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The sounds of silence : music education and academic achievement

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The sounds of silence : music education and academic achievement

Abstract

This research began with the author's firsthand experience with regard to the value of music education. Very few deny the benefits of music education and its connection to academic achievement. In a recent poll administered by the Gallup Organization, 95 percent of Americans believe music to be a cornerstone of a quality education, and over 75 percent of those polled suggested that music education should be mandated by the schools. However, far too many music education programs are being cut, or are in grave danger of being cut, from the curriculum nationwide. Research clearly shows the importance of music education: The College Entrance Exam Board found that students involved with music scored higher on verbal and math exams than those without music education; the U.S. Department of Education found that students who were consistently involved in music programs scored considerably better in mathematics proficiency by their senior year; many more studies indicate similar findings.

This research will identify the problem, and the corollary reasons why, music education is lacking in the public school system. The research supporting music education and its contributions to scholastic achievement will be examined as it relates to this study. Moreover, the evidence will be presented to support the author's contention that music education is a valuable component to academic achievement, and a necessary element of a quality education. The conclusion will suggest that administrators, educators, and policy-makers review the existing research, call for additional research into the benefits of music education and academic achievement, and ultimately provide adequate funding for music education programs.

**THE SOUNDS OF SILENCE:
MUSIC EDUCATION AND ACADEMIC ACHIEVEMENT**

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ABSTRACT

This research began with the author's firsthand experience with regard to the value of music education. Very few deny the benefits of music education and its connection to academic achievement. In a recent poll administered by the Gallup Organization, 95 percent of Americans believe music to be a cornerstone of a quality education, and over 75 percent of those polled suggested that music education should be mandated by the schools. However, far too many music education programs are being cut, or are in grave danger of being cut, from the curriculum nationwide. Research clearly shows the importance of music education: The College Entrance Exam Board found that students involved with music scored higher on verbal and math exams than those without music education; the U.S. Department of Education found that students who were consistently involved in music programs scored considerably better in mathematics proficiency by their senior year; many more studies indicate similar findings.

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School budgets are in crisis; NCLB is not adequately funded. Subsequently, many music education programs are in jeopardy of being cut from the general curriculum. Moreover, many parents, teachers, administrators, and policy-makers are unaware what the research tells us about music education. Few would argue the intrinsic value of music and its importance in the curriculum, but many do not know that music education improves academic achievement. This short sightedness not only hinders music education itself, but hurts academic performance.

Research suggests that music is an invaluable asset in academic learning (Weinberger, 2000). Music education is beneficial for a myriad of reasons: (a) it reaches students who are not otherwise being reached; (b) it reaches them in ways that they are not otherwise being reached; (c) it connects students to themselves and others; (d) it transforms the environment for learning. Moreover, music education provides opportunities to connect to adults, community leaders, artists themselves, and to learning experiences in the “real world” (Weinberger, 2000). The Music Conservatory of Texas cites numerous supporting articles that demonstrate why music education is beneficial to a child’s learning. The study of music teaches children valuable lessons such as self-confidence, hand-eye-body coordination, teamwork, abstract comprehension, problem-solving skills, discipline, art appreciation, logical reasoning, communication skills, conceptualization, making value judgments, and using symbols as tools for interpretation (Music Conservatory of Texas). Research also suggests that an education in the arts, including music education, improves academic performance (Weinberger, 2000).

Students who are involved in music and the arts on a sustained basis do better than those students that are not—in other academic subjects, on standardized tests, in

postsecondary school admissions, in reading proficiency, in math skills, and most importantly, in attitudes towards learning. Moreover, the benefits are universal. Age, gender, and socioeconomic status do not appear to have an effect on the results. In some cases, students from lower socioeconomic backgrounds outperformed students from the higher socioeconomic stratum. The initial findings support the enormous impact the arts have on academics (Weinberger, 2000).

