‘Extra-musical effects’ and benefits of programs founded on the Kodály philosophy

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Abstract

Music education is often advocated as having ‘extra-musical effects’ contributing to the development of the whole child. The pedagogy teachers employ to deliver music programs could affect the significance of such benefits. This paper will review literature documenting how children benefit from receiving music education delivered using Kodály methodology. These benefits include literacy and numeracy skills, spatial-temporal reasoning, intelligence and social emotional development. Identifying gaps in research may pave the way for future studies and investigations.

Key words: Kodály concept, Kodály methodology, music pedagogy, school music education, extra-musical effects

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The study of music is often advocated as having ‘extra-musical effects’ and benefits contributing to the development of the whole child. Research suggests that learning to think in one area of application can enrich thinking in other areas of application (Gardiner, 2000, 2008; Hallam, 2010). Ways of thinking are largely independent of content, and generally will apply to all areas of learning (Ailello, 2003). This is believed to be a distinctive characteristic of high quality arts education programs (Seidel, Tishman, Winner, Hetland, & Palmer, 2009).

The pedagogy teachers employ to deliver music programs and direct students’ ways of thinking could affect the significance of such extra musical effects and benefits (Butzlaff, 2000; Hallam, 2010). Evidence suggests that music education programs founded on the Kodály philosophy offer a superior contribution to ways of thinking and holistic development that is statistically significant. This paper will review literature documenting how children benefit from Kodály methodology. These benefits include literacy and numeracy skills, spatial-temporal reasoning, intelligence and social emotional development. Identifying gaps in research may pave the way for future studies and investigations.

Review of Literature

The Hungarian Music Primary School

The Kodály Concept was developed in Hungary under the leadership of Zoltán Kodály (1882-1967) working with his former students of the Academy of Music and music teachers. Kodály set forth principles for music education and in collaboration with others composed and edited numerous song books, collections and teaching method books tailored specifically for children. In September 1946, a specialised primary school in keeping with Kodály’s principals was founded in Békéstarhos

by Győrgy Gulyás, however closed in 1954 due to financial reasons. Inspired by the Békéstarhos example and encouraged by Kodály, Márta Nemesszeghy persuaded the Ministry of Education to allow an experiment in music education at a Kecskemét primary school. In October 1950, Nemesszeghy was granted permission for one class to trial singing lessons every school day following the music education principals of Kodály. This was the creation of the first Hungarian Music Primary School, later named the Zoltán Kodály Music Primary School (Houlahan & Tacka, 1998, 2008; Ittzés, 2006).

One reason Kodály and Nemesszeghy were able to convince the Ministry of Education to expand the Music Primary School was an unexpected result of such music instruction on the learning in other subject areas. As a result of the phenomenal success of Nemesszeghy and the children at the Kecskemét school, the next years saw a rapid rise in the development and dissemination of this new approach across Hungary, from the nursery school level to the most advanced classes of the Academy (Choksy, 1999; Choksy, Abramson, Gillespie, Woods, & York, 2001).

Kokas (1969) points out that the entire music curriculum in Hungary by this time had been influenced by Kodály, with differences only in the number of lessons and method of delivery. As a result, an accurate comparison of a Kodály versus a "traditional" approach was not possible in Hungary. The following studies are subject to this situation.

Friss (1966) investigated the academic achievements of children attending Music Primary Schools to those of ordinary schools. Comprehension tests were completed where students aged from ten to thirteen were required to read a short story and answer questions. The results were analysed by consideration of the capacity to memorise, reasoning ability, emotional range judged by the way emotions were described, and active participation based on the number of responses to questions posed by the teacher. Friss recorded improvements in reading, writing, memorisation, arithmetic, speech fluency, aesthetic awareness, fine motor skills, reasoning facility and behaviour was more disciplined. No preliminary tests were conducted to determine the differences between control and experimental groups prior to the experiment, thus the significance of additional music instruction cannot be said to be the only cause of the superior academic achievement.

