



How Musical Training Affects Academic Performance

by Jonathan Hamilton

Schools across the United States are struggling financially as budgets are being cut in the education field. As budgets are cut, musical programs are among the first to suffer in the rebalancing. The following is a study to examine the benefits of musical training on academic performance in young students. The methods proposed in this document will show why musical training is vital to the intellectual and academic success of young minds.

CHAPTER 1

Introduction

Music education has a long history in our society. Only in recent decades have we seen a decline in its practice. This is largely due to the interpretation of the importance of music to the educational experience. These interpretations are often biased and unstudied, but their impacts remain significant on music education.

Musical processing and training is associated with an augmentation of grey matter in areas of the brain that may have implications to cognitive functions. Studies have shown these areas to have direct impact on academic performance. A further look into this topic may lead to a shift in the current views toward music education, and have positive impacts on its practice.

So how does musical study effect academic performance? This is an important question in our educational system today. To answer this we must look into a few different areas and ask questions like “what is the current state of music education?” and “why is music important to academic performance?” As we look into this topic we will begin to uncover some major reasons why music education is an important part of our school system.

Rationale

A study to examine the benefits of musical training on academic performance is an important topic for all members of the educational system. This topic affects students, teachers, and administration. Limited solid evidence to validate the importance of music education continually results in the lack of funding for music programs. This lack of funding has direct negative impact on the quality of the music education offered in schools. This study will attempt to demonstrate how a poor quality of music education can influence students' overall academic performance.

Students can benefit from this study because, if used as evidence for funding purposes, music programs may reap the rewards. This would, again, increase the quality of music education for students, which would improve their overall academic performance.

Teachers may also be able to use this study as a tool in their defense for their music programs or for the request of funding. This could directly influence the tools and resources they may use to teach their students. Music education funding also impacts the quality and quantity of music faculty schools can afford to hire. This is important for trained musicians looking for teaching jobs. The higher the training, the more expensive it is to hire the teacher.

Finally, school administrators benefit from this study because of the positive impact it has on students. If students have higher academic performances, the academic reputation or prestige of the school increases. With the way certain government funding programs are set up, better academic performance results in more funding for the school. Administrators also benefit in the amount of parent support they receive. With better funded music programs parents are likely to be pleased when they see their kids perform at Christmas concerts or spring musicals put on by the school.

Research Problem and Subquestions

The purpose of this study is to examine the impacts of music study on overall academic performance in elementary school children. There are several subquestions that are explored related to this topic:

1. What kind of music study is required to raise academic performance?
2. Does duration of musical study have an impact on the impact it has on academic performance?
3. Why is music study important specifically to elementary school students?

4. What else does musical study influence within the student experience?
 - a. Does this indirectly influence academic performance?
5. How does this study relate to the overall importance of music education?

Background

Looking back we can see throughout history (pre-1950's) how music has played such an integral part of every society. People gathered from all over to fill concert halls and musical festivals. Music was something that people were privileged to study.

There was a time in America when the ability to make music was thought to reside only in a select few. In New England in the early years after independence, these talented people attended private "singing-schools," which had their roots in the desire for competent singing at church services. Though many early American public schools began to offer music as an elective subject, the extension of regular music education into public schools dates from 1838, when the Boston School Committee voted to make music part of the core curriculum in the city's schools, under the direction of educational pioneer Lowell Mason (American Music Conference 2007).

Music education was viewed as just as important as other subjects in those days and the funding for musical programs reflected it.

The current state of music education in our country is at a low point. This does not reflect the importance of the subject, but rather the interpretation of its importance. This is seen most clearly in the funding for music in our school systems today.

At present, funding for music education is often reduced in order to save money. Music and arts are sometimes regarded as a luxury and as being of lesser significance for a child's

education than other subjects such as mathematics or languages. We believe that such thinking is not justified because music is an important part of our culture and its exertion both involves many different skills... We believe that there are strong reasons why music has been our true companion for thousands of years - until now, only some of these reasons and their implications have been discovered (Wetter & Koerner 2003, p.371).

Historically music has played a major role in our society. It still does in many ways today, but the educational aspects of this role have been diminished over time and this is largely due to the funding we put into our music programs. According to the 2003 Gallup Poll "Slightly more than 1 in 2 (54%) households have a member who plays a musical instrument"... and only "one in five (18%) of (these) players take music lessons."

This is not a good place for our society to be in musically. Music provides fundamental knowledge that is important to the learning and developmental process in children. In music students are covering topics such as: math, reading, languages, diction, motor skills, and aural skills. Music takes these diverse topics and combines them into one learning process, allowing the student to both internalize and make decisions with the learned information. This is a major step in the educational process, and music engages this step on a regular basis.

Music study is not just important by itself, but it also supports the academic performance for students in other subject areas. In 2003 a study was conducted by researchers to determine the impact of musical training on school performance. Their conclusions were that "musical training... proved to be significantly correlated with school performance..." (Wetter and Koerner 2003).