Methodology

Sources were examined from governmental agencies, national associations, newspapers, local schools, academic journals, and Internet resources. The rationale for selecting the sources used was simple: (a) reliable reviews, (b) credible research, and (c) dependable information with regard to the issue. The procedures include critical evaluation of the research and identifying sample problems. The preliminary findings suggest more research will substantiate the connections between music education and academic achievement. The research was consistent and logical conclusions and recommendations follow.

Analysis and Discussion

This analysis will demonstrate that a continued, sustained effort to administer and support arts education, including music education, will improve academic achievement as well as increase awareness of, and appreciation for, the arts. Moreover, this analysis suggests that additional research is needed to understand more than just casual connections between the arts and academics. To be sure, the evidence shows empirically that arts-based learning programs are beneficial to all students, what is not known at this juncture are the reasons (Weinberger, 2000).

The problem with music and arts programs disappearing from the curriculum is important for many reasons. An education in the arts, including music education, fosters creative thinking, improves general competencies, aids in the perception of self as a learner, improves the perspective of teachers, and enhances the overall atmosphere of the school. Additionally, an education in the arts does not discriminate with regard to socioeconomic status. Most important to this research are the implications for artistic competencies in other subjects, such as self-directed learning, organization skills with regard to unfamiliar information, and benefits derived from interactions with others (Weinberger, 2000).

Evidence of the Problem

The reason why music programs are being cut is a problem best articulated by those in the field. When faced with necessary cutbacks, music is among the first to be eliminated. Music education is considered to be a frill (C. Hildebrandt, Personal communication, November 17, 2003). The state of California provides an example. The number of music students was nearly halved when school districts had to deal with economic crisis (<http://SupportMusic.com>). That music is considered an extra curricular activity is of major concern. Principal Dave Smith of Malcolm Price Laboratory in Cedar Falls, Iowa, presents a common scenario: if a school has to choose between music or math due to budget restraints, music is sure to be axed (D. Smith, Personal communication, November 20, 2003). That schools are forced to choose between the arts and academics is a nationwide problem; that music can help a student perform better at math, among other academic subjects, is especially troubling.

Patrick Welsh, a schoolteacher in Alexandria, Virginia suggests standardized testing is

the main reason for the lack of support behind music programs and other extra curricular activities (Welsh, 2004). States are implementing cutbacks in many extra curricular activities. Involvement in music and the arts, among other activities such as sports, facilitates growth above and beyond what is necessary to receive a letter grade. It teaches students to take initiative, challenge themselves, make commitments, discover themselves, and increase their self-confidence. However, schools nationwide have resorted to charging fees to maintain these programs. In many cases, schools are simply eliminating these programs. Due the requirements of NCLB, schools pay too much attention to testing standards and too little attention to lessons that actually mean something to students and their lives (Welsh).

A school district in Kansas is faced with cutting fifth grade band due to NCLB and its emphasis on tests (Hendricks, 2004). To continue to receive federal funds, schools must meet basic eligibility requirements based on students' test results. To see to that end, teachers and administrators are taking time usually set aside for activities like band and using that time to practice testing. No one in the district is fond of the idea, but many feel that it is necessary to hit the benchmarks established by NCLB (Hendricks).

The American Music Conference (AMC), the largest music advocacy organization in the United States, indicates that music programs are in danger of being cut from the general curriculum due to local analysis of NCLB. The AMC suggests that long-term gains, which include an education in music and the arts, are being circumscribed to achieve short term testing results. Because music is not included in the state formulas for funding and testing benchmarks, it is among the first from the curriculum to be cut.

Local budgets are already experiencing crisis, and the requirements of NCLB exacerbates the problem of funding programs in music and the arts. Budget restraints are not the only problem associated with NCLB; problems with scheduling are also of concern. If students are inconspicuously scheduled out of activities such as band, it tends to downplay the importance of the problem. According to Syosset, New York, district Art & Music Chair Steven Schopp, "As a result of NCLB, many students are being left behind in the arts!" (American Music Conference).