Kokas refers to her own tests (Kokas, 1969) carried out in the period of 1962-1966 that were reported at the Budapest (1964) and Interlochen (1966) ISME conferences. These tests showed remarkable differences in rhythm, sound observation, gymnastics, and arithmetic abilities of school children at the Primary Music Schools. Also, somatic tests made by anthropologists reported high values in chest expansion and the vital capacity of the musical groups. Unfortunately, the conference presentations were not available to the author for further detailed review.

Barkóczi and Pléh (1977) conducted a four year longitudinal study measuring the correlation between Kodály-based music education and the development of intelligence and creativity. Students in one class at the Kodály School were compared to two classes from another local lower social-economical school. One of the local school classes was selected to undergo "special music training" and the other served as the control. According to the results obtained using the Hungarian Binet scale and HAWIK, the general level of intelligence was not affected by musical education. However, it was found that Kodály-based music education had a clear effect on the development of creativity and personality.

Inspired by the research of Barkóczi and Pléh (1977), Laczó (1985) investigated the interrelation of intelligence and Kodály-based music education using Raven's Progressive Matrices (RPM). Tests were carried out in three schools in different

social-economic districts of Budapest. In all schools there were Year 3 and Year 6 classes with (M) "intensive" music education based on the Kodály concept, (L) classes with intensive language learning, and (N) classes with so called normal curriculum. Contrary to Barkóczi and Pléh, the results indicated that students in the M class scored higher on the intelligence test than others.

The Developmental Music Program

In 1972, Deanna Hoermann established the Developmental Music Program based on Kodály's philosophy in the Metropolitan West Region of the New South Wales Department of Education, Australia. The program was adapted for Australian curriculum, teachers and schools. Hoermann and Herbert (1979) reported and evaluated the success of the project.

Bridges presented the results of a research project on the Developmental Music Program at the Sydney (1979) International Kodály Symposium which were later published (Bridges, 1980). The research study compared the educational achievements of Year 6 children from three schools which had used a Kodály-based music program with a sample of children from three other schools where music was not taught developmentally, matched for size and socioeconomic status.

The project used a number of standardised psychological and educational tests which were a matter of routine at the time in all NSW schools, including in areas of cognition, reading, comprehension, writing and mathematics. Analysis of the results showed an across the board superiority of the music group over the control group, significant at the 1% level, and some even at 5% significance. In particular, Bridges proposed that Kodály-based music programs could have considerably affected children's performance in reading and mathematical concepts. The author states many observations of the project could not be quantified.

> "Visitors to classes in the project have seen for themselves the unselfconscious involvement of children in a total education experience and have noted their performance skills, both singing and playing, their aural awareness, their spontaneity, their ability to carry out relatively complex musical tasks, their peer group relationships, social interaction, personal adequacy, and classroom behaviour." (Bridges, 1980, p. 106)

Benefits of Other Investigations and Studies

Literature reviewed in the following section has been categorised and provides validated insights to how programs based on the Kodály philosophy contribute to the development of the whole person.

Literacy

Gromko (2005) tested the hypothesis that music instruction that emphasises the development of aural perception would lead to significant gains in the development of young children's phonemic awareness, particularly in their phoneme-segmentation fluency (the ability to break words down into individual sounds). Phonemic awareness is one aspect of phonological awareness, a reliable predictor of later reading ability. Results revealed that kindergarten children who received four months of music education showed significantly greater gains in development of their phoneme-segmentation fluency when compared with children who did not receive music education. While the study does not explicitly make reference to Kodály-based music education, the methodology section describes very similar learning experiences.

Hurwitz, Wolff, Bortnick, and Kokas (1975) investigated the difference in 20 students receiving daily music lessons (40 minutes) founded on the Kodály philosophy versus 20 students receiving no Kodály music instruction. Reading achievement was measured at the end of the first grade year at which time positive differences at 1% level of significance were

found for the experimental group. The girls in the experimental group scored significantly higher than the control group girls but there was no significant difference between the boys of the two groups. Reading achievement tested at the end of the second grade after two years of the Kodály program showed significantly greater achievement for the experimental group. Details on what type of music instruction, if any, the control group received and specifics regarding statistical significance are not included.

