

Music Education for Social Change:
Adapting Venezuela's *El Sistema* for Sonoma County

Project by
Christina L. Penrose

Submitted to Sonoma State University
In partial fulfillment of the requirements for the degree of

MASTER OF ARTS

in

Interdisciplinary Studies:
Music Education for Social Change

Francisco H. Vazquez, Ph.D., Chair

Karin Demarest

Andy Collinsworth, D.M.A.

May 4, 2012

Date

Copyright 2012

By Christina L. Penrose

AUTHORIZATION FOR REPRODUCTION
OF MASTERS PROJECT

I grant permission for the reproduction of parts of this project, without further authorization from me, on the condition that the person or agency requesting reproduction absorb the cost and provide proper acknowledgment of authorship.

Date: 6/13/12

Signature

Street Address

City, State, Zip

Music Education for Social Change:
Adapting Venezuela's *El Sistema* for Sonoma County
Project by
Christina L. Penrose

ABSTRACT

There is something remarkable happening in the field of music education, and it is turning young musicians into agents of social change and social justice. Children are lining up outside of music schools worldwide in order to embark on a journey that will help them to become good citizens, and give them an opportunity to change their life trajectory dramatically. A prophetic Venezuelan leader named José Antonio Abreu unlocked the potential for music education as a social program by envisioning and creating an inspiring nationwide program that is teaching half a million Venezuelan children to thrive in harmonious community. This program is called *El Sistema*, and it is changing the way that the public engages with classical music worldwide. This project report details the story of *El Sistema* and begins a discussion about the social change that such a program might bring about in our global society. The white paper in this report is designed to serve as an advocacy tool in Sonoma County, to gather the support and momentum needed to create a thriving program for youth. Three major themes are consistently addressed in this report, they are: social justice, ecological issues, and the moral and psychological dimensions of change. These themes are the backbone of the Sonoma State University Master of Arts program, *Action for a Viable Future*, for which this report partially fulfills the requirements.

Francisco H. Vázquez, Ph.D.

M.A. Program: Interdisciplinary Studies
Sonoma State University

ACKNOWLEDGEMENTS

The committee that supported me through this process deserves recognition for their guidance, thank you to Francisco H. Vázquez, Karin Demarest and Andy Collinsworth. Also, the following people provided the support and direction that was needed to bring this project to completion. Without their enthusiasm, the vision may never have been realized.

Jarad Petroske

Benjamin Gustin

Carly Nacmanie

Table of Contents

Abstract.....	iv
Acknowledgements	v
Table of Contents	vi
Introduction.....	1
Part One: Music Education for Social Change: A Literature Review	
<i>Introduction.....</i>	3
<i>Music Education for Social Change</i>	5
<i>El Sistema, Breaking Cycles of Poverty with Music Education</i>	5
<i>Structure.....</i>	6
<i>Curriculum/Pedagogy.....</i>	8
<i>Adapting the model for Sonoma County.....</i>	11
<i>Defining the Social Change that is Needed</i>	13
Music Education and the Environment	13
Principals of Ecology in the Ensemble.....	17
<i>Preservation of Diversity.....</i>	18
<i>Inter-connectedness.....</i>	19
<i>Limits to growth.....</i>	20
<i>Stewardship.....</i>	20
<i>Music as a Powerful Agent of Change</i>	21
<i>Human Development, Democracy and Music Education.....</i>	21
<i>Works Cited</i>	28

Part Two: White Paper: *El Sistema*, Fighting Poverty with the Orchestra at the Center of Society

Introduction.....37

The importance of El Sistema for Sonoma County.....41

Recommendations.....44

Part Three: Reflections

Social Justice45

Ecological Issues46

Psychological and Moral Dimensions of Change47

Appendices

1. *Transcription: TED Talk, José Antonio Abreu*.....50

2. *NAfME Advocacy points*.....54

3. *NAMM Research Briefs Did you Know?*.....66

4. *Directory of El Sistema-inspired programs and consultants*.....71

Introduction

This report is a culmination of study and passionate pursuit that began in 2008 after I witnessed a performance by the Simón Bolívar Youth Orchestra at Davies Symphony Hall, in San Francisco. I was working for the San Francisco Symphony at the time, and I was offered free tickets to see a youth orchestra I'd never heard of. I was very seriously considering refusing them, but I commuted from near San Francisco State, and I needed a bike ride, so I decided to attend. Thankfully so, as this performance laid the foundation for a newfound, deep and meaningful sense of purpose that has been my guide ever since that 2008 performance.

This Youth Orchestra, as it turns out, was a beacon for a monumental system of youth orchestras that was both reviving classical music, and saving the lives of children by the thousands. I promptly wrote my undergraduate thesis on the Venezuelan program these young performers represented, and realized once it was complete, that I must further investigate the tenets of *El Sistema*. The *Action for a Viable Future* special Master's degree program at Sonoma State University was perfectly aligned with the study of this Venezuelan system of orchestras. This program focused on three major themes which inform the white paper recommendations in this document: Social Justice, Environmental Justice, and the Psychological and Moral Dimensions of Change. There, in that program, is where I began to study a movement, Music Education for Social Change.

The intention for this report is that it be used as a resource for anyone who is interested in music as a means to address the needs of underserved students in Sonoma

County. Since the project's inception, my goal has always been to develop a music program in Sonoma County for underserved youth. Consequently, this project report provides first a literature review that addresses the major themes of *Action for a Viable Future* and then reflects on the nature of the social change that is sought by leaders of this movement, and others like it. The literature review serves to frame the white paper, which is intended to serve as a tool to inform and advocate for music education as a social program in Sonoma County, using Venezuela's phenomenal program *El Sistema* as a model for best practices. The two appendices include first a transcription of the founder of Venezuela's orchestral program *José Antonio Abreu*, making his wish after winning the 2009 TED prize. And secondly, *Facts and Insights on the Benefits of Music Study* from the National Association for Music Educators and *Research Briefs* from the NAMM Foundation, highlighting the benefits of music education.

Part One: Music Education for Social Change: A Literature Review

Introduction

A growing movement is inspiring music educators and advocates for social change across the world. It is a movement in that it is not centrally organized but calls on a central idea for inspiration; provide quality music education to children as a means of fighting poverty. The movement picked up momentum after José Antonio Abreu, the founder of *El Sistema*—a revolutionary social program in Venezuela—was given an award for his innovative, federally funded, nationwide network of youth ensembles and localized music centers, called *núcleos* in Venezuela. He was granted a “wish” by TED Conferences, in which he asked for 50 young musicians, passionate about social change, to be trained to create and run new programs inspired by *El Sistema*, across the world, beginning with a training program in the United States. The formation of *El Sistema USA*, a partnership between New England Conservatory of Music, TED, the League of American Orchestras, *Fundación del Estado para el Sistema Nacional de las Orquestas Juveniles e Infantiles de Venezuela* (FESNOJIV) and several other stakeholders in 2009 caused an influx of literature on the subject to bubble up, primarily in the form of news coverage and anecdotal blog posts on the positive impact of music education on underserved populations. While advocates for music education have a vast pool of evidence that children’s developmental health is richly enhanced, in a variety of ways, through music education, the application of this deeply beneficial practice in our underserved communities is only just beginning to have its impacts recorded.

The definition of these impacts is growing as *El Sistema* expands its reach. Abreu points to the development of a sense of purpose and the feeling of becoming a full citizen as a key benefit. Orchestras across the United States are beginning to discuss the changing function of an orchestra within its community, and how to grow its impact and even how to engage audiences in the changing economic and environmental climates. City orchestras have long served the function of adding credibility to metropolitan areas, and membership in the orchestra, argues Abreu, does the same for an individual within a society.

Many social movements are gaining momentum currently, and all of them seem to be connected in some sort of universal consciousness. Eric Liu, political speech writer and author of the 2011 work, *The Gardens of Democracy*, writes of our growing need to change the metaphor for our society from a machine to a garden. The age of the industrial revolution as the beacon of our culture is over, and the need for social change is heightened by our rapidly changing sense of social order. Many movements are aligned toward the kind of social change that will create a more socially, environmentally and psychologically sound society. There is a movement toward creating sustainability in communities, as it becomes more apparent that resources are not infinite. There is a movement to reform education so that it can better prepare our children for our current economic climate. Now, there is also a movement to fight poverty with music education, one of the most powerful art forms, cross-culturally and worldwide, which is inspired by the social work being done through *El Sistema*. The overall intention of these movements is to build strong social programs that strengthen communities by helping individuals to achieve their full potential.

This literature review will introduce the work that has been done to define music education as an effective social program, and it will also address the need for social change, in order to defend the creation of a music education program in Sonoma County, which will simultaneously work to fight poverty, build a community ethic of sustainability, and promote healthy individuals and healthy relationships with the earth.

Music Education for Social Change

El Sistema, fighting poverty with music education.

El Sistema is a revolutionary music education program in Venezuela that serves as a new model for social change. Economist and pianist Dr. José Antonio Abreu founded the program in 1975. *El Sistema* is strategically organized within the Venezuelan government, funding comes from the Ministry of Health and Social Development, a sub-category of the Ministry of Family. This funding structure makes it much more stable than many other arts-focused programs, which are under the control of the Ministry of Culture (Hollinger, 2008). This placement also illuminates *El Sistema's* focus as a social program, as compared to a cultural enrichment program. Founder Abreu in his 2009 TED Talk, defines this vision of a music program:

(El Sistema heralds a new era in education in which). . . the social, communal, spiritual and vindicatory aims of the child and the adolescent become a beacon and a goal for a vast social mission. No longer putting society at the service of art, and much less at the services of monopolies of the elite, but instead art at the service of society, at the service of the weakest, at the service of the children, at the service of the sick, at the service of the vulnerable, and at the service of all those who cry for vindication through the spirit of their human condition and the raising up of their dignity. (Abreu, 2009, Appendix 1)

El Sistema is meant to be an open society, with a high standard of musical excellence, contributing to the development of stronger citizens, as designated by its vision statement. Abreu describes *El Sistema* as impacting three fundamental circles: a child's personal/social world, her family, and her community. The cycle of poverty that loops from one poverty-stricken role model to the next is broken as a child becomes a role model for her family and her community, and they in turn are positively impacted (Abreu, 2009). The impact of the program is apparent when students previously seen as discarded members of dominant society are able to enter the ranks of the elite by performing music passionately.

For example, Charlotte Higgins, a writer for the British newspaper *The Guardian*, describes her experience with the students of *El Sistema*. She says that the musicians are filled with such a passion and urgency that it is as if their lives depend on their participation in this vital and vibrant art form. For many of these musicians, their safety and their very lives *do indeed* depend on their experience with *El Sistema* (2006).

Structure.

El Sistema is comprised of a hierarchical chain of orchestras. According to the 2005 *El Sistema* Directory of Orchestras, 24 Venezuelan states, including the capital district, have at least one professional orchestra, one youth orchestra and one children's orchestra (Hollinger, 2006). Each of these 24 states houses its orchestras at one site, which also serves as the music conservatory. The director of the professional orchestra usually serves as the director of the school site. Graduates of *El Sistema* go on to serve as

professional musicians and often fulfill roles as teachers and administrators in their own home núcleos.

Funding for each site comes in part from that state's foundation, and in part from the federal government. This basic foundation in each state is called *anúcleo* in Venezuela. These nuclei are regulated by Venezuela's capital district, where distribution of federal funds, control of pilot programs, teacher training and other essential resources originate. The capital district's command includes President José Antonio Abreu and his administration. This management structure extends to the basic structures of each *núcleo*, but the venue, pedagogy, and membership vary greatly from state to state. The loose management structure and site-specific flexibility are instrumental to *El Sistema's* nationwide success.

One of the most visited academic centers of *El Sistema* is the Montalbán Children's Academic Center in Caracas. At this center, Susan Simán, the site's general director, developed an extraordinary pilot program for early childhood education. When the demand for such a program presented itself, Simán was sent to Europe and the United States, with the help of Abreu, to study the Kodály, Suzuki, Orff and Dalcroze methods for early childhood music education. Then, she piloted a program in Caracas, which has since been refined, and currently Simán certifies *El Sistema* instructors to teach the method. Simán stresses that the social realities of Venezuela are key to her curriculum design, the music is play and passion first, and work and struggle second, in order to maximize student retention.

Curriculum and Pedagogy.

Much of the pedagogy that is used in *El Sistema* is a combination of pre-existing methods and new curriculum. In a globalizing world, a fusion of pedagogy is a logical necessity. Variation of musical curricula to adapt to the specific teaching environment and its needs creates a stronger curriculum; much like variety in a gene pool will create a stronger species.

Let us now review popular teaching methods and look at ways that *El Sistema* has incorporated those methods. The early childhood education-based music education methods developed by Carl Orff, Zoltan Kodaly, Emile Jacques-Dalcroze and Shinichi Suzuki describe specific music activities that are appropriate for various age groups.