The National Education Association (NEA) provides numerous state-by-state examples of music programs being cut due to budget restraints and NCLB requirements. In California, districts have eliminated and/or indefinitely postponed electives like music education programs. At Newark Junior High School, California all electives, including band, have been eliminated. Consequently, many student musicians practice their instruments in the hallways. Also in Sonoma County, California after drastic cuts in the band program, students sent their allowance monies to the governor and the local school board to help relieve the debt. In Belmont-Redwood Shores, California parents raised \$200,000 to save music programs by setting up a benefit music festival and auction (National Education Association). California is not alone in its budget crisis or in its attempt to meet the requirements of NCLB.

In Iowa, at least 350 teachers were let go—music teachers were among the groups especially targeted (National Education Association). In Nevada, Iowa high school band director Wade Presley notes students are told to quit band or choir and register for English, math, and science due to the importance placed on academic achievement because of NCLB (American Music Conference). In Northampton, Massachusetts, once

heralded as the “Best Small Arts Town in America,” art, music, and physical education were cut from its elementary curriculum. In Holliston, Massachusetts, an elementary schoolteacher was spared his position thanks to parents who collected \$28,772 in 10 days. In Nebraska, hundreds of teachers in more than 40 districts, received layoff notices. Consequently, due to budget cuts and NCLB requirements, art, music, and foreign language programs were scaled-back or eliminated entirely. In Englewood, New Jersey, all art and music lessons were eliminated. In New York, in order to divert more funds to meet requirements of NCLB, all vocal and instrument programs were eliminated; other states have experienced similar scenarios (National Education Association).

According to a recent survey conducted by the Council for Basic Education (CBE), the implementation of NCLB is causing the reduction of class time in social studies, foreign languages, and arts courses, including music. Moreover, the study finds that minority students are most at risk to receive less liberal arts education due to NCLB than their wealthier counterparts. What’s more, the decrease in social studies and arts programs trend is likely to continue (Council for Basic Education).

The problem with the systematic eradication of music programs is twofold: firstly because music, in and of itself, is a worthwhile study for reasons too numerous to mention in this study, and secondly, which is the primary focus of this study, because the research suggests music education helps students’ academic achievement. Few would oppose an education in music for its intrinsic value. What many fail to recognize is the connection between music education and academic achievement. Eliminating programs

in the arts, especially music education, to focus on academic testing, is misguided because studies show that an education in music improves academic performance.

Music Education and Cognitive Processes

Research has shown that music improves cognitive processes (Overy, 1998).

Research dating as far back as 1922 suggests that the learning of music helps students in other subjects. According to *The Music Education of the Child* published in 1922, "It is an acknowledged fact that, when properly carried out, class-work in music ... has most certainly the effect of stimulating the mental faculties of those who take part in it, and, as a result, of improving the standard of work in other departments" (MacPherson, 1922, as cited in Overy, 1998). Executive Director of the International Foundation for Music Research, Norman M. Weinberger indicates that cognitive processes are, in fact, the aforementioned "mental faculties," and that "other departments" are "non-musical academic subjects" (Weinberger, 1999). As of late, the research is ever-increasing and supports the findings presented in the 1920s.

Weinberger suggests that music helps in the learning of non-musical academic subjects due to "transfer effects" (Weinberger, 1999). Weinberger explains the "transfer of learning," in a sworn testimony for the Subcommittee on Early Childhood, Youth and Family Services, "That is, if one learning situation involves factors that are also used in a later, but different, learning situation, the knowledge or skills gained will facilitate the later learning. For example, learning to ride a bike facilitates learning to roller skate or ski, because they all involve learning to keep one's balance. Cognitive skills also show transfer" (Weinberger, 1999, July 15). Weinberger continues to explain the "transfer effects" learned through music, "reading is a good example of learning that is facilitated

by prior music study. To understand how music education benefits learning to read, we need to recall that children usually learn to read in stages: [1] visually recognizing words, [2] learning the correspondences between visual parts of words ('graphemes') and their spoken sounds ('phonemes'), and then [3] achieving visual recognition of words without going through the earlier stages. It is the critical second or 'phonemic' stage that is of interest here. We are all familiar with children 'sounding-out' syllables and words while they are learning to read (stage 2) which they discard when they reach stage 3. Music education involves learning to listen for pitch changes and this skill facilitates reading by improving the second, 'sounding out' stage" (Weinberger 1999, July 15). He further suggests that music education spurs creativity in children as well as fosters greater understanding in math and science (Weinberger 1999, July 15).