Gardiner, Fox, Knowles and Jeffrey published the correlation of arts education research including Kodály-based music education and educational achievement in *Nature* (1996) and in complete form several years later (Gardiner, 2000). Half of the first grade classes in two elementary schools received the district's standard arts curriculum approximately one hour per week, while the other half of first grade classes received two hours weekly of a "test arts" program. The "test arts" program consisted of visual arts and special emphasis on the development of musical skill through the use of Kodály-based music instruction with classroom teacher involvement. Academic progress of the students was assessed by standardised tests. Though starting significantly behind the control group, by the end of first grade the test arts students had caught up to their control peers in reading.

Numeracy

In an Australian study that correlated Kodály-based music education and math skills, Geoghegan and Mitchelmore (1996) found that a pre-school Kodály-based music program possibly had effects on mathematical achievement. Thirty-five preschool children involved in the treatment music program were compared at school entry to 39 preschool children without musical experience. All children were from families with similar socioeconomic backgrounds. Analysis of tests revealed that students with music instruction had significantly higher mean scores on the *Test of Early Mathematics Ability -2 (TEAM-2)*. After completion of a survey, the experimental group was further divided into two groups – children without home music (subgroup 1) and children with home music (subgroup 2). The mean score of subgroup 1 and the control group were not significantly different; however the mean scores for subgroup 2, when compared with the control group were significantly better. Kodály music instruction together with musical experiences generated in the home environment contributed to higher achievement in early number concepts.

The study by Gardiner et al. (1996) also documents that students in the "test arts" program significantly surpassed the control group in mathematical achievement by the end of the first grade. Those students receiving two years of the "test arts" had the highest performance in math, those with one year either in first or second grade had the next highest and those with no "test arts" had the lowest math performance. In a follow-up study, Gardiner (2000) also found positive parallels between learning to singing in-tune and mathematical development.

Spatial-temporal reasoning

Hurwitz et al. (1975) compared the performance of two matched groups of first-grade middle-class suburban children on tasks described by the researchers as measuring temporal-spatial ability. The results indicated the experimental group boys performed significantly better than the control group boys, but that there were no significant differences between the groups of girls. The exact statistical significant of these results is not reported.

Hanson (2001) examined the effects of Kodály-based music instruction on the spatial reasoning skills of 54 students enrolled in three kindergarten classes (equal size) in a rural elementary community school. Experimental group one received Kodály music instruction and experimental group two received computer

instruction (with no classroom music) for 30 minutes twice a week for seven months. The control group received neither classroom music instruction nor computer instruction. The results of this study indicated that Kodály music education does not adversely affect students' spatial-temporal or spatial (recognition) reasoning skills. However, positive gain scores approached significance in favour of the Kodály-treatment groups for the Absurdities Test (used to measure verbal reasoning). Hanson suggests that a study using a larger sample of students with a longer treatment period may see enhanced spatial reasoning skills.

Intelligence

Schellenberg (2004) undertook a study that randomly assigned a large sample of children to four different groups for a year, one receiving Kodály-based lessons (voice) and one receiving keyboard lessons. The two control groups either received instruction in a non-musical artistic activity (drama) or no lessons. The use of two music groups made it possible to assess the generality of possible effects of music instruction, and whether non-musical aspects of Kodály instruction accounted for the effect reported by Gardiner et al. (1996). All four groups exhibited increases in IQ as would be expected over the time period but the music groups had reliably larger increases in full scale IQ. The results suggested Kodály-based music education is superior to keyboard lessons. These results warrant further investigation on benefits of differing music practices.

Social emotional development

While Kodály music educators might be quick to argue that social emotional development is an obvious extra-musical benefit of class music lessons, research in this area is lacking. In Gardiner's (2000) study, the "test arts" students in first grade were significantly behind the control students in classroom behaviours related to learning. Interestingly, the gains from the Kodály-based music program in reading were found to parallel improvements in classroom attitudes and behaviours as assessed by Lickert scale questionnaires given to classroom teachers. By the end of the year, the "test arts" students had caught up and surpassed the control students in classroom attitudes and behaviour.

Gardiner (2000) also reports that data does not support the conclusion that improvements in self-esteem in and of itself can help a student learn to sing on pitch, but learning to sing on pitch can improve self-esteem. The direct connection of singing on pitch to math learning reported earlier, is seen in these data to be associated with higher self-esteem.