The most popularly used tenet of the Dalcroze approach is known widely as Eurythmics. It focuses on the rhythmic elements of music and the involvement of the child as a whole in the music, through movement, thought and feeling. There are three categories of skills that are to be enhanced through this method: mental/emotional, physical and musical. "Dalcroze advocated that the whole body must be involved in the movement experience, where the sequence of response is always from preparation, to attack, to prolongation, and return to preparation ... this method also encourages inner musical feeling, hearing and memory" (Kalandyk, 1996). This method influenced the approaches of Kodaly and Orff. Examples of elements borrowed from this method in combination with other techniques for the experimental nine-week music program initiated by Kalandyk are the physical expression of musical elements, through movement of the body, and the "excitation and inhibition of movement in games

involving sudden interruptions of movement and its resumption” (Kalandyk, 1996).

Similarly, *El Sistema*'s Susan Simán adopted elements of this practice for her children's curriculum at the music center in Montalbán.

The Orff approach intends to bring music back to its most primal experience for education. This method uses patterns similar to those used for first language acquisition to teach music. In the Orff method, children are encouraged to observe, imitate and experiment with sound and movement and then hopefully feel comfortable creating music of their own. When children are observing, they simply watch to get comfortable with the music. Children are then encouraged to imitate vocally, through body movement and with instruments. These instruments are pitched and un-pitched percussion such as woodblocks, cymbals, simple xylophones and drums, in most cases. Much of the movement is improvisational when children are experimenting, they are encouraged to create their own ideas and express them freely. Performances are low pressure, and usually in groups since the practice and the activities are the focus of the approach (Landis, 1972). In Kalandyk's experimental group, rhythmic ostinati created through percussive sounds and the use of speech patterns in imitation were adopted and applied to the curriculum. Again, Simán of Montalban adopted similar elements of the Orff method for her early childhood curriculum.

Kodály is a very widely used music education technique for adults and children of all ages. One of its main functions is to develop music literacy, meaning that students of the Kodály method should learn to “read, write and think music (Kalandyk, 1996).” Zoltan Kodály thought that music was a fundamental for education, and many life skills could be taught through music. Kodály stressed the relationship of apprenticeship in music

education, and defended the need for inspirational and skilled artist-teachers. Kodály defended the multiple dimensions of students' musicianship including their roles as performers, stewards of musical and cultural heritage, critical thinkers, listeners, and creative human beings.

There are three basic methods used when teaching with Kodály: tonic solfa (Choksy, 1976), with a movable tonal center, called movable *do*; the use of hand signs to designate scale degrees (developed in the 1800s by Englishman John Curwen), and rhythmic syllable recitation. This method also utilizes folk music of the mother tongue, relating it to language acquisition. Kodály also saw the preservation and stewardship of musical heritage and culture as a highly significant dimension of musicianship.

Not even the most excellent individual creation can be a substitute for traditions. To write a folksong is as much beyond the bounds of possibility as to write a proverb. Just as proverbs condense centuries of popular wisdom and observation, so, in the traditional songs, the expressions of centuries are immortalized in a form polished to perfection. No masterpiece can replace traditions. (Choksy, 1974)

Kodály places emphasis on music for early childhood, though his method is also used for older children and adults in higher education. Many curricula take parts of the whole Kodály method and incorporate them into hybrid curriculum. Kalandyk's experimental music program adopted the use of rhythm syllables and the use of pentatonic scales, which is a part of Kodály's tonic solfa technique. Susan Simán of Montalbán also adopted elements of Kodály for her program (Hollinger, 2006).

El Sistema in Venezuela is localized, focused on each community's individual needs, and it is sustainable. The orchestras get new students from public schools, the new students become the teachers, the teachers feed the economy with their local investments, and the economy feeds *El Sistema* through government funding. It is a system in the

truest sense of the word, and, like an eco-system, is self-sufficient. As in any sensitive eco-system, each *núcleo* has been capable of quickly recognizing any disruptions and adapting to change quickly; any programs that are not succeeding are reevaluated and redesigned.

El Sistema began as a pilot program but it is now being applied to the rest of the world to create positive change and help tackle problems of poverty. The Venezuelan model of music education has set an unprecedented standard of achievement for music as a social program. Abreu's program inspires children to aspire for great things in life. Music educators get the same spark of inspiration when they see what is happening in Venezuela, and in turn long for a similar system in their communities (elsistemausa.org). New programs inspired by *El Sistema* appear weekly across the globe, and are being mapped by *El Sistema* USA.

Adapting the model for Sonoma County.

Significant hurdles exist for adapting this interdisciplinary model for Sonoma County. As long as budget cuts and lack of accountability exist, it remains difficult to achieve the goal of quality music education—something that is called for in the county office of education's own mission statement. This is yet another example of an individual part (music education) failing to work within the system as a whole (K-12 education). In California, music education has declined by over 50%, more than any other academic subject area, despite overall enrollment increases of 5.8%, there is a demand for more creative solutions (*Music for All*, 2004). Students are receiving less music education as classes become more impacted, even though music training develops social skills and

enhances the child's ability to succeed in an impacted setting.

Programs in music education are being cut every year because of funding deficits. Private contractors are being hired instead of credentialed teachers, for a lower fee, often paid for by the PTA (Parent Teacher Association) or other community donations. Since the goals of local educational institutions must conform to mandates like the federal No Child Left Behind Act of 2001 (NCLB) or are affected by state budget cuts, schools are balancing needs by devaluing music's place as a core subject and the curriculum is being stripped of one of its most effective components, despite the fact that the arts are deemed "core" by the national standards. Sending children through this depleted program is not conducive to their success, just as planting tomatoes over an old sod lawn without fertilizing the soil would be ineffective. The rich and fertile soil is the key to abundant fruit. Music education is like feeding the soil when it is depleted, which is why music education is so important for the *most* depleted populations, the at-risk youth.

. While standards for K-12 Visual and Arts programs exist in California, there remains a great disparity of compliance in individual schools and districts, due in part to the lack of assessment. The failure to maintain state standards is a typical reflection of America's cultural failure to look at systems in their entirety. Within industry, manufacturers extract parts and assure they work in isolation of their system, rather than putting them in context and confirming that they work *within* their designed system. The Sonoma County Office of Education states in its mission statement, "Arts education is an integral part of the complete curriculum that public schools must endeavor to provide students," and yet all of the individual districts, a smaller part of the system, are not working toward that common vision. As so often occurs in our cultural and industrial

systems, we neglect to manage the whole *system*, however loosely, and instead reduce our efficiency by working on parts in isolation of their systems.

Defining the Social Change that is Needed

Music education and the environment.

This literature review will not focus on the media coverage and the documentation of *El Sistema* and current *El Sistema*-inspired programs, which works to clarify the direction and the role of the field as a social program. Instead it will focus on defining the relationships between the established advocacy functions of music educators, environmentalists and advocates for social justice. Music educator Raymond Murray Schafer of Simon Fraser University was one of the first voices uniting music education with environmental activism in the 1970s. Schafer was an environmentalist, an artist and an educator, and his practice brought environmental activism into music education. In his 1977 book, *The Tuning of the World*, he promoted the acquisition of a deeper awareness of the environment through the study of music. Schafer's school of thought promoted what environmentalist Aldo Leopold called an *ecological land ethic*, in his 1949 work *The Sand County Almanac*. In this book, Leopold defined a land ethic in order to clarify the relationship that humans have to the resources and beings of the earth. For example, the *economic land ethic* prescribes an economic value to all of the pieces of an ecological system, and from this perspective, Leopold argues, exploitation and depletion of resources is likely to occur. The ecological land ethic, on the other hand, promotes

harmonious relationships with ecological systems and encourages conservation.

From as far back as the Greek philosopher Pythagoras, the study of harmonics and the mathematical and acoustic properties of relationships in nature have had an influence on Western philosophy, which has shaped cultural development for centuries. In the Pythagorean definition of *the harmony of the spheres* certain properties or ratios in nature are considered harmonious, and others dissonant (Walker, 2007). In this way, society began to use music to guide its relationship to nature, as the harmonious relationships in nature became models for art and culture.

The fields that developed from this connection between environmentalism and music are not the same as the emerging field of music education for social change. They branched in a different direction that did not have a focus on social justice. The most prominent branch is acoustic ecology. In 1977, R. Murray Schafer, in his book, *The Tuning of the World*, coins the term for the field of acoustic ecology, an interdisciplinary study of the scientific, social and cultural aspects of natural and human made sound environments. While the field of acoustic ecology now is primarily an environmentalist venue for the study of soundscapes like the oceans and the impact of sonar on whales, at its inception, it was an interesting place for exploration of the junction between music and environmentalism. Schafer, as an educator, found education to be a powerful agent of change, and pushed to unite music and environmentalism through education. Schafer's work with students promoted sonic awareness and stewardship of the natural environment, as well as careful manipulation of the built. Schafer taught pupils to listen and to maintain awareness of the sonic environment through activities such as "soundwalks" and the creation of soundscape maps of their neighborhoods, marking

significant “soundmarks” as one would mark landmarks on a map. These practices helped students to develop crucial connections and human relationships to their environment (Schafer, 1976). Schafer was the first to clearly use music and soundscape education as a way to promote more ecological responsibility and environmental stewardship.

Schafer describes the very different soundscapes of the natural and built environments, which he calls hi-fi and lo-fi, respectively, and expresses a deep commitment to balance the human’s experience within these two environments. Though many current thinkers set nature in opposition to the cultural or human sphere (Rehding, 2002), these perspectives challenge that view. The appreciation for the sounds of nature and the powerful impact they have on the human psyche has been brought into the great musical works of composers such as Vivaldi and Respighi. The presence of the sonic elements of nature in music first appears in early classical and late baroque compositions, and is increasingly common in 20th century and modern compositions. Incorporation of birdsong-like sounds into orchestral scores is one of the most commonly used techniques. Why is sound such a strong connector between the natural and the built environments for these great thinkers? Perhaps it is because of the oral tradition that existed for 10,000 years of human’s evolutionary development that roots these thoughts so deeply.

The mathematical proportions of musical scales and structures and the physics of acoustics all reflect patterns in nature. In many different types of musical compositions, one can often find mimicry of natural or technological and industrial soundscapes. “From its beginnings in that city [New Orleans], jazz has played with the rhythms of a mechanized society, tickling the works from within” (Eisenberg, 1998). Western art composers Respighi, Vivaldi, Mozart, Rautavaara, Wagner, Beethoven and Villa-Lobos

all used musical themes from birdsongs in numerous compositions. This mimetic tradition, a reflection of nature, in musical composition is said to be one origin of that same prominent theme in all arts (Rehding, 2002). This imitation or reflection of nature's balanced acoustic environment in art runs parallel to the concept of "biomimicry" which is increasingly being used to assure that new economic, industrial and sociological systems are successful and sustainable in this globalized, mechanized 21st century society.

Many social and economic reformists are looking toward the *human* population as the most valuable resource for innovation and progress, with the understanding that natural resources are finite and a system that relies on expansion is unsustainable (Castells, 2004). The natural balance and harmony found in the great musical works in any culture represent the highest philosophical and intellectual thought of its people. The arts have been engaging in biomimicry for centuries as they bring the sonic cycles and mathematical patterns of nature into the human realm, or the built environment. Leaders and innovators in economic and industrial system development are just beginning to look toward balanced ecological systems for solutions, imitating their structures and cycles in order to create sustainable systems (Benyus, 1997). Transferring understanding of the principles of ecology to the built environment requires going against the grain of traditional Western science and education. While the industrial revolution has encouraged specialization in the workforce and the design of parts outside of their systems, biomimicry involves thinking more contextually, holistically, or systemically about the build environment (Capra, 2005).

There are others who support the notion that arts education can foster the innovation, creativity and the ability to make abstract connections across disciplines.

Fritjof Capra, co-founder of the Center for Ecoliteracy states that study of the arts increases abilities in those areas. “When we draw maps of relationships we discover certain configurations of relationships that appear again and again. We call these configurations ‘patterns.’ Instead of focusing on what a living system is made of, we study its patterns” (Capra, 2005). The patterns that prevail in balanced ecosystems often serve as models for development and progress. Historically, artists have contributed significantly to the advancement of science because of their ability to visualize and conceptualize patterns (Capra, 2005). Economist Jacques Attali elaborates on the role of music with relation to economic change in his book *Noise: the Political Economy of Music*, in which he argues that the theory, structures and techniques found historically in the world of music, have been predictive of the political economy to come. Attali sees a society’s music as a telling indicator of the economic progress (or lack thereof) ahead. Similarly, many great composers and philosophers in Western History have used music to transcend the natural world into the built, and back again.

Principles of ecology in the ensemble.