Other scholars support the impact of music education on non-musical subjects. Maria Spychiger of the University of Fribourg, Switzerland, finds that children who received a musically enhanced curriculum, at the expense of reading and math, fared better at reading and no worse at math than did the children who received no musical training (Weinberger, 1999). Royal Inspector of Schools in the United Kingdom, Janet Mills, also believes the learning of music improves cognitive abilities, as does Andrew J. Waters of University College London. What is not known at present is how music affects the mind (Weinberger, 1999).

Music Education and Standardized Test Scores

Research shows that music education improves students' standardized test results (American Music Conference). A landmark study by Dr. James Catterall (1997) of the University of California in Los Angeles used an analytical database supplied by the

United States Department of Education. Called NELLs88, the study tracked more than 25,000 students over the span of a decade. The conclusions reached by Dr. Catterall's study revealed that those students that were involved with music scored higher on standardized tests as well as in reading proficiency exams. Most importantly, the study found that the results were not based on socioeconomic status. In other words, rich and poor alike scored better on tests if the student was involved in making music (American Music Conference). According to Weinberger, the large sample size avoids the problems associated with smaller sample populations. Moreover, Weinberger indicates the findings were abundantly clear, "Performance in a wide range of academic subjects and on standardized tests was significantly higher for students involved in sustained arts education." (Weinberger, 2000). Weinberger notes that the study may simply suggest that more intelligent kids are attracted to the arts and music, but the findings reveal that the same population's performance improves over time; that suggests that involvement in the arts is the cause rather than the effect (Weinberger, 2000).

A University of Sarasota study (2000, cited in American Music Conference) found that middle school and high school students who participated in band scored higher on standardized tests than did those students who did not participate in school music programs. Studies at East Texas State University (2000, cited in American Music Conference) also found that greater academic achievement in math, science, and the language arts was directly correlated to how much the learner participated in music education. Moreover, high school students with musical backgrounds scored 57 points higher on the verbal portion of their SAT tests and 41 points higher on the math portion than did students with no musical background (Music Educators National Conference).

In Texas, the aforementioned study of average SAT scores demonstrated that greater SAT scores were directly related to how long a student studied music, and better SAT scores are necessary for entrance into more prestigious universities (<http://themusicedge.com>). Moreover, those most likely to be admitted to medical school are undergraduate music majors (Thomas, 1994). Additionally, a study of 7,500 university students showed that music majors scored higher in reading scores than all other majors including English, biology, chemistry, and math (Music Educators National Conference). Clearly, musical training helps students perform better at standardized tests, and standardized tests are the chief assessment tool for NCLB.

Music Education and Academic Achievement

Involvement in music also helps students' academic achievement. In 1975, a study was conducted to determine if music training helped first grade students read more proficiently. An experimental group received Kodaly training—a process of learning that employs folk songs emphasizing melody and rhythm. The control group consisted of children matched in age, IQ, and socioeconomic status—they received no special training. The experimental group received extensive musical training, forty minutes a day for five days a week for a period of seven months. Reading abilities of both groups were tested at the beginning of the study, and then again at the end of the year. The results indicate that the students who received the Kodaly training outperformed the control group by a wide margin. The experimental group scored in the 88th percentile, while the control group scored in the 72nd percentile. What's more, the Kodaly training continued for an additional year and the experimental group still fared better than the control group. According to Weinberger, "These findings clearly support the view that

music education facilitates the ability to read” (Weinberger, 1994).

