

*The Effects of Kindermusik® on
Behavioral Self-Regulation in Early Childhood*

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The Development of Self-Regulation

Behavioral self-regulation refers to children's ability to plan, guide, monitor, and control their behavior effectively in the absence of adult assistance. Self-regulation is a critical developmental outcome for children during their preschool years and indeed children make great strides during these years in their capacity to wait their turn, delay gratification, resist impulses, think before acting, and to slow down or control their motor movements. Effective self-regulation in early childhood is associated with greater social and academic adjustment in the later years, and poor self-regulation is linked with later behavior problems, social difficulties, and school failure.

One important way that children develop behavioral self-regulation is by internalizing parents' and other adults' language and behavioral standards. In the context of clear and consistent behavioral expectations, warm and responsive parenting, and effective disciplinary measures, children internalize the language that parents and other adults use with them -- language that guides and directs the child's actions -- and begin using their own speech as a tool for guiding and controlling their behavior. Vygotsky (1986) proposed that children use language not only for communication in the social world, but also as a tool for thinking, problem-solving, and controlling behavior within themselves. Put simply, children often talk to themselves out loud and the use of such "private speech" helps them plan and guide their behavior.

The Role of Music and Kindermusik®

Vygotsky (1978) theorized that language is not the only tool that children internalize from their social interactions and use for self-guidance. Other cultural tools, artifacts, and symbolic systems, such as music, art, dance, and mathematics, might also be useful as tools for thinking and regulating one behavior. If that is the case, then perhaps early and repeated experiences with music during the early childhood years helps children regulate their own behavior. In Kindermusik® classes, toddlers and young children get much experience having music guide their movements. Each time a song involves the child stopping or freezing on a certain note or beat and then starting/moving

again at another point in musical time, the child gets another experience with having music guide their behavior. The same potentially valuable experience with self-regulation through music happens every time children do songs that involve modulating their motor behavior in any way to the music (slowing down-speeding up, fast-slow, high-low, big-small, legato-staccato...) and these kinds of songs and experiences are very common in Kindermusik® curricula. Further, every time Kindermusik® educators sing “Bells away” or “Sticks away” while having the children clean up and return the instruments, they are giving children another opportunity to have music regulate children’s behavior. All Kindermusik® educators would likely agree that singing the “bells away” song actually helps the children put away the toys (exhibit self-regulation), better than they would if cleaning up were not accompanied with a song. Clearly, Kindermusik® teachers intuitively feel that music helps children direct their behavior.

Lesley Ducenne, under the direction of Dr. Adam Winsler, at George Mason University in Fairfax, Virginia, completed a research study as her master’s thesis, to test whether formal experience with music in general, and experience with Kindermusik® in particular, during early childhood was related to children’s capacity for behavioral self-control. This research project was supported by a grant from Kindermusik International.™ This report represents an executive summary of the findings from that study. The complete thesis is also included for your perusal.

Details of the Study

Participants. A total of 91 children between the ages of 36 and 62 months of age (53% female, 47% male) participated in this study. Participation involved parents individually bringing their child to the child development research laboratory on the GMU campus for a one-time child observation/assessment and for parental survey completion. The 41 children who were currently and/or previously enrolled in Kindermusik® classes were recruited (selected randomly from the programs closest to the campus) from Beth Froom’s Little Hands™ Kindermusik® organization in Northern Virginia. The 50 remaining children who had not taken Kindermusik® classes in the past were recruited from local preschools and from an ongoing database at GMU of families in the area interested in participating in research. Children were 80% Caucasian, 3%

Asian-American, 3% African-American, 2% Latino, and 12% other/mixed/unknown and they came from predominately married (97%) families with an average family income of about \$100,000 (typical of the region). Families with Kindermusik® experience did not differ demographically in any way from those without Kindermusik® experience.

Procedure. All activities involving the children were videotaped (unobtrusive camera mounted to the ceiling in a corner of the room) for later careful analysis.

Participants completed the following activities:

- Toy Clean-Up. After parent and child played together with a box of toys in a comfortable living room environment, a signal was given and parents had their child clean up the toys (for 15 minutes or until all the toys were picked up) according to instructions given to them previously by the experimenter. A randomly determined half of the parent-child dyads heard pre-recorded clean-up songs (Kindermusik® clean-up song and Barney/preschool clean-up songs) during the clean-up period and the other half heard classical music. Children's compliance with the clean-up instructions and their clean-up performance, along with how much parents had to get involved, were coded from the videotapes according to standard, reliable procedures commonly used by other researchers.
- Battery of Self-Regulation Tasks. Children individually completed a series of fun tasks with the experimenter that each involved the child having to control his or her behavior in some way (i.e., wait their turn, delay gratification, walk slowly down a line, draw a line as slowly as possible, quietly whisper, do what one puppet tells them but not do what another tells them, not peek at or touch a desired but prohibited toy/gift etc...). Children's performance on these tasks was coded from the videotapes according to standard, reliable procedures commonly used by other researchers, and one, overall score representing children's capacity to control/regulate their behavior was calculated.
- Parent Survey. Parents completed a survey that asked about family demographics and about the child's current and historical participation in a variety of structured musical experiences, including a detailed history of Kindermusik® enrollment.

Results

- AGE - As would be expected, older children were better able to regulate their behavior and better at cleaning up the toys than were younger children. Age was positively associated with self-regulation ($r = .38, p < .01$) and with clean-up compliance ($r = .26, p < .05$).