Increased time allocation to Kodály-based music instruction

At Powerhorn Community (Elementary) School, Minneapolis, Minnesota, Olson (2000) investigated the effects of extra Kodály-based music instruction and classroom teacher involvement on first grade students' music, reading, and math achievement and social skills' development. In addition to the regular weekly music class, the experimental group received extra Kodály-based music instruction for 30 minutes once a week with the classroom teacher remaining in the music classroom. The control group received only the 55 minute regular weekly Kodály-based music instruction with the classroom teacher absent. Both groups received training from December 1997 to June 1998.

The results revealed significant differences between the two groups in music skills (pitch and rhythm), math achievement, reading achievement, and individual social skills assessment (class participation, cooperation with teacher, self-motivation, responsibility, and initiative). In June, the experimental group was ahead of the control group on total reading, word attack, vocabulary, comprehension, total math, problem solving and procedures. The difference reaches statistical significance for word attack

skills and vocabulary and approaches significance in total reading. The behaviour and engagement rating also revealed significant differences between the two groups. Students receiving more Kodály-based music instruction gained in social as well as academic skills.

Gardiner (2000) also published data on what appears to be the extended study of the Olson (2000) project. The study found improvements in singing on pitch results in progress in math and work attack skills. It also showed evidence that progress in rhythm relates to progress in total math and reading. Total reading and reading comprehension were found to have greater association to rhythm than pitch. Positive change was also measured in student behaviours, specifically class participation, direction following, cooperation with the teacher, and cooperation with peers. Changes in personal behaviours also occurred and include improvement in self-motivation, self-esteem, responsibility and initiative.

Discussion

It is clear that music education programs founded on Kodály's philosophy nourish learning skills and ways of thinking that correlate to other areas of learning. The reviewed literature provides a firm foundation to advocate the 'extra-musical effects' and benefits of Kodály music education. However, to what extent do these benefits differ to other practices, including private keyboard tuition, group instrumental lessons, extracurricular music lessons, group singing and music appreciation lessons? Certainly, specific music instruction achieves quite different outcomes compared to generalised 'arts' workshops and programs. The reviewed literature warrants further investigation on the musical and extra-musical effects and benefits of different music education practices.

Due to the vast differing complexities of school contexts, future research on this topic would be of greater relevance to practitioners and administrators with stronger methodology design and all results detailed in the final documentation. Incomplete and vague descriptions of the experiments lead to research being questionable. Quality teacher education is a central objective of the Kodály philosophy, though in all of the literature reviewed the level of teacher training and expertise was never reported. Given the different adaptations and interpretations of contemporary Kodály practice, specific details of teaching and learning activities should also be included. The same could be argued for descriptions of control teaching and learning experiences. For example, there was never any mention of how reading and mathematical skills were taught, if at all. Certainly, there are more effective ways to teach reading and maths than others.

The majority of research reviewed relates to the early years of primary school education, and few were longitudinal studies. Older studies of early childhood exist (Forrai, 1980; Kalmár, 1982; Kokas, 1969), and the author was unable to locate any investigating secondary school and tertiary practice. While many expert teachers recount anecdotes and personal experiences of their own practice in teacher training courses, workshops and conferences, best practice needs to be documented and shared. Too often in education is the 'wheel' reinvented. Administrators and government departments may demand contemporary research, but they also must be willing to provide support and resources to enable practitioners to become researchers.

Conclusion

This review provides a starting point to advocate the 'extra musical effects' and benefits of music programs founded on the Kodály philosophy and methodology. Benefits have been documented in literacy, numeracy, spatial-temporal reasoning, intelligence and social emotional development. In particular, increased time allocation to Kodály-

based music instruction enhances academic results and social emotional development significantly. It is impossible however, that a child could learn how to read or solve mathematical problems from music education alone, though the data reviewed demonstrates that Kodály-based music education supports learning processes and skills which will have significant impact on learning other applications. Huotilainen (2011) writes that "... protecting children's right to music simultaneously protects children's right to intellectual developmental and well-being." (p. 1). Music education programs founded on the Kodály philosophy not only provide 'music for everyone', but also contribute to education for everyone.

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