

A Study of the Effects of a Reading Enhanced Group Music Program on Children's Reading

Anita Louise Steele, MEd, MT-BC Associate Professor, Chair of the Music Therapy Department, School of Music Ohio University

In a 1995 report by the United States Department of Education and the National Institute of Child Health and Human Development it was predicted that 17.5% of young children in the United States will have reading difficulties in the early years of their education. Literacy is of particular concern in the southeaster rural Appalachian area of Ohio. The fact that Ohio University resides in this area, one of the poorest counties in the state, provides opportunities for researchers to study techniques which may enhance the effectiveness of reading tutoring. A special summer camp, Kids on Campus, is a six-week day camp for approximately 150-200 children, K through middle school. Most of the students in this program have been referred due to below norm reading scores and due to poor nutrition.

Research teaches us that the brain attempts to organize incoming sound and to categorize the meaning of individual experiences. Auditory rhythmic stimuli have been demonstrated to facilitate the organization of the brain's control of rhythmic (patterned) movement and speech patterns (Thaut, 2005).

Previous studies of music curricula that emphasize pre-reading skills have shown positive effects on selected reading skills. Colwell (1994) found that the presentation of information to be learned within the context of a song promoted increased retention and recall in language arts and math. Standley and Hughes (1996) reported the use of an age appropriate music curriculum which elicited that attention of children in an early intervention program and produced high levels of on-task behavior. A study by Guthrie, Meter, McCann, Wigfield, Bennett, Poundstone, Rice, Faibish, Hunt and Mitchell (1996) suggests that literacy engagement is strongly effected by changes in motivations and strategies. Their study found that students who increased in intrinsic motivation also increased in their use of higher order cognitive strategy

Further investigations by Standley and Hughes (1997) and Register (2001) demonstrated positive effects of a year-long dedicated music curricula on the reading and writing skills of children ages 4-6 with diagnosed learning difficulties. The researchers found that the use of music significantly enhanced print concepts and prewriting skills. Register's research found that the students in the experimental presented with the dedicated music curriculum achieved significantly higher results on logo identification and word recognition test. A pilot study by Colwell (2002) investigated the effect of singing and chanting on the reading accuracy of elementary age children. Results indicated that reading accuracy improved in both music and no music conditions however on-task behavior was higher in the music condition.

Purpose

The purpose of the current study was to determine whether or not oral reading scores of reading delayed children could be improved following exposure to a reading enhanced music curriculum.

Methodology

Subjects

The study was conducted during a six-week remedial summer reading program. The 150 children ages 5-7 (K -2nd grade) enrolled in the primary academy were the target group from which subjects were selected. Camp activities were conducted in the College of Health and Human Services, on the campus of Ohio University.

Potential subjects for the study were those children who tested in the lower 25% (recognition of 5 or fewer words) on the Slosson Oral Reading Test (Slosson and Nicholson, 1994) pre-test administered by the camp's reading tutors. The Slosson Oral Reading Test is a test of decoding skill using word calling from a graded word list. 39 children (23 males and 16 females) met the inclusion criteria.

The parents of the study children signed consent forms prior to the study and all participating children were required to give verbal or written assent. The subjects were then given the Song Word pre-test designed and administered by the researcher and research assistants. The Song Word test is a test of decoding skill using word calling from a list of 20 key words from familiar children's songs incorporated in the reading enhanced music curriculum. The researchers had no knowledge of the words presented in the Slosson Oral Reading Test, administered by camp staff therefore the two tests were independent of each other. Following all testing, the 39 children were randomly assigned to control and experimental groups of 4-7 children each. Pre-testing and post testing for both the Slosson Oral Reading and the Song Word tests were administered during the first and sixth week of camp.

Procedure

Both the control and experimental groups were conducted by Board Certified Music Therapists assisted by undergraduate music therapy students. The music therapists met prior to the project to review testing procedures for administering the Song Word pre and post test, and the types of materials and the basic format for presentation of music experiences during each session. Student assistants were given training in administering the Song Word Test. They also received instructions related to conducting selected music experiences during sessions.

The control groups participated in 2-3, 30 minute sessions over the six-week span of the remedial reading camp. The experimental groups participated in a dedicated reading enhanced music program for 30 minutes 4 days a week, Monday through Thursday, during the six-week remedial reading camp.

All sessions were conducted in a room which served also as the supply area for the primary camp. Staff members required access to the room throughout the day; however interruption of the music groups was minimal. Control and experimental groups were conducted with the children seated on individual mats in a semi-circle on the floor facing a wall on which were displayed visuals related to the songs being used in the session. The music therapists sat or stood in front of the small semi-circle. Student assistants sat in the group. Instruments were placed on and under two large tables within easy reach of the music therapists.

Experimental Groups: The Reading Enhanced Music Curriculum

The music therapists used a uniform format for the presentation of experiences. This format began with an experience which functioned as an alerting stimulus to engage attention followed by a cognitive experience which required more thoughtful and discrimination responses on the part of the children. A song requiring gross motor movement such as “the Kids on Campus March Along” or a drumming circle, was followed by a more cognitive experience such as “Miss Mary Mack” in which the children had to concentrate on decoding and retaining key words (“Miss **Mary, Mack. Mack.** All dressed in **black, black, black**”). Some presentations of the songs required that the child match the word on the board to the word placed on the floor in front of him and to play his instrument when the words was pointed to. In the song, “Who Built the Ark?” key words, “Noah, Noah” might be used to cue a response on the xylophone bars or a gross motor response.

