skill level*), 3 (*the child mastered the skill most of the time*), and 4 (*the child masters the skill all the time*). Internal reliability for the subscale scores were consistently high for this sample. Cronbach’s alphas were .92 for the Physical and Motor Development SCALE, .85 for Self-Care, .95 for Social and Emotional Development, .96 for Approach to Learning, .96 for School Routines and Work Habits, .89 for Language and Reading, and .87 for General Knowledge.

RESULTS

To examine the effectiveness of the program, 2 Group (intervention/control) \times 2 Time (pretest/posttest) analyses of variance were run to assess effects on parent and teacher reporting of social skills (PKBS-2), and teacher reporting of other school-readiness skills (Kindergarten Readiness Survey).

Teacher Report of Social Skills

The 2 (group) \times 2 (time) ANOVA on the PKBS-2 Social Skills Total Score revealed a significant interaction, $F(1, 92) = 10.51, p < .01$. Post-hoc t tests revealed that for the music intervention group, teacher report of total social skills scores increased from Time 1 ($M = 78.64, SD = 16.72$) to Time 2 ($M = 87.24, SD = 14.26$), $t(49) = 4.44, p < .001$. For the control group, there was no difference in social skills scores from Time 1 ($M = 83.93, SD = 11.43$) to Time 2 ($M = 83.77, SD = 14.01$).

Separate 2 (group) \times 2 (time) ANOVAs were run on the 3 Social Skills subscales of the PKBS-2. For the Social Cooperation subscale, there was a significant interaction, $F(1, 93) = 4.25, p < .05$. The music intervention group increased in social cooperation subscores from Time 1 ($M = 31.54, SD = 7.60$) to Time 2 ($M = 35.54, SD = 6.38$), $t(49) = 5.06, p < .001$; however, the Control group does not increase: Time 1 ($M = 33.16, SD = 5.72$); Time 2 ($M = 34.71, SD = 6.26$).

Similar interactions were found for the Social Interaction and Social Independence subscales; $F(1, 93) = 9.32, p < .01$ and $F(1, 94) = 14.88, p < .001$, respectively. Post-hoc t tests revealed that the music intervention group increased in social interaction subscores from Time 1 ($M = 24.78, SD = 5.61$) to Time 2 ($M = 27.62, SD = 5.42$), $t(49) = 4.03, p < .001$; whereas, again, the control group did not differ across time: Time 1 ($M = 26.51, SD = 4.30$); Time 2 ($M = 26.18, SD = 5.25$). Similarly, post-hoc t tests showed that the music intervention group increased in social independence subscores from Time 1 ($M = 26.52, SD = 5.46$) to Time 2 ($M = 28.76, SD = 4.30$) $t(49) = 3.27, p < .01$; whereas, the control group decreased from Time 1 ($M = 29.0, SD = 3.79$) to Time 2 ($M = 27.80, SD = 4.32$), $t(45) = 2.15, p = .037$.

Parent Report of Social Skills

To examine parent report of social skills, 2 Group (intervention/control) \times 2 Time (pretest/posttest) ANOVAs were run on parents' PKBS-2 scale scores: Social Skills Total Score, and the subscale scores for Social Cooperation, Social Interaction, and Social Independence.

Unlike the findings on teachers' PKBS-2 scores, there were no significant interactions found for parents' PKBS-2 social skills scores. Significant main effects for time were found for parents' Social Skills Total Score, $F(1, 34) = 7.74, p < .01$; Social Cooperation subscore, $F(1, 44) = 7.18, p < .05$, and Social Interaction, $F(1, 37) = 9.37, p < .01$. That is, over time, children's positive social skills scores increased from Time 1 ($M = 86.89, SD = 11.18$) to Time 2 ($M = 90.17, SD = 9.96$), $t(35) = 3.01, p = .005$; Social Cooperation subscores similarly increased over time, Time 1 ($M = 34.63, SD = 5.36$) versus Time 2 ($M = 36.17, SD = 4.79$), $t(45) = 2.76, p = .008$; Social Interaction subscores improved as well, Time 1 ($M = 27.70, SD = 4.67$) to Time 2 ($M = 29.15, SD = 4.12$), $t(38) = 3.24, p = .002$. For Social Independence subscores, no interaction or main effects were found.

Teacher Report of Other School-Readiness Skills

To further examine the music program's impact on teacher reporting of school readiness, 2 Group (intervention/control) \times 2 Time (pretest/posttest) ANOVAs were run on the seven subscales of the Kindergarten Readiness Survey (Piotrkowski, 1998): Physical and Motor Development, Self-Care, Social and Emotional Development, Approach to Learning, School Routines and Work Habits, Language and Reading, and General Knowledge.

A significant interaction was found for Approach to Learning, $F(1, 94) = 13.48, p < .001$. Post-hoc t tests revealed that the music group scores increased from Time 1 ($M = 17.80, SD = 4.86$) to Time 2 ($M = 20.84, SD = 4.04$), $t(50) = 5.41, p < .001$. For the control group, no differences were found for Time 1 ($M = 20.87, SD = 3.67$) versus Time 2 ($M = 21.22, SD = 3.55$) scores.