Research Questions

The question I have, which lies at the core of these issues, is: How does musical study influence academic performance in elementary school children? Most school programs cut musical funding with the intentions of placing more focus on other core subjects. They do this to raise the academic performance of their students in those areas. This could be either to gain funding or simply because they believe these other areas are more important to the overall educational experience of their students.

Answering this question requires that we answer several others for the sake of practicality. Questions concerning: What kind of musical study is required to raise academic performance? Is there much difference in the benefits of studying instrumental or vocal music? This could help give guidance to the kind of music programming schools should aim for.

The type of research to be done in this study would be mainly quantitative. This examination of the correlation between grade percentage differences among students who study music and those who do not will be pursued within this study. Quantitative evidence of grade percentage differences in each student throughout the course of musical study will be revealed. Hours of practice and rehearsal would also be recorded in this study.

Research would also be qualitative. Student responses to questions about their educational experience in their musical training will be examined. The musical training questioned would be their individual practice sessions and classroom experience. Students will be encouraged to document their personal reflections on their overall academic experience after musical training.

Limitations and Delimitations

There are few limitations to this study, one of them largely being parent involvement. It is difficult to record the quality of parenting and parental involvement in the schools. This seems to be a significant factor in the performance of children in school. Simply being notified of the research may influence the parents' normal behavioral patterns.

The qualitative research taken from the students' perspective is also limited since it will not be fully telling of their experience, simply because of the age group in this study. The elementary age children may not be able to fully articulate and interpret their overall experiences after musical training. They may also have difficulty making comparison to their pre-musical study state, since they were at an even younger age.

CHAPTER 2

Introduction

The purpose of this study is to examine the impacts of musical training on overall academic performance in elementary school children. There are several subquestions that will be looked into in relation to this literature review. Here are three of them:

1. What kind of musical study is required to raise academic performance?
2. Why is musical study important specifically to elementary students?
3. How does this study relate to the overall importance of music education?

Answering these questions in light of the literature provided a solid foundation on which to start my research.

Review of Literature

Wetter & Koerner (2009) conducted a study to determine if musical training had positive influence on school performance in children grades 3 to 6. Researchers were inspired by a study previously done by E. G. Schellenberg (2006) in which he concluded that musical training positively influenced student IQ. With this study researchers investigated if Schellenberg's (2006) investigations could be validated in their own study, if musical training had positive correlation with overall school performance, if the effect of musical training was specific to certain subject areas, and if socio-economic factors significantly influenced the correlation between music and school performance.

The study was non-randomized and took place in the city and suburbs of Bern, Switzerland. There were 2 school centers in which seven classes totaled 134 participating children. Grade levels of the students range from 3 to 6, thus the study took place over the course of 4 years. Students were both male and female. The 134 children were divided into 3 groups:

the music group (group 1) in which the students played and practiced an instrument while also taking extracurricular lessons, the control group (group 2) in which students did not participate in musical training or in additional handicraft lessons, and the handicraft group (group 3) which the students did not practice music, but took optional lessons in handicraft. Group 1 held 53 students, group 2 held 67, and group 3 held 14.

For this study the overall average marks of all students in their respective classes was compared between the 3 groups. Data for music student practice were based on self reports done by the students and discussions with them and their parents. Data for average marks were anonymously collected by their teachers. Personal interest of the students in participating was not a factor in this study. Average marks referred to the marks a student received per subject. Subjects recorded for data were German, French, mathematics, history/natural history/geography taught as one class, handicraft, music, and sports.

Researchers do not specifically mention testing methods for each class subject. They also do not mention any instruments used in the study besides the piano.

The student's tests were used to compare the overall average marks and average marks for the different subjects between the 3 groups. The Bonferreoni-Holm approach was applied for more than 4 of these test calculations. Multiple linear regression analysis was used to test the correlation of average marks with various predictors in order to account for possible environmental factors.

Researchers concluded that students in group 1 achieved significantly better average marks than those in group 2. Students in group 3 received marks significantly lower than those in group 2. The only subject in which group 1 did not surpass group 2 in average marks was sports.

Researchers conclude from their data that musical training does positively influence school performance. Researchers address 3 possible interpretations of their data. The first was that children with high IQ and better academic performance might be more motivated to learn to play an instrument. Researchers referenced a study by A. Norton (2005) to oppose this interpretation.

The second interpretation was that the socio-economic factors influenced the distribution of musical training. Researchers opposed this interpretation with the data from their multiple linear regression analysis used to test the socio-economic environment's correlation with the average marks. The data stated that musical training retained statistical significance when income was steady.

The third interpretation was that continuous music lessons improve overall school performance. This interpretation was supported by references to several different studies that discuss the correlation between music and the brain in general, music and language, music and mathematics, and lastly, music and gender. The researchers conclude with an advocacy statement for music education referencing their test results.