The format of using music experiences to focus and engage the attention of the children was repeated throughout the session. The closing experience brought the attention of the children to the transition process before being escorted back to their classes. One student assistant played her violin to signal the ending of the session and the walk back to the class. The number of presentations of a particular experience and the songs in which key words were imbedded were left to the discretion of the therapist. In addition to the words extracted from the Song Word Test, other age-appropriate words were also presented in the context of songs. These words included labels for 1-10, vegetables, colors, and animals. The therapists modified the presentation sequence and pace of the music experiences according to the response of the each group.

Music experiences included song writing, singing, moving, and playing chorded, melodic, and percussive instruments. In each presentation, the child says the

word, said the word, played the word, moved to the word, and clapped the syllables of the word. Always the visual representation of the word was displayed within the visual field of the children. Once an experience was presented, the same or similar experience was not introduced again for several days. This was done to prevent the children from becoming bored and to keep the musical stimuli fresh and interesting. When reintroduced the experience would have something new added as they built their repertoire of functional words.

Control Groups: Camp Music Experiences

The music therapists and assistants conducted larger group music experiences for the control group. The format for presentation of the song material began with a greeting song followed by several action songs (Grand Old Duke of York, Hokey Pokey) and musical games (Make a Statue). These experiences were designed to provide the children with age and camp appropriate music activities. None of the experiences or materials presented to the experimental groups was used. A 'camp song' was used as the opening experience. Activities incorporated the use of rhythm instruments and engaged the children physically in action songs and games. The singing of a farewell song was used to focus attention on the transition back to the classroom.

Results

Prior to analysis, the Mann Whitney test for independent samples was conducted to ensure there were no significant differences between the control and experimental groups at time 1. Results confirmed this for each of the dependent measures (Song Word Test and Slosson Oral Reading Test).

Due to the small sample size, the Wilcoxon Matched-Pairs Signed-Ranks Test was used to analyze the change from time 1 to time 2 for each condition separately. For the experimental group, results showed a significant change in performance on the Song Word Test ($p=.008$). Additionally, on the Slosson Oral Reading Test, the experimental group showed gains that approached significance ($p=.07$) while the control group did not show such gains on either test.

Discussion

This study demonstrates that decoding (word recognition) can be increased by an intensive reading enhanced music curriculum in a relative short period of time. Results of the study support findings of similar previous research of longer duration (Standley and Hughes, 1997; and Register, 2001). Anecdotal observation suggests that music elicits the spontaneous attention of young children and therefore may be an effective medium for instruction. This

conclusion is not surprising in light of studies with traditional learning students and students with reading as well as cognitive delays. Smith noted in his description of the use of music and rhythm in teaching reading (2000) that arts education research suggests that music activities are strongly associated with nonmusical curricular outcomes. In-classroom experience also supports the fact that "Music activities can enhance students' academic performance (Miller & Coen, 1994)."

In rural Appalachia funding for remedial reading programs is insufficient to meet the needs of young children. Results of studies in which music is demonstrated successful in increasing word recognition suggest a cost effective extended activity with which to enhance remedial reading. The concentrated efforts of reading specialists and music therapists help increase functional reading skills through collaboration warrants further investigation.

While conducting the research several variables were encountered that may have had some bearing on study outcomes. Four children in the study withdrew from camp. Difficulties with the camp schedule reduced the weeks when actual sessions were given from 6 to approximately 3 for all groups or from 20 sessions to 12. A larger sample size had been anticipated however, due to a reduction in the number of children attending the 2005 camp, the children meeting criteria was lower.

Recommendations

The fact that groups were conducted by different clinicians and that the curriculum was not precisely replicated by the two therapists may have had an effect on the decoding process over all experimental groups. Although attempts were made to coordinate the programs, greater attention should be given to the coordination of content and presentation of material. It is possible that an even stronger effect will be the result of this more regimented program.

The small sample size prevented the use of a statistic with a strong power. It is recommended that this study be duplicated with more subjects and that a minimal of 20 sessions be given during the six-week period. Though not possible in the current study it is recommended that in future studies control and experimental groups be given equal numbers of sessions. Again, this will strengthen the research design and would be more acceptable to the Kids on Campus program which wishes to provide similar opportunities for the enrolled children.

References

Colwell, Cynthia M. and Murlless, Kathleen (2002). Music activities (singing vs. chanting) as a vehicle for reading accuracy of children with learning disabilities: a pilot study. *Music Therapy Perspectives*, 20, 1, 13-19.

Guthrie, J.T., Van Meter, P., McCann, A.D., Wigfield, A., Bennett, L., C. C. Poundstone, et. al. Reading instruction. *Reading Research Quarterly*. July/August/September, 1996.

Miller, A., and Coen, D. (1994). The case for music in the schools. *Phi Delta Kappan*, 75, 459-61.

Register, Dena (2001). The effects of an early intervention music curriculum on pre reading/writing. *The Journal of Music Therapy*, 37(3), 239-238.

Smith, John A. (2000). Singing and songwriting support early literacy instruction. *The Reading Teacher*, 53(8), 646-649.

Standley, Jayne M. and Hughes, Jane E. (1996). Documenting developmentally appropriate objectives and benefits of a music therapy program for early intervention: a behavioral analysis. *Music Therapy Perspectives*, 14, 87-94.

Standley, Jayne M. and Hughes, Jane E. (1997). Evaluation of an early intervention music curriculum for enhancing pre reading/writing skills. *Music Therapy Perspectives*, 15(2), 79-85.

Thaut, Michael. (2005). *Rhythm, Music, and the Brain*. Florence, KY. Routledge: Taylor and Francis Books, Inc.