- EFFECT OF MUSIC ON CLEAN-UP – In general, children overall did a fairly good job of cleaning up the toys on their own. Children who heard the clean-up songs showed slightly better compliance with the clean-up task than those who heard the classical music, but this difference was small and not statistically significant. However, hearing the clean-up songs did make it significantly easier on the parents – parents who heard the clean-up songs did not have to try as hard to get their kids to clean up as those who heard the classical music. It is important to point out that the clean-up songs presented in this study were somewhat “artificial” in the sense that they were pre-recorded and decontextualized, not sung by a person actually there and participating in the clean up task at that moment. Thus, the words being sung at any given moment were not directly linked to the child’s immediate activities and the particular toys being put away as they are when Kindermusik® educators sing the clean-up songs in their classes.

- EXPOSURE TO KINDERMUSIK® AND SELF-CONTROL – There were three groups of children in this study in terms of Kindermusik® enrollment history:

- a) Kids that were *currently enrolled* in Kindermusik® classes (23 children).

These children had spent an average of 28 months in Kindermusik® classes (with a range from 5 to 52 months) and had attended approximately 4.6 semesters on average. When calculating the proportion of the child’s life in months that the children has been exposed to Kindermusik® relative to their current age in months, we see that this group has spent 55% of their lives on average (range from 10% to 100%) attending Kindermusik classes.

- b) Kids that had *previously been enrolled* in one or more Kindermusik® classes but are no longer attending and not currently enrolled (19 children). These children had spent an average of 13 months in Kindermusik® classes (with a

range from 2 to 48 months) and had attended approximately 2.8 semesters on average. They had spent, on average, 29% of their lives enrolled in Kindermusik® classes (range from 3 to 91%).

- c) Kids who had *never* been in a Kindermusik® class (49 children). 16 or 32% of these children had participated in some other kind of structured activity involving music (i.e., MusicTogether®, individual or group music lessons, church choir, dance/ballet...).

Children who were currently enrolled in Kindermusik® showed significantly better self-control than the other two groups of children. It is interesting to note that children who had previously attended Kindermusik (but were not now) were not better off in terms of self-control than those who had never experienced Kindermusik®. This suggests that in order for children to reap the benefit of increased self-control as result of Kindermusik® participation, it is important to have repeated and recent Kindermusik experiences and remain enrolled in the program. Children who had only a semester or two of Kindermusik and then stopped attending were no different in terms of self-regulation than those who had never attended Kindermusik® classes. It was specifically the children that were currently experiencing Kindermusik® that showed enhanced self-regulatory abilities. Figure 1 represents the difference between those currently enrolled in Kindermusik® classes and those not (the other 2 groups combined) in terms of children's levels of self-control.

In addition to the group-based analysis described above, we also explored whether amount and duration of Kindermusik® exposure was related to children's behavioral self-regulation using continuous measures of children's Kindermusik® exposure. Similar to what scientists do when they are exploring the effectiveness of a medication at different dosage levels, these analyses essentially show whether children who “got more” Kindermusik® exposure are better off than those who got less in terms of self-regulation. Because age is associated with increased self-regulation and age is associated with how much Kindermusik® one has had (i.e., older kids are more likely to have greater exposure), we essentially “controlled” for age by analyzing associations separately for the 3-year olds and for the 4-year olds. The results showed that 4-year-old children who have

been exposed to more Kindermusik (more months, more semesters, and/or larger proportion of their lives enrolled) have stronger self-regulatory skills than 4-year-olds with less Kindermusik background. This was not true, however, for the 3-year-old children. It appears that it is not until children are at or beyond age four that music becomes positively linked with behavioral self-control.

It is important to note that because these data are only correlational and we were not able to control children's Kindermusik exposure, it is not possible to confirm cause and effect relations in these associations. That is, although it seems likely that it is increased exposure to Kindermusik that leads to the observed increases in children's behavioral self-control, it could also be that children with increased behavioral control are the ones who sign up for (and stay with) Kindermusik® in the first place.

In summary, this research study found support for the notion that musical experience in the form of Kindermusik® is linked with increased behavioral self-regulation in young children. Providing children with repeated experiences modulating their movements with the aid of music and song (i.e., stop-go, hi-lo, fast-slow, short-long, and loud-soft songs whereby children's motor behavior is guided by the music) appears to be good exercise for young children's emerging self-regulatory skills and such activities should remain an important part of the Kindermusik® curriculum. This is especially true for older children, age four and above. Also it appears that very recent/current exposure to Kindermusik is especially critical as the positive self-control benefits of Kindermusik® appear to wear off over time without repeated exposure.

It is important to keep in mind that music likely has all kinds of other intrinsic benefits for young children and that Kindermusik® is clearly a good thing with which children should be involved, simply for music's sake and for the sake of inspiring a love of music in young children. Sometimes, however, it is useful to know if experiences like those provided in Kindermusik also have other benefits in other domains of child development. This particular study found links between Kindermusik® experience and one important behavioral skill, namely children's capacity to plan, guide, and control their own behavior, a skill important for children's future academic and life success.

Figure 1. Differences in children's self-control as a function of whether they are currently enrolled in Kindermusik® classes.

This illustration shows difference between those currently enrolled in Kindermusik® classes and those not (the other 2 groups combined) in terms of children's levels of self-control.