The Chicago Arts Partnership in Education (CAPE) was created in 1992 and partnered local artists and art agencies with teachers and students in 37 schools in the Chicagoland area. Analysis revealed that sixth grade students who were involved with CAPE demonstrated superior math skills than those students who did not have access to CAPE programs. Further analysis also revealed that CAPE students demonstrated greater reading proficiency than non-CAPE sixth grade students. What’s more, ninth grade students involved with CAPE programs scored a full grade level higher in reading ability than their non-CAPE counterparts. CAPE participants also scored higher math scores than those who did not participate in CAPE programs. The comparative study matched the students on a range of levels: locality, socioeconomic status, and academic performance. The findings suggest that involvement in CAPE programs increased the students’ academic performance (Weinberger, 2000).

Data from the National Educational Longitudinal Study of 1988 compiled by the U.S. Department of Education showed that students who participated in music programs received more academic awards and a higher percentage of As, As/Bs, and Bs than students who did not participate in music study programs (American Music Conference).

A McGill University study revealed that children who received sustained piano instruction over a three-year period significantly improved in pattern recognition and mental representation scores. The same study revealed improved self-esteem in the participants (American Music Conference).

Dr. Debby Mitchell (1994) found a link between academic achievement and the motor skills of maintaining a steady beat. Rhythmic ability has also been found to be positively

related to children's overall school achievement, as well as mathematics and reading achievement (Scheuer, 2003).

In Rhode Island, music training helped a group of “under-achievers” catch up to the academic achievers in reading and surpass those peers in math skills by 22 percent. Eight first grade classes participated in the study. Half of the classes were the experimental group and received sustained music and visual arts training. Initially, the experimental group lagged behind in academic achievement. After a period of seven months, the students were tested. The results revealed that music and visual arts training aided in academic achievement. Moreover, in the following year of the study, the so-called under-achievers’ margin of improvement over their counterparts widened even further. What’s more, the overall attitudes and behaviors of the learners involved in music and visual arts training improved (American Music Conference).

Research shows that piano keyboard training improves spatial-temporal reasoning more so than the use of computer training. A group of preschoolers received private piano lessons, a second group received vocal lessons, a third group received private computer instruction, while a fourth group received no special training. The group that received the piano/keyboard training scored 34 percent higher on tests measuring spatial-temporal reasoning ability. The findings suggest that musical training improves understanding of mathematical concepts (Rauscher, 1997). Moreover, spatial-temporal reasoning, or the fundamentals necessary to grasp ratios, fractions, proportions, and thinking in space and time, have been considered a main impediment to teaching elementary math and science effectively (American Music Conference).

A group of at-risk second graders were given eight months of piano keyboard training,

as well as time playing with newly designed music software. These students, taking the Stanford 9 Math Test, went from scoring in the 30th percentile to the 65th percentile. These second graders were performing sixth grade math. The results indicate that spatial-temporal reasoning ability is greatly enhanced by musical training (Graziano, 1998).

Harriet Ball, a teacher in Texas, learned that by putting math to music, students performed better academically. The students were enthralled at the teacher's nontraditional approach to teaching fundamental math concepts, and subsequently, recalled the lesson more readily (Mathews, 2004). Grasping the fundamentals improves academic performance and attitudes toward learning, and that is exactly what Ball has achieved by employing her educational techniques involving music.

A comprehensive study involving 2,046 children in various grades in various regions found that students who attended schools with a heavy emphasis on arts education, including music, benefited in a myriad of ways: improved thinking abilities, more effective approaches to problem solving, improved attitudes toward learning, and improved perception of the self as learner. Background and socioeconomic status did not affect the findings. Moreover, the benefits were not limited to subject matter or classroom environment; rather the benefits were evidenced in all learning situations (Weinberger, 2000).