Brown University professor Jeff Todd Titon wrote in his blog, *Sustainable Music*, that there are four ecological principles that orchestral or ensemble experiences contain, making them similar to balanced ecosystems. Through the practice and exposure to these balanced ecosystems called ensembles, students learn to navigate their social worlds in a very natural and powerful way. These ecological principles Titon briefly mentions are: preservation of diversity, inter-connectedness, limits to growth and stewardship. The process of preserving cultural values, he argues, is akin to preserving our natural

resources. He argues that music is a resource, just as trees are renewable resources. His arguments are unique in the literature, coming from a position where the preservation of natural resources and creation of sustainable enterprise are assumed to be standard, rather than the industrial revolution model, which uses resources as if they are infinite. In other words, unlike others in his field, his perspective takes the momentum toward sustainable development or biomimicry and projects that it is the mainstream approach to systems building. From that position, he argues that preservation of music and culture, or elements of the built environment, should be preserved the same way that trees or rivers are preserved (Titon 2008). The significance of this perspective in the literature is that it stresses the need for balance between the built and natural environments, rather than a separation and competition of the two.

Preservation of Diversity.

The character of each voice in an ensemble and the color variations that occur with different combinations of timbral sounds will create a rich and appealing sonic experience. The appreciation of these diverse sounds is learned through practice in an ensemble; students learn to emphasize passages that highlight their own voice, and to give other players the opportunity to do so as well. Rehearsals involve the practice of actively listening and blending with the soundscape. In nature, variability and specialization of species is rewarded. Diversity allows larger numbers of species to exist within one ecosystem. Currently, most public education classroom experiences do not reward or preserve diversity in this way, but instead encourage students to behave and speak in a uniform and similar style. Practice in a musical ensemble immerses a student

in this concept of ecology, making it a vital part of a balanced education. Through the practice of music, a student learns that her contribution to society, (e.g. solo melodic phrase), is more beautiful and more beneficial when it is a part of a blend of diverse contributions (e.g. melody and harmony passing through an ensemble). Abreu mentions this benefit in his 2009 talk with the TED organization, "... the emotional and intellectual profits are huge ... the sense of commitment, responsibility, generosity and dedication to others, and the individual contribution to achieve great collective goals" (Abreu, 2009). These "senses" listed by Abreu are part of the child's potential contribution to society. When each individual has a rich set of skills that are shared with care and ease, the effect of the blend of these skills, the great collective goal, is made richer through diversity and strength in variation.

Inter-connectedness.

The inter-connectedness of an ecosystem is also inherent in the study of music. Musical ensembles can shift like a culture can shift; a web of sound is created and it seamlessly follows the ebbs and flows of musical expression. University of Ontario professor Paul Woodford describes the objective of music education as the balancing of technique and expression in his book *Democracy and Music Education*(2005). The expression of one's technique in an ensemble must be considered relative to her fellow musicians. If the ensemble is performing outside for example, each individual must approach their expression differently than if they are playing solo in an acoustically sensitive concert hall. In this way, all individual members of the ensemble are connected and dependent on one another musically.

Limits to growth.

Setting limits to musical expression as an ensemble is reflective of the limits to growth that must be in place for a healthy ecosystem. If one player were to play too loudly, the ensemble sound would suffer and fall out of balance. If the entire ensemble becomes too loud, the audience may feel overwhelmed or the composer may be offended. Composers such as Gustav Mahler have experimented with the physical size of the orchestra through works such as his *Symphony No. 8, known colloquially as the Symphony of a thousand*, which challenges the idea of limiting the growth of the ensemble in an artistic statement.

Stewardship.

The final principle mentioned by Titon, stewardship, can also be part of a musical education. Schafer's work and much of the first section of this literature review was supportive of this principle. In an ensemble, each player is responsible for his or her part of the composition, and is responsible for communicating clearly if any variations should occur, such as the acquisition of a melodic line, or a harmonic shift carried by one prominent voice. In this way, the musician is a steward of the music itself. Schafer's work stresses the development of environmental stewardship through sonic awareness, emphasizing the personal ownership and responsibility for the soundscape, as a bridge from the built environment to the natural.

There is a need for more research in order to better understand or reflect upon the ecological principles that naturally develop in practice during music lessons and musical

ensemble work. While musical experiences demonstrating principles of ecology through ensemble may be just symbolic, the experience allows a student to find meaning and encourage a deeper understanding and connection with ecological systems.

Music as a Powerful Agent of Social Change

Human development, democracy and music education.

In order to sustain the vision for social change that addresses the impending ecological crisis, the existing social structures must be kept in perspective as well. Music education as a social program should reflect the democratic values of the society in which it exists, as any social program should.

Discourse on democracy in music education has been extensive. Educators Paul Woodford, David Elliot, Bennet Reimer and Darwin Walker are among the prominent voices in the field. The latter observes that understanding of the abstract connections between the cycles and systems in nature and the cycles and systems of culture and democracy involves the union of the two hemispheres of the brain. Walker highlights research showing that the function of the corpus callosum, which enhances the ability to apply knowledge obtained in one arena abstractly to another discipline, is enhanced by the study of music (Walker, 2007). Therefore, the study of music is a highly effective way of allowing students to reinforce their own understanding of general concepts as they create their own meanings and apply the ideas to their own personal experience. The ability to make music is uniquely human in the sense that we alone are able to transfer the symbolic gestures of musical learning to our social and political lives. We are capable of

transferring conceptual understanding from one context to another. In fact, musical learning enhances that very neurological process, making it even more effective (Walker, 2007).

In addition to the neurological processes, the developmental processes of youth and the influence of musical learning are important to observe. The social psychology of music has been researched largely in order to better understand the manner in which students learn music. For example, experiments testing the influence of socio-economic factors on one's ability to perform competently in music have been attempted (Hargreaves, 1986). Early research on developmental psychology in music (Hargreaves, 1986), found that babies began to physically respond to music at three months, and then began to "babble" shortly thereafter. By age two, children begin to coordinate movement with music and then as they approach age five, they begin to internalize the movements and restrict them to social relationships and imaginative play (Hargreaves, 1986). The study of social psychology in music has been focused on enhancing the understanding of the acquisition of musical knowledge. When looking at music education as a social program, the benefits of music education on a child's normal developmental processes takes the fore, rather than the child's normal developmental processes' impact on a child's musical learning.

Psychologist Jean Piaget's work, *Play, Dreams and Imitation in Childhood* (1962), takes a careful look at the role of play in a child's development. Piaget establishes play and imitation as two separate components of the process. In order to understand how social systems are affected by our ability to make music, it is necessary to understand how cognitive development is affected by Music education in terms of play and imitation.

Play behavior is defined as that which is characterized by a predominance of assimilation, in the sense that new toys, people, situations and so on are incorporated into existing schemes. Imitation, on the other hand, is characterized by a predominance of accommodation in the sense that the child's thinking is subordinated to models provided by the outside world (Hargreaves, 1986). In music, students practice these behaviors from an early age and can learn to distinguish between them, and move from one role to another at will. This can enhance a child's ability to synthesize knowledge and to think critically about the input she receives from her environment.

One can see Piaget's ideas reinforced in some of the great works of the Western canon of music. The musical compositions of Rameau and Rousseau at the edge of the Enlightenment are good examples. Musicologist Alexander Rehding reflects on these composers in his article on the young field of ecomusicology (also coined by Schafer). "The difference between them is that [Rousseau] proposes an imitation of nature in the tradition of scientific speculation, while [Rameau] proposes imitating human nature, the passions, which gradually became associated with expression rather than imitation" (Rehding, 2002). These composers not only demonstrate the difference between play and imitation in their works, but also their differing positions on human's relationship to nature. These variations are clarified through philosophical inquiries such as Aldo Leopold's *The Land Ethic*, where he states, "... a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such" (1970). Rousseau encourages biomimicry, as defined by Beynus, which in play would involve taking one's understanding of existing environmental conditions and applying the

same structure to unique scenarios as they present themselves. For example, a child may see that in nature, there are four seasons, and they repeat each year as a cycle and they may take that understanding and apply it to their musical improvisation, playing and repeating patterns in cycles with four parts that resemble the seasons. Rameau, on the other hand, represents a humanist perspective, which is closer to the idea of imitation-based play behavior. For example, a child may learn about the seasons and improvise themes that express the melancholy of winter or the joy of spring. All of this new knowledge becomes an expression of humanness in all of its variant forms.

While a closer look at developmental psychology helps to explain why *El Sistema* has found so much success as a social program, the influence of poverty on the psychology of a child is another important consideration. In Paulo Freire's *Pedagogy of the Oppressed*, (2000) he presents education reform as a means toward breaking the cycle of poverty, and many of his ideas can be applied to *El Sistema*'s success. The psychology of oppression is evident among families that are trapped in a cycle of poverty, generation after generation. Low self-esteem may develop among the oppressed, or those living below the poverty line, from the constant pressure of the dominant oppressive culture's expectations or lack thereof. In his 2009 TED Talk, Abreu stresses that the lack of public esteem and a sense of purpose in society is the biggest burden of a life of poverty. Abreu spoke in the film *El Sistema: Music to Change Life*, about a parallel deficit of public esteem and sense of purpose in the United States, owing to its culture of overabundance. The juxtaposition of poverty and overabundance is different from Abreu's argument here, instead of the typical presentation of the two issues, he is emphasizing their similarity as

if poverty and overabundance sit next to one another as points on a circle rather than as opposites on a line.

Interestingly, however, Freire points out that the low self-esteem cultivated by a culture of oppression causes the oppressed to imitate their oppressors. Capitalist countries that are economically unstable or underdeveloped will often mimic a larger, global society's patterns of industrialization rather than the more equal economic competitor. Working middle-class families will consume beyond their means to create a feeling of worth that is represented by the products they own.

Cross-culturally, the effect of fear of change and a disbelief in opportunities continues to appear where oppression exists. Many students that come from conditions of extreme poverty have little self-worth or esteem. One student of *El Sistema* was quoted in an interview with Diana Hollinger of San José State University saying, "before, nobody trusted me, everyone was afraid of me. I was a discarded kid. The teacher was the first person that understood me and had confidence in me. This program opened an unimaginably big door from me. It gives you everything, from instruments to affection, which for me was the most important" (Hollinger, 2006).

Within *El Sistema*, beginners are given an instrument on loan until they have met certain criteria, at which point they are able to secure ownership of the instrument. This gives students in *El Sistema* the right to earn ownership of an instrument. Abreu says, "...this brings out the poorest factions within a community. The pride of ownership is important in the culture of poverty" (Hollinger, 2006).

El Sistema is an example of action that works with the oppressed. To become free of oppression, the student and the teacher work together to change her self-esteem and

worldview. Action research, like that of educator Jolanta Kalandyk, shows that self-esteem is enhanced by music education. Concepts presented by Schafer describe how an individual's worldview can be changed through music education to cultivate environmental stewardship and awareness. Additionally, much of the philosophy of Shinichi Suzuki's teaching method stresses that the study of music creates a sense of compassion and humanity in an individual.

“The oppressed, as objects, as ‘things,’ have no purposes except those their oppressors prescribe for them” (Freire, 2000). When a child is raised in an environment such as the barrios in Venezuela where the efforts of *El Sistema's* recruitment have the greatest impact, she may not have the esteem, the tools or the resources to escape the oppressive purpose that poverty assigns to her. The opportunity to become part of a community where she is free to study something like music, which is something of the elite, may be that child's only hope for a future. Music allows these students to have an experience other than the oppressive experience, the aesthetic experience of music. This experience is expected to bring about fulfillment of an aesthetic need for beauty and harmony, and consequently a feeling of pleasure, satisfaction and joy. Such an experience is assumed to develop a positive emotional-mental framework in which the child can perceive himself/herself as part of highly aesthetic values (Kalandyk, 1996).

In educator Jolanda Kalandyk's book *Music and Self Esteem in Young Children* (1996) where she documents action research at her experimental music school, she cites a survey she administered to parents of participants over a nine-week period. The results showed the benefits to include a common sequence: first getting children involved in the process of music education, then getting them to interact and finally getting them into

leadership roles. Their level of achievement in each area went from passive in the beginning to active and initiating toward the end of the time period. The findings showed that music facilitated a relaxed, expressive, interactive, and as Freire found, effective response among the oppressed. The students are first encouraged to get involved, then to interact with one another, and then to teach and eventually lead one another. This is again in sharp contrast to the current paradigm in teaching that encourages students to sit and listen, absorbing the knowledge of their superiors.

In *Music and Self Esteem in Young Children* (1996), Kalandyk revealed that self-esteem enhancing activities involving music showed better results than other methods. In cases like that of Venezuela, enhancing children's self-esteem can break a terrible cycle of poverty and the long term result of that can only be positive change in the community.

The elitism of classical music is a personification of the oppressor for impoverished students, and through music education they are given the opportunity to overcome it. The power of using music education as a social program is multi-faceted. As presented by great thinkers in the literature, a pedagogy that enhances critical thinking and interpretation of educational material, such as music has been proven to do, will breed a population that is less susceptible to domination; it will create a cultural attitude that can overcome cycles as big as poverty.