Main effects for Time were found for Self Care, $F(1, 93) = 79.99, p < .001$; Social and Emotional Development, $F(1, 93) = 24.70, p < .001$; School Routines and Work Habits, $F(1, 94) = 50.80, p < .001$; Language and Reading, $F(1, 93) = 48.75, p < .001$; and General Knowledge, $F(1, 95) = 25.40, p < .001$. That is, Self-Care (Time 1: $M = 11.35, SD = 2.55$; Time 2: $M = 13.32, SD = 2.56$); Social and Emotional Development (Time 1: $M = 18.37, SD = 4.10$; Time 2: $M = 19.93, SD = 4.00$); School Routines and Work Habits (Time 1: $M = 22.07, SD = 5.67$; Time 2: $M = 25.06, SD = 5.16$); Language and Reading (Time 1: $M = 21.92, SD = 4.88$; Time 2: $M = 24.26, SD = 5.03$); and General Knowledge (Time 1: $M = 21.38, SD = 4.58$; Time 2: $M = 23.10, SD = 5.15$) scores all increased over time. No interaction or main effects were found for Physical and Motor Development.

DISCUSSION

This study examined the impact of a music program on children's acquisition of school-readiness socioemotional (social and self-regulation) skills as reported by teachers and parents. There is evidence that the program was successful in promoting positive socioemotional skills, such as social cooperation (e.g., "Shows self-control" and "Takes turns with toys and other objects"), positive interactions (e.g., "Makes friends easily," "Accepts decisions made by adults"), and social independence (e.g., "Is able to separate from parent without extreme distress," "Adapts well to different environments"). That is, for the music intervention group, teachers' report of total social skills scores increased from Time 1 (before the intervention) to Time 2 (about 6 months later). For the control group, there was no difference in social skills scores from Time 1 to Time 2.

The positive effects found on children's social skills, such as social cooperation, positive interactions, and social independence, are not surprising because the music-based school-readiness program followed research recommendations and the majority of songs (15 out of 20) address socioemotional growth and competencies (e.g., self-regulation, daily routines, self-esteem, self-care). That is, because several studies (e.g., Howes et al., 2008; Lin et al., 2003; Meisels, 1998) concluded that kindergarten teachers view social behaviors (e.g., communicates wants and thoughts, not disruptive of the class, follows directions, takes turns and shares, sits still and alert, finishes tasks, problem-solving skills, and sensitive to others) as the most essential for school readiness, most of the songs focused on these social skills versus specific academic skills (e.g., counts to 20 or more, knows most of the alphabet, and names colors and shapes.) The results indicate that this music-based school-readiness program helps reinforce the social and self-regulation (socioemotional) skills needed for children to be successful in school and ready to learn.

This effect was found for teachers, but not parents' report of social behaviors. It is possible that children's social skills improved at school but not at home. It is possible that, over time, positive gains in social skills seen in the classroom may generalize to the home. It is also possible that at home, when the child is not within a group of children, parents are not aware of such skills and behaviors as turn taking, following directions, sharing, treating others with respect, completing tasks, and problem solving. Teachers in the classroom may be the ones who observe the child performing these skills and behaviors and therefore can assess the improvement and growth in these areas, whereas parents may be less aware of these types of social behaviors. Continued development of accompanying curriculum for parents is needed to further promote the home-school connection, parents' awareness of skills and behaviors needed for school readiness, and children's positive social behaviors at home.

There is also evidence that the program was successful in promoting children's positive approach to learning. Children in the treatment group, who were exposed to the music-based school-readiness curriculum, were found to have higher approach to learning scores at Time 2 than at Time 1, whereas children in the control group showed no differences in these scores across time. Thus, it appeared that the music program may have resulted in children being more eager to learn and more curious, as these are items included in the approach to learning subscale. Robinson (2002) stated that children find music and movement to be a joyful, playful, and efficient way to learn. It should come as no surprise, then, that music and movement may have been instrumental in increasing children's joy in learning.

The results of this study did not find music effective in promoting academic skills. This is perhaps surprising because several of the songs address early literacy (numbers, shapes, colors, letters). However, previous research has demonstrated that music has benefits for learning very specific cognitive skills, such as abstract reasoning (Bilhartz et al., 2000), but may not be effective in enhancing other skills, such as spatial abilities of preschoolers (Hui, 2006). More research is needed to further identify the specific academic skills enhanced by music.

LIMITATIONS AND FUTURE DIRECTIONS

Although the results are promising and suggest that this new music-based program may be effective in promoting socioemotional growth and increased school-readiness skills in preschool-age children, several limitations should be noted. The small sample size and lack of representation of some ethnic minorities limit the generalizability of this study. For example, the children in this study were children of university students or professors, which may have affected the effect of the music program. This population could be considered of a higher socioeconomic status and higher educational level and thus may have been better equipped to interact with our program. Future implementation will take place in Head Start programs to identify the effects of the program on children who are English learners as well as the impact on their parents and their level of involvement. The program needs to be translated to other languages, such as Spanish, to facilitate the learning process and their link between home and school. Future research needs to evaluate the effects of the program with a larger sample size and diverse groups of children. In addition, long-term effects of the program need to be evaluated in a longitudinal study to assess the lasting effects of the program on children's school-readiness skills as they attend kindergarten and 1st grade.

This study adds to previous research by creating and evaluating an evidence-based program aimed at improving specific kindergarten readiness skills in preschoolers. Future iterations of the program could be beneficial additions to a wide variety of preschools as well as homes with young children. Once additional research has been conducted, this program could be considered a useful tool for educators wishing to improve many of the school-readiness skills required of today's preschoolers.

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