International Comparisons and Contrasts

Other nations are well aware of the connection between music education and academic achievement. For example, Hungary, Japan, and the Netherlands consistently outrank the United States with regard to standardized test scores. In Hungary, Japan, and the Netherlands, music education is of utmost importance. Namely, music education is

not considered an “extra-curricular” activity; it is a required course. According to James R. Ponter (1999), by examining the International Association for the Evaluation of Educational Achievement (IAEEA) test scores as they are related to the top ranked countries, revealing connections are made between music education and academic achievement (Ponter, 1999).

Hungary implemented the Kodaly system of music education or “singing schools” in the 1960s (Dickinson, 1993). Vocal and instrumental training are required for the eight years of a child’s education (Ponter). Japan also requires music education in grades one through six, including vocal performance, instrumental performance, and music appreciation courses. The Japanese study Western music as well as native Japanese music. As the Japanese students progress to middle school, they are taught to perform with group ensembles. In the Netherlands, music became a required part of the curriculum in 1968; the Netherlands also implemented required testing of musical ability in 1976 (Ponter). That the top three academically ranking countries also place a heavy emphasis on music education is no mere coincidence.

The results of the 1988 IAEEA science test scores are especially telling. The scores suggest that there is more than just a casual connection between music education and academic achievement. For instance, Hungary ranked number one in eighth and ninth grade-level science, and both Japan and the Netherlands scored higher on the standardized tests than the United States. Moreover, Hungary, Japan, and the Netherlands not only outperform the U.S. in science scores, but in math as well. At the fourth grade level, Japan ranks third, the Netherlands fifth, and Hungary tenth in math scores while the U.S. comes in at the number twelve position. At the eighth grade level, Japan remained

at the third position, the Netherlands fell to ninth, and Hungary dropped to fourteenth while the U.S. plummeted to twenty-eighth in the rankings. The twelfth grade-level test scores indicate similar positioning, however Japan's ranking were not factored in the twelfth grade results. That fact considered, the U.S. came in two places from the bottom while the Netherlands ranked number one (<http://4brevard.com/choice/international-test-scores.htm>). Hungary, Japan, and the Netherlands consistently outperform U.S. schools, and all three nations realize the academic benefits of music education.

Moreover, Ponter suggests that the connection between music education and academic achievement in the top-ranking nations counters the U.S. approach to improving academic performance. The U.S. relies on traditional methods such as math, science, vocabulary, and technology to improve academics as well as computer-based education (Ponter). Traditional approaches are all well and good, but those models should not be at the expense of other learning models like that of music education. Music education may well be a healthy alternative to improve test scores as well as introduce fun, entertaining ways of learning.

Some U.S. schools realize the connection between the arts and academic achievement. Schools that turn out the highest academic achievement spend 20 to 30 percent of the school day concentrating on the arts, with particular emphasis on music education. For example, in 1984, St. Augustine Bronx elementary school was failing. Then, the school put into practice an intensive music program. In 1993, 90 percent of the student body was reading at or above grade level. Davidson School in Augusta, Georgia began its music and arts program in 1981 and was ranked number one academically in the country. Ashley River Elementary in Charleston, North Carolina ranked number two

academically, and they too place an emphasis on music and arts education (Dickinson).

Music Education and Attitudes Toward Learning

Most importantly, music education improves attitudes toward learning. Chicago's inner city Guggenheim Elementary School has noted improved attendance, rising test scores, and a general enthusiasm towards learning largely due to visual arts and music education (Dickinson). A study at the University of Texas (1998) revealed that college-age musicians are more emotionally stable than are non-musicians. The music students experienced less anxiety when taking tests and had less trouble dealing with alcohol abuse (American Music Conference). The benefits of music education are clearly abundant. In addition to improved academic achievement and attitudes towards learning, an education with due emphasis on music education leads to success in society, success in school, success in developing intelligence, and success in life (Music Educators National Conference). And success in life is what education is all about.