Works Cited

- Adorno, T. (1997). *Aesthetic Theory*. Minneapolis: University of Minnesota Press. Print.
- After-School Alliance HYPERLINK "<http://www.afterschoolalliance.org/>" ` <http://www.afterschoolalliance.org/>, After-school in California, 2009. Web.
- American Music Conference http://www.amc-music.com/research_briefs.htm. Web.
- Anderson, W.& Campbell, P. (Eds). (1996). *Multicultural perspectives in music education*. Reston, VA: Music Educators National Conference. Print.
- Attali, J. (1985). *Noise: The political economy of music*. Minneapolis: University of Minnesota Press. Print.
- Bartlett, P.& Chase, G. (Eds). (2004). *Sustainability on campus: Stories and strategies for change*. Cambridge: The MIT Press. Print.
- Bodilly, S.& Augustine, C. (2008). *Revitalizing arts education through community-wide coordination*. Pittsburg: RAND Corporation. Print.
- Capra, F., Barlow, Z.& Stone, M. (Eds). (2005) *Ecological Literacy: Educating our children for a sustainable world*. SF: Sierra Club Books. Print.
- Castells, M. (1997). *The power of identity*. Malden, MA: Blackwell Publishing. Print.
- Checker, M.& Fishman, M. (Eds). (2004). *Local actions: Cultural activism, power and public life in America*. NY: Columbia University Press. Print.
- Choksy, L. (1974). *The Kodaly method: Comprehensive music education from infant to adult*. Englewood Cliffs, NJ: Prentice-Hall. Print.
- Choksy, L. (1999). *The Kodaly Method II: Folksong to masterwork*. Englewood Cliffs, NJ:Prentice-Hall. Print.

- Clark, S.&Rehding, A. (2001). *Music theory and natural order from the Renaissance to the early twentieth century*. Cambridge: Cambridge University Press. Print.
- Cook, C. (1970). *Suzuki education in action: A story of talent training from Japan*. NY: Exposition Press. Print.
- Cook, N. (1990). *Music, imagination and culture*. N.Y.: Oxford University Press. Print.
- Damm, R. (2006). Education through collaboration: Learning the arts while celebrating culture. *Music Educator's Journal*, 93(2),54-58. Print.
- Dasilva, F., Biasi A. &Dees, D. (1984). *The sociology of music*. Notre Dame, Indiana: University of Notre Dame Press. Print.
- Denisoff, S. (1983). *Sing a song of social significance*. Ohio: Bowling Green University Popular Press. Print.
- Deutsch, D. (Ed.).(1982). *The psychology of music*. NY: Academic Press, Inc. Print.
- Earhart, W. (1935). *The meaning and teaching of music*. NY: Witmark Educational Publications. Print.
- Eco, U. (1992). *How to travel with a salmon and other essays*. U.S.A: Harcourt, Inc. Print.
- Eisenberg, E (1998). *The ecology of eden*. NY: Alfred A. Knopf. Print.
- Egan, R (1989). *Music and arts in the community: The community music school in America*. London, Metuchen, NJ: The Scarecrow Press. Print.
- Eisenberg, E. (1998). *The ecology of eden*. NY: Alfred A. Knopf. Print.
- Elliott, D. (1995). *Music matters*. NY: Oxford University Press. Print.
- Eyerman, R. & Jamison, A (1998). *Music and social movements: Mobilizing traditions in the twentieth century*. Cambridge: Cambridge University Press. Print.

- Farnsworth, P. (1969). *The social psychology of music*. Ames, Iowa: Iowa State University Press. Print.
- Fiske, E. (1999). *Champions of change: The impact of arts on learning*. Washington D.C.: Arts Education Partnership. Print.
- Freire, P. (2000). *Pedagogy of the oppressed*. New York, NY: The Continuum International Publishing Group. Print.
- Freud, S. & Strachey, J. (Ed). (2005). *Civilization and its discontents*. NY: Norton and Company. Print.
- George, L. (1987). *Teaching the music of six different cultures*. Danbury, CT: World Music Press. Print.
- Gillespie, R. & Hamann, D. *The status of orchestra programs in the public schools*, *Journal of Research in Music Education*, 46(1), 75-86. Print.
- Gordon, M. (1979). Instrumental music instruction as a contingency for increased reading behavior. *Journal of Research in Music Education*, 27(2), 87-102. Retrieved from JSTOR. Web.
- Hargreaves, D. (1986). *The developmental psychology of music*. Cambridge: Cambridge University Press. Print.
- Hargreaves, D. & North, A. (Ed). (1997). *The social psychology of music*. NY: Oxford University Press. Print.
- Heinberg, R. (2003). *The party's over*. Gabriola Island, BC: New Society Publishers. Print.

- Hernandez, C. & Mayur, R. (2000). *Pedagogy of the earth: Education for a sustainable future*. Mumbai, India: International Institute for Sustainable Future. Print.
- Harley, M. (1996). Notes on music ecology: As a new research paradigm, *University of Southern California, Los Angeles*. Retrieved from: interact.uoregon.edu/MediaLit/wfae/library/articles/harley_paradigm.pdf. Web.
- Haston, W. Teacher modeling as an effective teaching strategy, *Music Educator's Journal*, 93(4) 26-30. Print.
- Higgins, C. (2006). Film & music: Land of hope and glory: How do you take kids in the shanty towns of Caracas out of poverty? You turn them into world-beating classical musicians. Charlotte Higgins Reports from Venezuela," *The Guardian*, London. Web.
- Hollinger, D (2006). *Instrument of social reform: A case study of the Venezuelan system of youth orchestras*. PhD diss., Arizona State University. Print.
- Hollinger, D (2007). Tocar y luchar-to play and to fight: The Venezuelan system that produced LA's next great conductor, *California Music Educators Magazine*. Print.
- Hollinger, D. (2008). The Venezuelan music education model: An instrument for social change in California?, (follow-up to Tocar y luchar- To play and to fight: The Venezuelan system that produced LA's next great conductor)," *California Music Educators Magazine*. Print.
- Howell, P., Cross, I. & West, R. (1995). *Musical structure and cognition*. London: Academic Press, Inc. Print.

- Isacoff, S. (2003). *Temperament: How music became a battleground for the great minds of western civilization*. NY: Vintage Books. Print.
- Jordan, B. (1996). *A theory of poverty & social exclusion*. Cambridge: Blackwell Publishers. Print.
- Jorgensen, E. (2008). *The art of teaching music*. Bloomington, IN: Indiana University Press. Print.
- Kalandyk, J. (1996). *Music and self-esteem of young children*. Lanham, Maryland: University Press of America. Print.
- Kaplan, M. (1966). *Foundations and frontiers of music education*. NY: Hold, Rinehart and Winstron, Inc. Print.
- Kemp, A. (1996). *The musical temperament: Psychology and personality of musicians*. NY: Oxford University Press. Print.
- Kivy, P. (2007). *Music, language and cognition*. Oxford: Oxford University Press. Print.
- Kramer, L. (2007). *Why classical music still matters*. Berkeley: University of California Press. Print.
- Landis, B. & Carder, P. (1972). *The eclectic curriculum in american music Education: Contributions of Dalcroze, Kodaly and Orff*. Washington D.C.: Music Educator's National Conference. Print.
- Leopold, A. (1970). *A Sand County almanac*. NY: Ballantine Books. Print.
- Liu, E. (2011). *The gardens of democracy*, Seattle WA: Sasquatch Books, Print.
- Love, N. (2006). *Musical democracy*. Albany: State University of New York Press. Print.
- Lubow, A (2007). Conductor of the people, *The New York Times* (October 28, 2007): 32. Web.

- Maconie, R. (1990). *The concept of music*. NY: Oxford University Press. Print.
- Madsen, C. & Yarbrough, C. (1980). *Competency-based music education*. NJ: Prentice-Hall, Inc. Print.
- Madsen, C., Greer, R., & Madsen, C. Jr. (Ed). (1975). *Research in music behavior: Modifying music behavior in the classroom*. NY: Teacher's College Press. Print.
- McCarthy, M. & Goble, S. (2002). Music education philosophy: Changing times. *Music Educator's Journal*, 89(1), 19. Retrieved from Education Research Complete. Web.
- McIntosh, A. (1992). A sound ecology, *Music Teacher London*(71:8): 22-25. Retrieved from HYPERLINK "<http://www.AlastairMcIntosh.com>" www.AlastairMcIntosh.com. Web.
- MENC Advocacy. <http://www.menc.org/resources/view/why-music-education-2007>. Web.
- Miell, D., MacDonald, R. & Hargreaves, D. (2005). *Musical communication*. NY: Oxford University Press. Print.
- Mills, E., (ed). (1973). *The Suzuki concept: An introduction to a successful method for early music education*. Berkeley and San Francisco: Diablo Press. Print.
- Motycka, A. (1976). *Music education for tomorrow's society: Selected Topics*. Jamestown: GAMT Musical Press.
- Music For All website. Web.
- Nardo, R., Custodero, L., Persellin, D. & Fox, D. Looking back, Looking forward: A report on early childhood music education in accredited american preschools, *Journal of Research in Music Education*, 54(4), 278-292. Print.

- Orr, D. (1992). *Ecological literacy: Education and the transition to a postmodern world*. Albany: State University of New York Press. Print.
- Parncutt, R. (2007). Systematic musicology and the history and future of western musical scholarship. *Journal of Interdisciplinary Music Studies*, 1(1), 1-32. Retrieved from musicstudies.org. Web.
- Piaget, J. (1962). *Play, dreams and imitation in childhood*. NY: W.W. Norton and Company, Inc. Print.
- Reck, D. (1977). *Music of the whole earth*. NY: Charles Scribner's Sons. Print.
- Rehding, A. (2002). Review article: Eco-musicology, *Journal of the Royal Musical Association* (127): 305-320. Print.
- Reimer, B. & Wright, J. (1992). *On the nature of musical experience*. Niwot, CO: University Press of Colorado. Print.
- Rideout, R. (1995) *On the sociology of music education*. Norman, OK: University of Oklahoma. Print.
- Schafer, R. M. (1977). *Our sonic environment and the soundscape: The tuning of the world*. NY: Knopf. Print.
- Schafer, R. M. (1976). *Creative music education: A handbook for the modern music teacher*. NY: Schirmer Books. Print.
- Seashore, C. (1967). *The psychology of music*. NY: Dover. Print.
- Smaczny, P. (2008). *El sistema: Music to change life*. A FILM. DVD.
- Stauffer, S. & Davidson, J. (1996). *Strategies for teaching K-4 general music*. Reston VA: Music Educators National Conference. Print.

- Suzuki, S. (1983). *Nurtured by love: The classic approach to talent education*. Miami, FL: Warner Bros. Publications Inc. Print.
- Titon, J. (2008). Sustainable music: A research blog on the subject of sustainability and music. Retrieved from: HYPERLINK<http://sustainablemusic.blogspot.com/2008/11/sustainability-and-property-law.html>. Web.
- Tunstall, T. (2012). *Changing lives: Gustavo Dudamel, El sistema, and the transformative power of music*. New York: Norton and Company, Inc. Print.
- Veroli, C. (1978). *Unequal temperaments and their role in the performance of early music*. Argentina: Artes Graficas Farro. Print.
- Wade, B. (2004). *Thinking musically: Experiencing music, expressing culture*. Oxford: Oxford Press. Print.
- Walker, Robert (2007). *Music education: Cultural values, social change, and innovation*. Springfield, IL: Charles C. Thomas. Print.
- Weininger, David. Gustavo Dudamel is maestro of all he surveys*Boston Globe*, Boston. (Nov. 4, 2007): 4. Print.
- Wheeler, L. (1985). *Orff and Kodaly adapted for the elementary school*. Dubuque, Iowa: Wm.C. Brown Publishers. Print.
- Wilpert, G. (2007). *Changing Venezuela by taking power: The history and policies of the Chavez government*. London: Verso. Print.
- Wisbey, A. (1980). *Music as the source of learning*. Baltimore: University Park Press. Print.

Woodford, P. (2005). *Democracy and music education: Liberalism, ethics and the politics of practice*. Indiana: Indiana University Press. Print.

Wrightson, K. (2000). An introduction to acoustic ecology. *Soundcape: The Journal of Acoustic Ecology*. 1(1). (1-7). Print.

Part Two:
White Paper: *El Sistema*, Fighting Poverty with the Orchestra at the Center of Society

Introduction

In many cities across the United States, symphony orchestras are redefining the scope of their service to society. More specifically, the Santa Rosa Symphony is working to create new programs that will benefit the most underserved students of their communities, providing them an opportunity to coexist in harmony with an elite group of young musicians. The power of this gesture lies in the social work that it successfully accomplishes. Students and their families have the opportunity to experience a harmonious ensemble where they are honored for their hard work and service to the orchestra, which has a powerful ability to break oppressive cycles of poverty. The Santa Rosa Symphony is one of many groups in Sonoma County that is either interested or participating in an international movement that is focused on music education for social change. This movement is collecting momentum rapidly and is currently in the process of defining and creating a national association in the United States that will help to define core values and shape the future of the effort.

The movement has been sparked by an inspirational man named José Antonio Abreu who many people tout as a prophet, and the tremendous work that he has done in Venezuela. There, he has created a social program that serves more than half a million children and turns away no new children. This program serves parents, infants, deaf, blind, disabled and anyone else that has a passion and motivation to learn. The program is called *El Sistema*, and it has been gaining international fame on account of the artistic

excellence of its flagship orchestra, the Simon Bolivar Youth Orchestra, and its award-winning and highly sought after conductor Gustavo Dudamel, who is often said to rival the great conductor Leonard Bernstein.

People are attracted to *El Sistema* for two very important reasons: first, it is reviving classical music and dramatically changing the way it is played, viewed and consumed, and secondly, it is an incredibly powerful agent of social change that is saving children's lives and rapidly breaking cycles of poverty where other social programs hardly scratch the surface. For these reasons, unexpected alliances are being forged in communities across the globe, and the movement in the United States is particularly strong in leadership because of the support of an award that was given to the founder of *El Sistema* in 2009, namely the Technology, Entertainment and Design(TED) Prize. With this prize, Abreu was granted a wish, and with that wish, he created a program in partnership with United States institutions that would train fifty young and dedicated musicians to create and support *El Sistema*-inspired programs in the United States and beyond.

El Sistema has a long and powerful story that is told, by its numerous students and by Abreu, with the character of an ancient oral tradition. The story has recently beendocumented in the first book published in the field, *Changing Lives: Gustavo Dudamel, El Sistema, and the Transformative Power of Music* (Tunstall, 2012), which contains the same tales that have been featured on *60 Minutes*, in *The New York Times*, and in the countless news articles that have sprouted from the inspiration of this monumental program, all in one lovely narrative. The story of *El Sistema* starts with one man and his vision to give his Venezuelan people an artistic identity that would unite the

Americas and bring great pride to his nation. Abreu, who holds advanced degrees in both music and economics, brought thirty seven teenaged musicians together in a Caracas garage in 1979, and convinced those young people that they were about to embark on a phenomenal journey that would change the landscape of their nation. The orchestra rehearsed every day with intense vigor, and grew so quickly that it soon needed to expand its capabilities. From that core group of musicians came the first teachers, conductors and administrators, many of who are still involved today.

Many curious investigators in the United States wonder what makes *El Sistema* so unique, and how they can best use it as a model. This has led to many inquiries regarding best practices, pedagogy, program structure, funding, etc. In an effort to address these questions, first *El Sistema USA* (the alliance created by the *TED Prize*), and then *Take a Stand* (the alliance created by the Los Angeles Philharmonic, Bard College and Longy School of Music), have held two symposiums, which will furthermore be held annually as part of *Take a Stand*, where leaders can come together to share and learn. The budding national association that has been built from these conferences is currently defining the core values of *El Sistema*-inspired programs through telephone and internet conferences with leaders from potential member organizations. Among these core values are: a dedication to social change through music education; a commitment to primarily serve students who face barriers to other programs; rigorous study of at least eight hours per week; the achievement of artistic excellence; emphasis on frequent ensemble performance; engagement of the surrounding community; ensemble-based learning; mentor based teaching; commitment to at least three years of instruction for every child (striving to engage students through their entire childhood); and careful and thorough

assessment and documentation throughout.

Strong programs such as the *Harmony Project* in New York City, and the *OrchKids* project in Baltimore, are sharing their best practices and resources in every way possible, with the hope that more children will have access to *El Sistema*-inspired programs. Some find it difficult to translate the Venezuelan program to the United States, because of the perceived socio-economic and cultural differences; however, leaders encourage other programs to make frequent comparisons to Venezuela to learn from its great successes.

Today, in Venezuela, *El Sistema* guides hundreds of thousands of children and families through their first musical experiences and toward their most excellent achievements. *El Sistema's* students proclaim that this experience helps them to become good citizens. Its supporters see that young musicians are growing up and giving back to their communities as much, if not more, than that which was given to them as youth. In this way, great social change is taking place. The progress of this international movement that embraces *El Sistema* and social change through music education is only beginning to be documented, with the publishing of the already mentioned first book, *Changing Lives* by Tunstall (2012). Due to the nature of *El Sistema's* inherent flexibility and growth, the movement will need to be continuously reevaluated.

Abreu's commitment to the poorest sectors of his own society is testament to the nature of social change that this international movement hopes to achieve. In numerous research reports, published by the Music Educator's National Conference, Americans for the Arts, Arts Education Partnership and others (see appendices 2 and 3), the knowledge and practice of music has shown astonishing results for enhancing cognitive development, and an increase in areas such as graduation rates, self-esteem, language

acquisition skills, community engagement, and generally improving the chances for students to reach their potential. Access to this education for self-determination and social change, which is arguably a fundamental right, is currently being denied to a growing segment of society. In an effort to correct this social injustice, *El Sistema*-inspired programs are striving toward monumental change. Leaders of great educational, social and political institutions such as the Los Angeles Philharmonic, Bard College, the Longy School of Music, New England Conservatory, TED, and the Venezuelan government, are creating international relationships and forming strategies that are far more meaningful than any current political enterprises, they are uniting the Americas around service to their own people. This movement requires a dramatic shift in the way that the United States addresses its own socio-political and economic problems, it encourages a commitment to taking responsibility for its own poor, and embraces the opportunity to revive classical music and inject a sense of cultural unity and political integrity into an ethnically diverse, consumerist society. The power of this social change is evident in the joyful faces of young musicians and in the flood of tears that wells up in audience members as they engage in an *El Sistema* and become inspired by it. Let us now see how this relates to the needs of students in Sonoma County.

The importance of El Sistema for Sonoma County

Clearly, *El Sistema* is illuminating the use of music as a social program for music educators and change agents globally. In Sonoma County, large segments of the population are struggling to break through oppressive cycles of poverty, and organizations such as the Santa Rosa Symphony are working to increase the accessibility

of their high quality programs. Access to music education could be considered access to an opportunity to succeed in society. Lack of access is denial of that opportunity. The Music Educators National Conference, the American Music Conference, Americans for the Arts, and countless other groups have been collecting data on the benefits of music education for decades (see appendices 2 and 3). There is no shortage of evidence that children and adults benefit in a myriad of ways from music education, and still the standards for music education are not being met in schools. Students from all socioeconomic and ethnic backgrounds deserve the opportunity to reap the benefits of quality music instruction. Schools in Sonoma County, however, are increasingly segregated, as the demographic profile in the Sonoma County Office of Education's accountability report cards show (SCOE.org). The following figures show the enrollment profile at Proctor-Terrace Elementary, and the enrollment profile from Steele Lane Elementary, two elementary schools in the same district, less than two miles away from one another. A prominent arts education advocacy group, the Arts Education Alliance of Sonoma County, chose Steele Lane Elementary as its pilot school for their 2010 adopt-a-school program.

Enrollment Profiles

Groups	Proctor Terrace Elementary	Steele Lane Elementary
	Percent	Percent
African American	0.9 %	2.9 %
American Indian or Alaska Native	0.50 %	1.22 %
Asian	2.5 %	4.8 %
Filipino	0.5 %	0.7 %
Hispanic or Latino	18.7 %	70.6 %

Pacific Islander	0.0 %	2.4 %
White (not Hispanic)	66.1 %	15.4 %
Multiple or No Response	10.7 %	1.9 %
Socioeconomically Disadvantaged	26.2 %	83.1 %
English Learners	14.60 %	65.8 %
Students with Disabilities	8.7	9.6 %
Total Number of Students	439	415

The group demographic of socioeconomically disadvantaged students is the most strikingly different, showing the pattern of segregation of advantaged and disadvantaged from one school to the next quite clearly. Schools are becoming increasingly reliant on parental support, and where parents have fewer resources, students are largely underserved.

Although increasing inequities among schools demand it, no data has been collected and compiled in a comprehensive report on the status of arts in Sonoma County's public schools. The Sonoma County Office of Education publishes some basic data about the demographics of the schools, but none is focused on Sonoma County arts and music programs. Without a detailed assessment, it is difficult to bring transparency to the magnitude of the injustice.

One question often arises in discussions about music education and *El Sistema*: how is this Venezuelan phenomenon different than the great music teaching that happens in public schools? The pedagogy, the structure, the accessibility, all of it looks remarkably similar to music education in United States public schools in the 1970's including those in Sonoma County. All students could study music in choral, orchestral

or wind band ensembles five days a week. Instruments were provided for all students that needed them. Since the passage of Proposition 13 (in 1978) however, there has been a rapid decline in education funding, and the school system has become a capitalist enterprise where consumers with more resources are able to access higher quality goods, since quality and cost are in close partnership.. In order for poverty-stricken families to compete, they need programs that are specifically tailored for their needs.

Recommendations

I issue a word of caution to individuals and organizations that wish to support or create programs based on the *El Sistema* concept, due to the competition for resources and central control of the Sonoma County music education landscape. No single organization should have the responsibility of providing music education for all of Sonoma County's children, and every interested organization should create their own *núcleo*. Each *núcleo* will meet the needs of its immediate community. Support for planning, implementing and sustaining *anúcleo* can be provided by the author, at the contact information listed in appendix four. This white paper as well as the supporting Review of Literature can be found in the Sonoma State University Library, and many other resources are available through existing *El Sistema* inspired programs across the globe.

Organizations or individuals interested in supporting an existing *El Sistema*-inspired program for Sonoma County's youth should contact the Santa Rosa Symphony, as they are preparing to launch a program in the near future. The Santa Rosa Symphony can channel funding, in-kind donations of instruments, and other resources into their

program if they find them to be suitable. Additionally, the small Sonoma County non-profit *Harmony Grows*, which currently consists of only volunteers and serves students at Santa Rosa's Sheppard Elementary, defines *El Sistema* values as core to its mission. Contact information for these organizations can be found in appendix four.

Another important step is to establish a baseline understanding for proper assessment of the current music education offerings in Sonoma County. In order to establish this baseline, a needs assessment should be conducted county-wide, detailing the programs offered by all organizations and schools, the number of students served, the demographic profile of those students, the quality of their music education. As part of this assessment, a database of music educators and teaching artists would be created, and communication should happen regularly between them in order to maximize available resources and increase the sustainability of existing programs. This database would need to be maintained by a central agency. Student data should also be collected by individual programs, allowing individual's character development and growth to be more carefully tracked and documented. A needs assessment and follow up evaluations would greatly increase the effectiveness and accuracy of assessment, thereby making all programs more replicable and reputable.

Part Three: Reflections

Social Justice

Students that participate in *El Sistema*-inspired programs are demonstrating the power of *El Sistema* as they continuously break cycles of poverty, and reveal the societal flaws that so often keep people from achieving their potential. José Antonio Abreu tells a

story about a young Venezuelan bassoonist in the 1970s that graduated from a conservatory and then promptly set his bassoon on fire in the courtyard because he had no opportunity to perform as a professional musician in Venezuela. In the United States, where the dream that a college education will get you a good job in your field is becoming obsolete, students often have trouble finding a reason to finish school and engage in society. Supporters of *El Sistema* see students' lives being transformed as they experience a sense of purpose and belonging, recognizing that music is known to increase the graduation rates among at-risk students (see appendices 2 and 3). *El Sistema*-inspired programs are not vocational training programs; they are community centers that cultivate engaged, disciplined and harmonious citizens. This is one distinction between traditional music education programs and those inspired by *El Sistema*.

There is a risk in creating programs that only serve the underserved, if this process leads to segregation. The end goal should be to integrate and create partnerships with schools and programs of the wealthier segments of society, so as not to segregate the groups further. A program of inclusion and access should not deny access to students that are wealthy, or its purpose is negated. This risk is not being addressed in the *El Sistema* movement currently.

Ecological Issues

My project on the implementation of *El Sistema* in Sonoma County has a direct relationship with ecological issues. As communities seek alternatives to the consumerism and isolation of their daily lives, they support alternative types of education for their children such as the media-free Waldorf curriculum or the wide array of public charters,

many of which are focused on arts and music. Music education can aid children in their development of a sense of place, a sense of purpose and an identity. Music can also help develop a drive toward excellence that helps motivate children to become role models for their impoverished families and communities. Embedded in the study of music is the practice of harmonious, societal living. Also a part of the practice of music is the symbolic representation of fundamental ecological principles. Students practice interconnectedness, limits to growth, understanding of diversity, and stewardship. Teaching students these principles through an art form such as music allows them to create their own meanings as they learn, thus increasing the depth of their understanding.

Psychological and Moral Dimensions of Change

As Paulo Freire teaches, people may passively exist in their society, allowing leaders to “deposit” information and rules into them as if they were empty receptacles, or they may receive the information and think critically about and compare these “truths” to their immediate lived experience. Consequently, passive learners tend not to have access to avenues that help break cycles in which they are trapped. Critical thinkers are active and empowered citizens who strive to address the contradictions and change social reality so that it includes their own perspectives. Development of critical thinking skills and self-confidence are precisely two of several beneficial results from music education. These are crucial components of an engaged citizenry, and such citizens are necessary for the moral functioning of any democracy. The individual child is transformed, her community is given the opportunity to dream of a better life, and the larger society is rewarded by the commitment these children have to humanitarianism and service to their people. The

world is transformed by a vision of harmonious coexistence, and musical culture is transformed as new life is breathed into it and the philosophical expressions of history's greatest thinkers are revived.