Conclusions and Recommendations

Adequate Funding for Music Education

Funding must be sufficient to include the arts and music in a child's education. At present, the proposed budget for NCLB has largely remained just that—proposed. According to the National Education Association (NEA), "The bill [NCLB] is being funded at levels dramatically below what Congress intended, analysts say, and it's rife with flaws that undermine the very goals it set out to achieve" (National Education Association). For NCLB to succeed it needs to, "Provide the \$9 billion promised in the No Child Left Behind law. Thus far it is an unfunded mandate that diverts existing state and local funding from the classroom to pay for testing and other requirements,"

according to Elwood R. Thompson, an affiliate of the Iowa State Education Association (Thompson, 2003).

Furthermore, Harvard professor Gary Orfield articulates that the worthy portions of NCLB are supported by educational research while the bill itself allows for very little research funding—less than 1 % of the total budget goes to educational research. Orfield suggests that the problem is that the creation of the bill was based on “extreme partisan processing,” and that NCLB reflects little of what is accepted in educational research (Orfield, 2002). To be sure, educational research reveals what works in the field of education, and NCLB provides extremely meager funding for that research. The latest report reveals that the president’s budget plans to cut a \$35 million in arts-in-education program (Fram, 2004).

In his *New York Times* bestseller *Lies and the Lying Liars Who Tell Them*, political satirist Al Franken (2003) reveals the crux of the problem with No Child Left Behind. Franken concocted a mock math test that reveals the disparity between Congress’ proposed budget for NCLB and the amount President Bush actually budgeted—the sum difference was a staggering 4.6 billion dollars deficient. Franken suggests this will leave 1,643,857 children behind. Moreover, Bush’s budget calls for the training of 316,000 teachers—92,000 less than No Child Left Behind Act called for itself (Franken, p. 349, 367). Summarily, many children are indeed left behind.

Problems with Standardized Testing

The reason NCLB fails to adequately support music education is precisely because the plan rewards and penalizes schools based on test scores—and music cannot be tested in the same sense as other traditional academic subjects are tested (C. Hildebrandt, Personal

communication, November 17, 2003). The largest problem with NCLB and its strict reliance on test scores is that teachers will inevitably teach to the test. According to Harvard professor Daniel Koretz, “The incentive [of the No Child Left Behind Act] is to focus on the test, not what it’s supposed to measure” (Koretz, 2002). Moreover, Koretz states that resources are taken from portions of the curriculum that are essential but are not tested and moved to subjects that can be tested. The danger is that the test results disguise actual academic improvement. Teachers use different methods to achieve results, but test scores do not clearly demonstrate if actual academic achievement has taken place. Additionally, altering test results to present the illusion of academic improvement is an escalating concern—cheating the students, the schools, the system itself. Koretz summarizes, “All of these occur because of one simple problem: excessive attention to the indicator, rather than what it’s supposed to indicate” (Koretz). Since music cannot be tested in a strict academic sense, it takes the proverbial backseat to academic subjects that can.

Call for Further Research

More attention needs to be given to what research shows. The research indicates the value of music education with regard to academic achievement. The country’s top business executives recognize the need for music education and that it may better prepare students for their futures (The National Association for Music Education). Former President Bill Clinton said, “Music is about communication, creativity, and cooperation, and, by studying music in school, students have the opportunity to build on these skills, enrich their lives, and experience the world from a new perspective” (The National Association for Music Education). Educators suggest that music education is, “The

cornerstone to developing a well-rounded individual” (The National Association for Music Education). President Bush’s No Child Left Behind Act also recognizes the importance of music education, but its lack of funding and insistence on the use of standardized tests as a criterion for academic achievement negate that sentiment.

President Bush and advocates of NCLB need to consider the research and sociopolitical aspects of education. According to Harvard professor Milli Pierce, “If President Bush wants to provide economically disadvantaged students with high-performing schools, he should face the socioeconomic and political issues that enshroud the schoolyard before the children show up for their classes. Until that happens, he’ll continue to leave many children behind” (Pierce, 2002). President Bush should also consider music education.