Appendices

1. TED Talk Transcription, José Antonio Abreu(TED.com)

Chris Anderson: Let us now see the extraordinary speech that we captured a couple weeks ago.

(Music)

José Antonio Abreu: My dear friends, ladies and gentlemen, I am overjoyed today at being awarded the TED Prize on behalf of all the distinguished music teachers, artists and educators from Venezuela who have selflessly and loyally accompanied me for 35 years in founding, growing and developing in Venezuela the National System of Youth and Children's Orchestras and Choirs.

Since I was a boy, in my early childhood, I always wanted to be a musician, and, thank God, I made it. From my teachers, my family and my community, I had all the necessary support to become a musician. All my life I have dreamed that all Venezuelan children have the same opportunity that I had. From that desire and from my heart stemmed the idea to make music a deep and global reality for my country.

From the very first rehearsal, I saw the bright future ahead. Because the rehearsal meant a great challenge to me. I had received a donation of 50 music stands to be used by 100 boys in that rehearsal. When I arrived at the rehearsal, only 11 kids had shown up, and I said to myself, "Do I close the program or multiply these kids?" I decided to face the challenge, and on that same night, I promised those 11 children I would turn our orchestra into one of the leading orchestras in the world. Two months ago, I remembered that promise I made, when a distinguished English critic published an article in the London Times, asking who could be the winner of the Orchestra World Cup. He mentioned four great world orchestras, and the fifth one was Venezuela's Youth Symphony Orchestra. Today we can say that art in Latin America is no longer a monopoly of elites and that it has become a social right, a right for all the people.

Child: There is no difference here between classes, nor white or black, if you have money or not. Simply, if you are talented, if you have the vocation and the will to be here you get in, you share with us and make music.

JA: During the recent tour by the Simon Bolivar Youth Orchestra of Venezuela of United States and Europe, we saw how our music moved young audiences to the bottom of their souls, how children and adolescents rushed up to the stage to receive the jackets from our musicians, how the standing ovations, sometimes 30 minutes long, seemed to last forever, and how the public, after the concert was over, went out into the street to greet our young people in triumph. This meant not only an artistic triumph, but also a profound emotional sympathy between the public of the most advanced nations of the world and the musical youth of Latin America, as seen in Venezuela, giving these audiences a message of music, vitality, energy, enthusiasm and strength.

In its essence, the orchestra and the choir are much more than artistic structures. They are examples and schools of social life, because to sing and to play together means to intimately coexist toward perfection and excellence, following a strict discipline of organization and coordination in order to seek the harmonic interdependence of voices and instruments. That is how they build a spirit of solidarity and fraternity among them, develop their self-esteem and foster the ethical and aesthetical values related to the music in all its senses. This is why music is immensely important in the awakening of sensibility, in the forging of values and in the training of youngsters to teach other kids.

Child: After all this time here, music is life. Nothing else. Music is life.

JA: Each teenager and child in *El Sistema* has his own story, and they are all important and of great significance to me. Let me mention the case of Edicson Ruiz. He is a boy from a parish in Caracas who passionately attended to his double bass lessons at the San Agustin's Junior Orchestra. With his effort, and the support of his mother, his family and his community, he became a principal member in the double bass segment of the Berlin Philharmonic Orchestra. We have another well-known case—Gustavo Dudamel. He started as a boy member of the children's orchestra in his hometown, Barquisimeto. There, he grew as a violinist and as a conductor. He became the conductor of Venezuela's junior orchestras, and today conducts the world's greatest orchestras. He is the musical director of Los Angeles Philharmonic, and is still the overall leader of Venezuela's junior orchestras. He was the conductor of the Gothenburg Symphony Orchestra, and he's an unbeatable example for young musicians in Latin America and the world.

The structure of *El Sistema* is based on a new and flexible managing style adapted to the features of each community and region, and today attends to 300,000 children of the lower and middle class all over Venezuela. It is a program of social rescue and deep cultural transformation designed to the whole Venezuelan society with absolutely no distinctions whatsoever, but emphasizing on the vulnerable and endangered social groups.

The effect of *El Sistema* is felt in three fundamental circles—in the personal/social circle, in the family circle and in the community. In the personal/social circle, the children in the orchestras and choirs develop their intellectual and emotional side. The music becomes a source for developing the dimensions of the human being, thus elevating the spirit and leading man to a full development of his personality. So, the emotional and intellectual profits are huge—the acquisition of leadership, teaching and training principles, the sense of commitment, responsibility, generosity and dedication to others, and the individual contribution to achieve great collective goals. All this leads to the development of self-esteem and confidence.

Mother Teresa of Calcutta insisted on something that always impressed me—the most miserable and tragic thing about poverty is not the lack of bread or roof, but the feeling of being no-one, the feeling of not being anyone, the lack of identification, the lack of public esteem. That is why the child's development in the orchestra and the choir provides him with a noble identity and makes him a role model for his family and community. It makes

him a better student at school because it inspires in him a sense of responsibility, perseverance and punctuality that will greatly help him at school.

Within the family, the parents' support is unconditional. The child becomes a role model for both his parents, and this is very important for a poor child. Once the child discovers he is important for his family, he begins to seek new ways of improving himself and hopes better for himself and his community. Also, he hopes for social and economic improvements for his own family. All this makes up a constructive and ascending social dynamic. The large majority of our children belong, as I already mentioned, to the most vulnerable strata of the Venezuelan population. That encourages them to embrace new dreams, new goals, and progress in the various opportunities that music has to offer.

Finally, in the circle of the community, the orchestras prove to be the creative spaces of culture and sources of exchange and new meanings. The spontaneity music has excludes it as a luxury item and makes it a patrimony of society. It is what makes a child play a violin at home, while his father works in his carpentry. It is what makes a little girl play the clarinet at home, while her mother does the housework. The idea is that the families join with pride and joy in the activities of the orchestras and the choirs their children belong to. The huge spiritual world that music produces in itself, which also lies within itself, ends up overcoming material poverty. From the minute a child is taught how to play an instrument, he is no longer poor. He becomes a child in progress, heading for a professional level, who will later become a full citizen. Needless to say that music is the number one prevention against prostitution, violence, bad habits, and everything degrading in the life of a child.

A few years ago, historian Arnold Toynbee said that the world was suffering a huge spiritual crisis. Not an economic or social crisis, but a spiritual one. I believe that to confront such a crisis, only art and religion can give proper answers to humanity, to mankind's deepest aspirations, and to the historic demands of our times. Education being the synthesis of wisdom and knowledge, it is the means to strive for a more perfect, more aware more noble and more just society.

With passion and enthusiasm we pay profound respects to TED for its outstanding humanism, the scope of its principles, for its open and generous promotion of young values. We hope that TED can contribute in a full and fundamental way to the building of this new era in the teaching of music, in which the social, communal, spiritual and vindictory aims of the child and the adolescent become a beacon and a goal for a vast social mission. No longer putting society at the service of art, and much less at the services of monopolies of the elite, but instead art at the service of society, at the service of the weakest, at the service of the children, at the service of the sick, at the service of the vulnerable, and at the service of all those who cry for vindication through the spirit of their human condition and the raising up of their dignity.

(Music)

(Applause)

CA: We are going live now to Caracas. We are going live to Caracas to hear Maestro Abreu's TED Prize wish.

JA: Here is my TED Prize wish—I wish that you help to create and document a special training program for 50 gifted young musicians passionate about their art and social justice and dedicated to bringing *El Sistema* to the United States and other countries. Thank you very much.

Credit: TED.com

2. The National Association for Music Education (NAfME) Facts and Insights on the Benefits of Music Study

The National Association for Music Education, among the world's largest arts education organizations, marked its centennial in 2007 as the only association that addresses all aspects of music education. Through membership of more than 75,000 active, retired, and pre-service music teachers, and with 60,000 honor students and supporters, NAfME serves millions of students nationwide through activities at all teaching levels, from preschool to graduate school. The insights and benefits cited here are among the many documents that report on the extensive research defending music education.

Since 1907, NAfME has worked to ensure that every student has access to a well-balanced, comprehensive, and high-quality program of music instruction taught by qualified teachers. NAfME's activities and resources have been largely responsible for the establishment of music education as a profession, for the promotion and guidance of music study as an integral part of the school curriculum, and for the development of the National Standards for Arts Education.

“Every student in the nation should have an education in the arts.” This is the opening statement of “The Value and Quality of Arts Education: A Statement of Principles,” a document from the nation's ten most important educational organizations, including the American Association of School Administrators, the National Education Association, the National Parent Teacher Association, and the National School Boards

Association.

The basic statement is unlikely to be challenged by anyone involved in education. In the sometimes harsh reality of limited time and funding for instruction, however, the inclusion of the arts in every student's education can sometimes be relegated to a distant wish rather than an exciting reality.

It does not have to be that way! All that is needed is a clear message sent to all those who must make the hard choices involved in running a school or school system. The basic message is that music programs in the schools help our kids and communities in real and substantial ways. You can use the following facts about the benefits of music education, based on a growing body of convincing research, to move decision-makers to make the right choices.

The benefits conveyed by music education can be grouped in four categories:

Success in Society

Success in school and learning

Success in developing intelligence

Success in life

When presented with the many and manifest benefits of music education, officials at all levels should universally support a full, balanced, sequential course of music instruction taught by qualified teachers. And every student will have an education in the

arts. (MENC: The National Association for Music Education)

Success In Society

Perhaps the basic reason that every child must have an education in music is that music is a part of the fabric of our society. The intrinsic value of music for each individual is widely recognized in the many cultures that make up American life — indeed, every human culture uses music to carry forward its ideas and ideals. The importance of music to our economy is without doubt. And the value of music in shaping individual abilities and character are evident (*MENC*)

Data show that high earnings are not just associated with people who have high technical skills. In fact, mastery of the arts and humanities is just as closely correlated with high earnings, and, according to our analysis, that will continue to be true. History, music, drawing, and painting, and economics will give our students an edge just as surely as math and science will (*Tough Choices or Tough Times: The report of the new commission on the skills of the American workforce, 2007, page 29; www.skillscommission.org*)

The arts provide one alternative for states looking to build the workforce of tomorrow - a choice growing in popularity and esteem. The arts can provide effective learning opportunities to the general student population, yielding increased academic performance, reduced absenteeism, and better skill building. An even more compelling advantage is the striking success of arts-based educational programs among disadvantaged populations, especially at-risk and incarcerated youth. For at-risk youth, that segment of society most likely to suffer from limited lifetime productivity, the arts contribute to lower recidivism rates; increased self-esteem; the acquisition of job skills; and the development of much needed creative thinking, problem solving and communications skills. Involvement in the arts is one avenue by which at-risk youth can acquire the various competencies necessary to become economically self-sufficient over the long term, rather than becoming a financial strain on their states and communities. (*The Impact of Arts Education on Workforce Preparation, May 2002, The National Governors Association; <http://www.nga.org/cda/files/050102ARTSED.pdf>*).

The abilities associated with the humanities and the arts are vital, both to the health of individual nations and to the creation of a decent world culture. These include the ability to think critically, to transcend local loyalties and to approach international problems as a “citizen of the world”. And, perhaps most important, the ability to imagine sympathetically the predicament of another person. One of the best ways to cultivate sympathy is through instruction in literature, music, theatre, fine arts and dance.

When people put on a play or a dance piece together, they learn to cooperate – and find they must go beyond tradition and authority if they are going to express themselves well. The sort of community created by the arts is non-hierarchical – a model

of the responsiveness and interactivity that a good democracy will also foster in its political processes. And not the least, the arts can be a great source of joy. Participation in plays, songs and dances fills children with happiness that can carry over into the rest of their education. We need to favor an education that cultivates the critical capacities, that fosters a complex understanding of the world and its peoples and that educates and refines the capacity for sympathy. In short, an education that cultivates human beings rather than producing useful machines. If we do not insist on the crucial importance of the humanities and the arts, they will drop away. They do not make money; but they do something far more precious; they make the world worth living in. (*Martha Nussbaum, Ernst Freund Distinguished Service Professor of Law and Ethics, University of Chicago; Newsweek International, August 21 – 18, 2006; "Teaching Humanity"; <http://www.msnbc.msn.com/id/14322948/print/1/displaymode/1098/>*)

Secondary students who participated in band or orchestra reported the lowest lifetime and current use of all substances (alcohol, tobacco, illicit drugs). (*Texas Commission on Drug and Alcohol Abuse Report. Reported in Houston Chronicle, January 1998*)

The U.S. Department of Education lists the arts as subjects that college-bound middle and junior high school students should take, stating "Many colleges view participation in the arts and music as a valuable experience that broadens students' understanding and appreciation of the world around them. It is also well known and widely recognized that the arts contribute significantly to children's intellectual development." In addition, one or two years of Visual and Performing Arts are recommended for college-bound high school students (*Getting Ready for College Early: A Handbook for Parents of Students in the Middle and Junior High School Years, U.S. Department of Education, 1997; <http://www.ed.gov/pubs/GettingReadyCollegeEarly/step2.html>*)

The fact that choral singing is a communal activity is especially significant today when we increasingly rely on internet-based communications, rather than face-to-face interaction. Several recent studies have shown a significant decline in civic engagement in our communities. Robert Putnam, Harvard University's Kennedy School of Government scholar, asserts that the significance of choral singing goes beyond music making, and even beyond the arts. He sees group performing as contributing directly to the social trust and reciprocity that is the basis of civic engagement. His work shows that the mere existence of choral groups helps foster America's democratic culture...

Chorus America found that choral singers are far more likely to be involved in charity work, as volunteers and as donors (76 %), than the average person (44% according to a 2001 report by Independent Sector). Choral singers are also more than twice as likely as non-participants to be aware of current events and involved in the political process. They are also twice as likely as the general public to be major consumers of other arts – and not just music. (*America's Performing Art: A Study of Choruses, Choral Singers, and their Impact (Chorus Impact Study, 2003); www.chorusamerica.org*)

Success in School and Learning

Success in society, of course, is predicated on success in school. Any music teacher or parent of a music student can call to mind anecdotes about effectiveness of music study in helping children become better students. Skills learned through the discipline of music, these stories commonly point out, transfer to study skills, communication skills, and cognitive skills useful in every part of the curriculum. Another common variety of story emphasizes the way that the discipline of music study — particularly through participation in ensembles — helps students learn to work effectively in the school environment. (*MENC*).

The term ‘core academic subjects’ means English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography.” (*No Child Left Behind Act of 2002, Title IX, Part A, Sec. 9101 (11)*)

“When I hear people asking, how do we fix the education system? I tell them we need to do the opposite of what is happening, cutting budgets by cutting music programs.... Nothing could be stupider than removing the ability for the left and right brains to function. Ask a CEO what they are looking for in an employee and they say they need people who understand teamwork, people who are disciplined, and people who understand the big picture. You know what they need? They need musicians.” (*Former Arkansas Governor Mike Huckabee, MENC Centennial Congress, Orlando, Florida, June 2007*)

Schools that have music programs have significantly higher graduation rates than do those without programs (90.2% as compared to 72.9%). In addition, those that rate their programs as “excellent” or “very good” have an even higher graduation rate (90.9%). Schools that have music programs have significantly higher attendance rates than do those without programs (93.3% as compared to 84.9%). (*Harris Interactive poll of high school principals conducted Spring 2006; funded by MENC and NAMM. For more info, contact info@menc2.org*)

Students in high-quality school music programs score higher on standardized tests compared to students in schools with deficient music education programs, regardless of the socioeconomic level of the school or school district. Students in top-quality music programs scored 22% better in English and 20% better in math than students in deficient music programs. Students in top-quality instrumental programs scored 19% higher in English than students in schools without a music program. Students in top quality instrumental programs scored 17% higher in math than children in schools without a music program. Students at schools with excellent music programs had higher English and math test scores across the country than students in schools with low-quality music programs. Students in all regions with lower-quality instrumental programs scored higher in English and math than students who had no music at all. (*MENC Journal of Research*)

in Music Education, Winter 2006, vol. 54, No. 4, pgs. 293- 307; "Examination of Relationship between Participation in School Music Programs of Differing Quality and Standardized Test Results" Christopher M. Johnson and Jenny E. Memmott, University of Kansas)

Students of the arts continue to outperform their non-arts peers on the SAT, according to reports by the College Entrance Examination Board. In 2006, SAT takers with coursework/experience in music performance scored 57 points higher on the verbal portion of the test and 43 points higher on the math portion than students with no coursework or experience in the arts. Scores for those with coursework in music appreciation were 62 points higher on the verbal and 41 points higher on the math portion. *(The Student Descriptive Questionnaire, a self-reported component of the SAT that gathers information about students' academic preparation, gathered data for these reports. Source: The College Board, Profile of College-Bound Seniors National Report for 2006; www.collegeboard.org).*

Schools that have higher levels of student participation in the fine arts receive higher academic ratings and have lower drop out rates. Average student enrollment in fine arts courses is 17 percent points higher in high schools that are rated "exemplary" than in those rated "low performing", based on data from the Texas Education Agency on 951 high schools. Schools with the lowest drop out rates on average have 52% of their students enrolled in fine arts classes while schools with the highest drop out rates have only 42% of their students in fine arts courses. The data from 864 middle schools followed the same trend as high schools. *(Analysis conducted by the Texas Coalition for Quality Arts Education and the Texas Music Educators Association (www.tmea.org). Full report: www.music-for-all.org/WME/documents/TexasArtsStudy.pdf)*

Nearly 100% of past winners in the prestigious Siemens Westinghouse Competition in Math, Science and Technology (for high school students) play one or more musical instruments. This led the Siemens Foundation to host a recital at Carnegie Hall in 2004, featuring some of these young people, after which a panel of experts debated the nature of the apparent science/music link. *(The Midland Chemist (American Chemical Society) Vol. 42, No.1, Feb. 2005)*

The Georgia Project found that school districts in Georgia that made staffing and funding of their arts programs a priority tended to have higher overall rates of student participation in the arts, and higher rates of arts student retention. Such districts tend to have lower dropout rates in grades 9 – 12 and thus keep their students in school longer and graduate more of them. Students tended to score higher on achievement and performance tests, such as the SAT and Georgia High School Graduation Test. They tended to graduate more of their students with college prep diplomas, percentages increasing with diversity of arts curriculum and percent of students participating. While these findings do not prove a cause and effect relationship, they do indicate "strong arts programs need not come at the expense of academic achievement. Rather, the arts are an important factor in achieving academic excellence." *(Executive Summary, The Georgia Project: A Status Report on Arts Education in the State of Georgia, 2004; Dr. John*

Benham, President, Music in World Cultures Program, Bethel University, St. Paul, MN)

“Music is an extremely rich kind of experience in the sense that it requires cognition, it requires emotion, it requires aesthetics, and it develops performance skills, individual capabilities. These things have to be developed and all have to be synchronized and integrated so that, as a person learns music, they stretch themselves mentally in a variety of ways. What we are finding is that the kind of mental stretching that takes place can be of value more generally, that is, to help children in learning other things. And these other things, in turn, can help them in the learning of music, so that there is a dialogue between the different kinds of learning.” (*from the Music in Education National Consortium, Journal for Learning through Music, Second Issue, Summer 2003, “What Makes Music Work for Public Education?” - pg. 87 Dr. Martin F. Gardiner, Brown University; <http://www.music-in-education.org/>*)

Harvard Project Zero (<http://pzweb.harvard.edu/>) researcher Larry Scripp investigated how intensive music study could serve as the basis for academic excellence. His research at Conservatory Lab Charter School (<http://www.conservatorylab.org/learning.html>) attempted to identify innovative ways to incorporate music into the curriculum and then measure its impact. Among his findings: notational skills in music, not musical performance, correlate positively with achievement in math and reading. According to Scripp, “The ability to process musical symbols and representations, a skill relegated to the training of the talented few in the past, is a leading predictor of music’s association with learning in other subject areas”. He also found that musical pitch is more predictive of mathematical ability while rhythm is more predictive of reading ability.

James Catterall (Prof. of Education, UCLA) stated, in response to Scripp, that “since our education systems ideally focus on academic and social development, the arts should legitimately be considered in the array of potential instructional strategies contributing to these goals”. (*EXCERPTED from Terry Teitelbaum, Stephanie F. Gillis, “Arts Education: A Review of the Literature”, Blueprint Research and Design, Inc.; prepared for the Performing Arts Program of the William and Flora Hewlett Foundation, 11/03, updated 2/04*)
<http://www.hewlett.org>)

Success in Developing Intelligence

Success in school and in society depends on an array of abilities. Without joining the intense ongoing debate about the nature of intelligence as a basic ability, we can demonstrate that some measures of a child’s intelligence are indeed increased with music instruction. Once again, this burgeoning range of data supports a long-established base of anecdotal knowledge to the effect that music education makes kids smarter. What is new and especially compelling, however, is a combination of tightly controlled behavioral studies and groundbreaking neurological research that show how music study can

actively contribute to brain development. (MENC)

Results of an IQ test given to groups of children (total: 144) who were provided with lessons in keyboard, voice, drama or no lessons at all, showed that the IQ of students in the keyboard or voice classes increased from their pre-lesson IQ score, more than the IQ of those students taking drama or no lessons. Generally these increases occurred across IQ subtests, index scores, and academic achievement. (Summary by MENC; Original source: August 2004, *Psychological Science*, a journal of the American Psychological Society; <http://www.psychologicalscience.org/pdf/ps/musiciq.pdf>; Dr. E. Glenn Schellenberg (University of Toronto))

Children with music training had significantly better verbal memory than those without such training, and the longer the training, the better the verbal memory. Researchers studied 90 boys between the ages of 6 and 15. Half had musical training as members of their school's string orchestra program, plus lessons in playing classical music on Western instruments like the flute or violin for one to five years. The other 45 students had no training. Students with musical training recalled more words in a verbal memory test than did untrained students, and after a 30-minute delay, students with training also retained more words than the control group. In a follow-up one year later, students who continued training and beginners who had just started learning to play both showed improvement in verbal learning and retention. (Summary by MENC. Original source: Ho, Y. C., Cheung, M. C., & Chan, A. *Music training improves verbal but not visual memory: cross-sectional and longitudinal explorations in children* (2003) *Neuropsychology*, 12, 439-450).

A 2004 Stanford University study showed that mastering a musical instrument improves the way the human brain processes parts of spoken language. In two studies, researchers demonstrated that people with musical experience found it easier than non-musicians to detect small differences in word syllables. They also discovered that musical training helps the brain work more efficiently in distinguishing split-second differences between rapidly changing sounds that are essential to processing language. About 40 adults, divided into groups of musicians and non-musician, matched by age, sex, general language ability and intelligence, were tested. To qualify, the musicians need to have started playing instruments before age 7 and never stopped, practicing several hours/week. Functional magnetic resonance imaging showed the musicians had more focused, efficient brain activity. "This is the first example showing how musical training alters how your brain processes language components." (Prof. John Gabrieli, former Stanford psychology professor, now associate director of MIT's Athinoula A. Martinos Center for Biomedical Imaging. (<http://news.stanford.edu/>, Nov. 2005)

Young children who take music lessons show different brain development and improved memory over the course of a year, compared to children who do not receive musical training. The brains of musically trained children respond to music in a different way to those of untrained children, and that the musical training improves their memory. After one year the musically trained children performed better in a memory test that is correlated with general intelligence skills such as literacy, verbal memory, Visio spatial

processing, mathematics and IQ. (*Dr. Laurel Trainor, Prof. of Psychology, Neuroscience, and Behaviour at McMaster University, Director of the McMaster Institute for Music and the Mind; Canada; published 9/20/06, <http://www.sciencedaily.com/releases/2006/09/060920093024.htm>*).

Playing a musical instrument significantly enhances the brainstem's sensitivity to speech sounds. This relates to encoding skills involved with music and language. Experience with music at a young age can "fine-tune" the brain's auditory system. (from a study supported by Northwestern University, grants from the National Institutes of Health, and the National Science Foundation. Nina Kraus, director of NWU's Auditory Neuroscience Laboratory and senior author of the study, which appeared in April 2007 *Nature Neuroscience*. Other contributing researchers/authors: Patrick Wong, primary author "Musical Experience Shapes Human Brainstem Encoding of Linguistic Pitch Patterns" Other researchers Erika Skoe, Nicole Russo, Tasha Dees; info from www.sciencedaily.com)

A study of 31 children found that children who received keyboard instruction for two years beginning at age 3 continued to score higher on spatial-temporal and arithmetic tasks two years after the instruction was terminated (Rauscher & LeMieux, 2003). The age at which children begin instruction appears to affect the duration of extra-musical cognitive outcomes, and longitudinal research suggests that at least two years of music instruction are required for sustained enhancement of spatial abilities (Rauscher, 2002); (ERIC Clearinghouse on Early Education and Parenting , Can Music Instruction Affect Children's Cognitive Development? ERIC Digest; Frances H. Rauscher; ERIC Identifier: ED480540, Publication Date: 09/2003. <http://www.ericdigests.org/2004-3/cognitive.html>)

"Academic work is really about certain types of deductive reasoning, and especially some forms of verbal and mathematical reasoning. Developing these abilities is an essential part of education. But if intelligence were limited to academic ability most of human culture would never have happened. There'd be no practical technology, business, music, art, literature, architecture, love, friendship or anything else. These are big ideas to leave out of our common-sense view of intelligence and educational achievement." (Sir Ken Robinson, Senior Advisor, Education Policy, Getty Foundation, in an Arts and Minds: Conversations about the Arts interview; Education Commission of the States, April 2005 *How Creativity, Education and the Arts Shape a Modern Economy*; <http://www.ecs.org/clearinghouse/60/51/6051.pdf>).

Success in Life

Each of us wants our children — and the children of all those around us — to achieve success in school, success in employment, and success in the social structures through which we move. But we also want our children to experience "success" on a broader scale. Participation in music, often as not based on grounding in music education during the formative school years, brings countless benefits to each individual throughout

life. The benefits may be psychological or spiritual, and they may be physical as well. (MENC).