The research thus far clearly indicates that music education improves academic performance. There is a wealth of information available to those who seek it. The Internet provides many useful links to primary and secondary sources. There are numerous organizations such as the National Association for Music Education, Save the Music Foundation, and the American Music Conference that promote the findings of the research. Educators, parents, administrators, and policy-makers need to review the existing literature, and that will inevitably lead to the call for additional research.

Additional research may answer why music education aids in academic improvement. At present, the existing literature supports the hypothesis that music education leads to improved academic performance, including better standardized test scores.

Music, in and of itself, is a worthwhile study. But the current focus on standardized testing due to NCLB detracts from realizing the benefits of music education. To be fair, NCLB considers music to be a part of the core academic subjects; a recognition that the

Elementary and Secondary Education Act of 1965 failed to distinguish. The National Standards for Arts Education stated, "Because music is a basic expression of human culture, every child should have access to a balanced, comprehensive, and sequential program of study in Music" (<http://SupportMusic.com>). That music helps students in science understand qualities of sound, acoustics, pitch, and timbre; that music helps students understand math by employing rhythm and group counting; that music helps students understand geography by raising the awareness of the world around them by comparing and contrasting cultures and their respective music; that music helps students understand history by examining through composition the who, what, where, and why in any given era; that music helps students master the language arts, is especially noteworthy (Yoh, 1996). According to music educator William H. Yoh, "Music is the universal language which establishes a common bond among all subjects and people ... With the enormous impact that music has on every aspect of our lives, it would make sense to fervently develop and advance our music programs. Instead, excuses are made and methods are devised to remove an essential portion of the human soul. Emphasizing and enhancing music education will expand the students' knowledge in a variety of subjects, [and] improve their test scores" (Yoh).

Additional research will undoubtedly support the initial findings with regard to music education and academic achievement. Leading researcher Norman M. Weinberger has reviewed published and unpublished studies in the field and notes that more research is needed and that the current research is often overlooked or ignored. He summarizes a study that demonstrates the benefits of an education in the arts and states that an education in the arts facilitates language development and reading readiness; that arts

activities are valued by school children; that arts activities fosters positive attitudes and results in increased attendance; that direct participation in music develops creativity; and moreover, that arts education facilitates social development, personality adjustment, and general intellectual development. Weinberger continues to suggest that the aforementioned results are corroborated by the personal experiences of many practicing teachers (Weinberger, 1995).

Weinberger concludes, "From a theoretical point of view, these findings will help us understand mental and personal development and the roles of music in human life. From a practical point of view, the argument that music and arts education are merely 'frills' finds no objective support. Quite the contrary. Because education is probably the best and most important way to help children develop to their full intellectual and personal potentials, it is incumbent upon us all to first support the discovery and then support the application of knowledge that promotes these goals. The conclusion that music and arts education are an important and effective part of this formula can no longer be doubted even if it can still be ignored" (Weinberger, 1995).

Conclusion

How to address the entirety of the problems associated with NCLB are beyond the breadth and scope of this study, however, it is abundantly clear that the research demonstrates how music education improves academic performance. And that is what this issue is really all about. President Bush, with regard to the No Child Left Behind Act, has said, "This was a art of what is possible in Washington" (Bush, 2003, cited in <http://www.whitehouse.gov>). No, Bush's statement does not include a typographical error; that was his use of grammar in his speech celebrating the first anniversary of the

act. To be sure, Bush himself may have benefited from a music education program. In fact, it is safe to say, we all have benefited from music education to some degree.

Most of us learned the alphabet by singing the letter characters and were able to recall those characters through repetition. The math skills most of us acquired during our elementary years, such as addition and multiplication tables, were presented rhythmically. Moreover, the sheer success of Sesame Street in aiding parents and educators to teach young minds through song is testament to the power music education possesses (<http://themusicedge.com>). In sum, the connection between music education and academic achievement needs to be further considered and researched if our students are to realize their true potential. Thus far, the evidence suggests that, in a very real sense, music indeed makes us smarter.

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