To put it simply, we need to keep the arts in education because they instill in students the habits of mind that last a lifetime: critical analysis skills, the ability to deal with ambiguity and to solve problems, perseverance and a drive for excellence. Moreover, the creative skills children develop through the arts carry them toward new ideas, new experiences, and new challenges, not to mention personal satisfaction. This is the intrinsic value of the arts, and it cannot be overestimated. (*Education Week, Issue 20, vol. 24, pg. 40, 52; Jan 26, 2005, Rod Paige (former U.S. Secretary of Education), Mike Huckabee, former Governor of Arkansas, Education Commission of the States Chairman (www.ecs.org), Chairman's Initiative on the Arts in Education*)

“The arts are not just affective and expressive. They are also deeply cognitive. They develop the tools of thinking itself: careful observation of the world, mental representation of what is observed or imagined, abstraction from complexity, pattern recognition and development, symbolic and metaphoric representation, and qualitative judgment. We use these same thinking tools in science, philosophy, math and history. The advantage of the arts is that they link cognitive growth to social and emotional development. Students care more deeply about what they study, they see the links between subjects and their lives, their thinking capacities grow, they work more diligently, and they learn from each other.” (*Nick Rabkin, Executive Director of the Center for Arts Policy, Columbia College Chicago; Robin Redmond, associate director of CAP. “The Art of Education Success”, Washington Post, January 8, 2005, pg. A19.*)

An education rich in the arts and humanities develops skills that are increasingly crucial to the productivity and competitiveness of the nation’s workforce: the ability to think creatively, communicate effectively and work collaboratively, and to deal with ambiguity and complexity. Just as important, exposure to the arts and humanities fosters cultural literacy: the ability to understand and appreciate other cultures, perspectives and traditions; to read and understand music and literature; to craft a letter or essay; to design a Web site; and to discern the “hidden persuaders” in a political or commercial advertisement. Arts and humanities education also develops skills necessary to participate in one of the fastest-growing, economically significant set of occupations and industries in the American economy – the arts, cultural and intellectual property section. The “creative workforce” – which includes traditional artist categories (dancers, musicians, painters, actors, photographers, authors), as well as individuals employed in advertising, architecture, fashion design, film, video, music, publishing and software development – is growing at a rate more than double that for the rest of the nation’s workforces. (*Summary of paper by Prof. Ann M. Galligan, Northeastern University, in her paper “Creativity, Culture, Education and the Workforce”, Center for Arts and Culture, December 2001, www.culturalpolicy.org; summary provided/written by Suzanne Weiss, in the “Progress of Education Reform 2004: The Arts in Education”; vol. 5, no. 1, January 2004, Education Commission of the States; <http://www.ecs.org/clearinghouse/49/91/4991.pdf>).*

While many executives turn to golf, tennis or boating for recreation, some unwind

by making music together. They may be members of relatively large organizations like the Park Avenue Chamber Symphony, whose 55 members are almost all executives, or of smaller outfits, like a rock 'n roll band or a jazz ensemble. Beyond the pure pleasure the music brings, some executives say, there can be chances to advance a career. And creating a performance can help executives develop basic management skills. "If you are in an improv jazz ensemble or a small chamber group, you learn to think fast on your feet and how to be flexible and to collaborate and compromise, and that may yield a creative outcome." (J. Richard Hackman, a professor of organizational psychology at Harvard University who has studied symphony orchestras). (*Amy Zipkin, "Learning Teamwork by Making Music", for the New York Times, 11/16/03*).

"I dream of a day when every child in America will have in his or her hand a musical instrument, be it a clarinet, a drumstick or a guitar. And I dream of a day when there's no state legislature that would even consider cutting funding for music and the arts because they realize that it's a life skill that changes the lives of students and gives them not only better academic capability, but it makes them better people. We sometimes forget that many of us in this room, including this guy standing right in front of you, would not be where he is today if not for having music introduced in my life because it gave me the understanding of teamwork, discipline and focus." (*Mike Huckabee, Former Arkansas Governor; NAMM University Breakfast Sessions 2007, NAMM Playback Magazine, Spring 2007, pg. 36; www.namm.com*)

"Music has a great power for bringing people together. With so many forces in this world acting to drive wedges between people, it's important to preserve those things that help us experience our common humanity." (*Ted Turner, Turner Broadcasting System*)

"Music is one way for young people to connect with themselves, but it is also a bridge for connecting with others. Through music, we can introduce children to the richness and diversity of the human family and to the myriad rhythms of life." (*Daniel A. Carp, Eastman Kodak Company Chairman and CEO*)

"Casals says music fills him with the wonder of life and the 'incredible marvel' of being a human. Ives says it expands his mind and challenges him to be a true individual. Bernstein says it is enriching and ennobling. To me, that sounds like a good cause for making music and the arts an integral part of every child's education. Studying music and the arts elevates children's education, expands students' horizons, and teaches them to appreciate the wonder of life." (*U.S. Secretary of Education Richard W. Riley, July 1999*)

"The life of the arts, far from being an interruption, a distraction, in the life of the nation, is close to the center of a nation's purpose - and is a test to the quality of a nation's civilization." (*John F. Kennedy*)

I have made a career doing things that weren't even invented when I graduated from high school 40 years ago. It will be the same for today's graduates, only on a sharply accelerating timeline. Much of what I learned in the classroom is obsolete or, at best, only

marginally useful. What has made a difference in my life has been the ability to learn as I go, to adapt to new ideas, to have the courage to take risks, and to feel confident I will be able to perform and successfully meet the challenges of new situations. These skills I learned through participation in band and drama. (*Fred Behning retired from IBM Corporation after a 32-year career that included assignments in systems engineering, product development, management, and customer technology briefings, and is still an IBM consultant. A life-long musician, Fred plays oboe and English horn in the Williamson County Symphony Orchestra and the Austin Symphonic Band.* <http://www.supportmusic.com>)

<http://www.nafme.org/resources/view/why-music-education-2007>

3. NAMM Research Briefs

The NAMM Foundation is a non-profit organization with the mission of advancing active participation in music making across the lifespan by supporting scientific research, philanthropic giving and public service programs from the international music products industry.

The pace of scientific research into music making has never been greater. New data about music's relationship to brainpower, wellness and other phenomena is changing the way we perceive mankind's oldest art form, and it's having a real-world effect on decisions about educational priorities.

The briefs below provide a glimpse into these exciting developments. To see updates on the latest findings, check the "Make Your Case" section of SupportMusic.com.

Did You Know?

Middle school and high school students who participated in instrumental music scored significantly higher than their non-band peers in standardized tests. University studies conducted in Georgia and Texas found significant correlations between the number of years of instrumental music instruction and academic achievement in math, science and language arts.

Source: University of Sarasota Study, Jeffrey Lynn Kluball; East Texas State University Study, Daryl Erick Trent

Did You Know?

Students who were exposed to the music-based lessons scored a full 100 percent

higher on fractions tests than those who learned in the conventional manner. Second-grade and third-grade students were taught fractions in an untraditional manner < by teaching them basic music rhythm notation. The group was taught about the relationships between eighth, quarter, half and whole notes. Their peers received traditional fraction instruction.

Source: Neurological Research, March 15, 1999

Did You Know?

Music majors are the most likely group of college grads to be admitted to medical school. Physician and biologist Lewis Thomas studied the undergraduate majors of medical school applicants. He found that 66 percent of music majors who applied to med school were admitted, the highest percentage of any group. For comparison, (44 percent) of biochemistry majors were admitted. Also, a study of 7,500 university students revealed that music majors scored the highest reading scores among all majors including English, biology, chemistry and math.

Sources: "The Comparative Academic Abilities of Students in Education and in Other Areas of a Multi-focus University," Peter H. Wood, ERIC Document No. ED327480

"The Case for Music in the Schools," Phi Delta Kappan, February, 1994

Did You Know?

Music study can help kids understand advanced music concepts. A grasp of proportional math and fractions is a prerequisite to math at higher levels, and children who do not master these areas cannot understand more advanced math critical to high-tech fields. Music involves ratios, fractions, proportions and thinking in space and time. Second-grade students were given four months of piano keyboard training, as well as time using newly designed math software. The group scored over 27 percent higher on proportional math and fractions tests than children who used only the math software.

Source: Neurological Research March, 1999

Did You Know?

A McGill University study found that pattern recognition and mental representation scores improved significantly for students given piano instruction over a three-year period. They also found that self-esteem and musical skills measures improved for the students given piano instruction.

Source: Dr. Eugenia Costa-Giomi, "The McGill Piano Project: Effects of three years of piano instruction on children's cognitive abilities, academic achievement, and self-esteem," presented at the meeting of the Music Educators National Conference, Phoenix, AZ, April, 1998

Did You Know?

Data from the National Educational Longitudinal Study of 1988 showed that music participants received more academic honors and awards than non-music students, and that the percentage of music participants receiving As, As/Bs, and Bs was higher than the percentage of non-participants receiving those grades.

Source: National Educational Longitudinal Study of 1988 First Follow-Up (1990), U.S. Department of Education.

Did You Know?

Research shows that piano students are better equipped to comprehend mathematical and scientific concepts. A group of preschoolers received private piano keyboard lessons and singing lessons. A second group received private computer lessons. Those children who received piano/keyboard training performed 34 percent higher on tests measuring spatial-temporal ability than the others – even those who received computer training. "Spatial-temporal" is basically proportional reasoning - ratios, fractions, proportions and thinking in space and time. This concept has long been considered a major obstacle in the teaching of elementary math and science.

Source: Neurological Research February 28, 1997

Did You Know?

Young children with developed rhythm skills perform better academically in early school years. Findings of a recent study showed that there was a significant difference in the academic achievement levels of students classified according to rhythmic competency. Students who were achieving at academic expectation scored high on all rhythmic tasks, while many of those who scored lower on the rhythmic test achieved below academic expectation.

Source: "The Relationship between Rhythmic Competency and Academic Performance in First Grade Children," University of Central Florida, Debby Mitchell

Did You Know?

High school music students score higher on SATs in both verbal and math than their peers. In 2001, SAT takers with coursework/experience in music performance scored 57 points higher on the verbal portion of the test and 41 points higher on the math portion than students with no coursework/experience in the arts.

Source: Profile of SAT and Achievement Test Takers, The College Board, compiled by Music Educators National Conference, 2001

Did You Know?

College-age musicians are emotionally healthier than their non-musician counterparts. A study conducted at the University of Texas looked at 362 students who were in their first semester of college. They were given three tests, measuring performance anxiety, emotional concerns and alcohol related problems. In addition to having fewer battles with the bottle, researchers also noted that the college-aged music students seemed to have surer footing when facing tests.

Source: Houston Chronicle, January 11, 1998

Did You Know?

A ten-year study, tracking more than 25,000 students, shows that music-making improves test scores. Regardless of socioeconomic background, music-making students get higher marks in standardized tests than those who had no music involvement. The test scores studied were not only standardized tests, such as the SAT, but also in reading proficiency exams.

Source: Dr. James Catterall, UCLA, 1997

Did You Know?

The world's top academic countries place a high value on music education. Hungary, Netherlands and Japan stand atop worldwide science achievement and have strong commitment to music education. All three countries have required music training at the elementary and middle school levels, both instrumental and vocal, for several decades. The centrality of music education to learning in the top-ranked countries seems to contradict the United States' focus on math, science, vocabulary, and technology.

Source: 1988 International Association for the Evaluation of Educational Achievement (IAEEA) Test

Did You Know?

Music training helps under-achievers. In Rhode Island, researchers studied eight public school first grade classes. Half of the classes became "test arts" groups, receiving ongoing music and visual arts training. In kindergarten, this group had lagged behind in scholastic performance. After seven months, the students were given a standardized test. The "test arts" group had caught up to their fellow students in reading and surpassed their classmates in math by 22 percent. In the second year of the project, the arts students widened this margin even further. Students were also evaluated on attitude and behavior.

Classroom teachers noted improvement in these areas also.

Source: Nature May 23, 1996

Did You Know?

"Music education can be a positive force on all aspects of a child's life, particularly on their academic success. The study of music by children has been linked to higher scores on the SAT and other learning aptitude tests, and has proven to be an invaluable tool in classrooms across the country. Given the impact music can have on our children's education, we should support every effort to bring music into their classrooms."

Source: U.S. Senator Jeff Bingaman (NM)

Did You Know?

"The nation's top business executives agree that arts education programs can help repair weaknesses in American education and better prepare workers for the 21st century."

Source: "The Changing Workplace is Changing Our View of Education," Business Week, October 1996

<http://www.nammfoundation.org/research/research-briefs-did-you-know>

4. Directory of Sonoma County *El Sistema*-inspired programs and consultants

Santa Rosa Symphony

Education Department

(707)546-7097 x225

www.santarosasympphony.com

cpenrose@santarosasympphony.com

Harmony Grows

(707) 529-7343

www.harmonygrows.org

harmonygrows@gmail.com

Christina Penrose

(707) 529-7343

cleighpenrose@gmail.com