This article is the most central to this research study. The researcher will adapt many of their research methods to the study, hoping to find similar results. Their findings clearly communicate that musical training does positively influence academic performance. Their methods are clear and concise. The research study also will conduct this study over a number of years as well, to get a true picture of progress.

Schellenberg's (2006) investigations are similar those of Wetter & Koerner (2009). The main difference is found in the actual testing of the students. Schellenberg (2006) adapts an IQ test for data while Wetter & Koerner (2009) compare music with other school subjects. The

population in this article comes from middle class Toronto. As mentioned above Schellenberg (2006) was the driving motivation for the design of Wetter & Koerner's study.

In Study 1 (N = 147), duration of *music* lessons was correlated positively with *IQ* and with academic ability among 6-to 11-year-olds, even when potential confounding variables (i.e., family income, parents' education, involvement in nonmusical activities) were held constant. In Study 2 (N = 150), similar but weaker associations between playing *music* in childhood and intellectual functioning were evident among undergraduates. In both studies, there was no evidence that musical involvement had stronger associations with some aspects of cognitive ability (e.g., mathematical, spatial-temporal, verbal) than with others. These results indicate that formal exposure to *music* in childhood is associated positively with *IQ* and with academic performance and that such associations are small but general and long lasting (Schellenberg 2009, p.1).

The findings greatly support my case that music does positively influence academic performance. The main reason why this article is not as central to my study as the Wetter & Fink article is because Wetter & Fink gave actual evidence of improvement in other academic areas, because of musical training, which basically answers my research question.

Perlemutter's (2009) research explored the educational methods employed by famous music educator and composer Carl Orff. This method was mainly used to teach music to children, from which they would move on to more complex theories. The Orff-Schulwerk was an approach to teaching music developed in the 1920s which is based on activities that are more fundamental to the development of children. Songs used in teaching the Orff-Schulwerk are usually accompanied by Orff instruments such as: glockenspiels, xylophones, metallophones, bass bars, and other percussive instruments.

The Orff-Schulwerk is used widely throughout the United States and has proved to be a successful method of music teaching. While many teachers avoid the Orff-Schulwerk because they lack funding for the instruments, others have found that the main ideas behind the Schulwerk mainly require the instruments of the human body. These ideas of the Schulwerk are still very central to the music learning process.

The most important instruments used in making music in the Orff-Schulwerk approach cannot be purchased in any music store, yet you carry them with you all the time. They are the body and the voice: the body for expressive movement, dance, and body percussion and the voice both for speaking – as in rhythmic speech – and singing. There is a lot that can be done through the Orff-Schulwerk approach to music education even without the specialized instruments associated with Orff. Language and movement, improvisation, rhythm, melody, form, and expression can all be explored without the support of Orff instruments (Perlemutter 2009, p.48).

This is an important note for music educators who do not have funding necessary to provide instruments for their children.

This is relevant for this study because the researcher will explore the effects of music education on academic performance in a well funded music program and a poorly funded music program. It would be favorable for the poorly funded music school to still teach music with integrity, and the approaches taught in the Orff-Schulwerk are fundamental in the music learning process. This is also important since the method is primarily used to teach children and the subjects will be elementary school children.

Jones (2009) takes a look into the policies behind education and music education. Jones talked about how policies from different levels of the education hierarchy can both positively

negatively influence the music education field. The Levels of education hierarchy include both governmental and nongovernmental entities, educational administration entities, and from within and without the music education enterprise. Jones (2009) used J.S. Nye's (2004) concepts of hard and soft power to define the policies that influence the music education world. Hard power being those that can be used to get others to change their position, and it relies upon inducements and threats. Soft power is being able to get what you want simply through attraction instead of coercion.

Jones (2009) discussed the hard policies of music education which consist of accreditation standards and government mandates. He outlined many of the standards set within the music education world on both University and primary/secondary levels. For primary and secondary educators many of their hard policies are set by organization such as the American Orff-Schulwerk Association and the Organization of Kodaly educators. These policies greatly shape the way music is taught on the primary and secondary levels.

Financially the influence of these organizations makes sense. This explains some of the common trends of music education that are set forth. To broaden the music program beyond a general music class and maybe a marching band is difficult in many areas because of financial limitations. However, these trends did not match up with the hard policies on the University level set by the National Association of Schools of Music (NASM). These hard policies require much more of upcoming teachers in higher education.

This analysis illustrates a disturbing fact. The cases of Pennsylvania mandates and NASM standards show hard policies in music education that are complementary and progressive. However, [primary/secondary] schools continue to offer the same settings of band, choir, orchestra, and general music that were developed in the early 20th century

instead of developing broad, multimodal music education offerings. This current situation results from other policies that reinforce the status quo (Jones 2009, p.30).

Without the funding to move ahead in what is offered to children in primary/secondary schools we will continue to use non progressive methods to teach music. This is a great disservice to the students. There also remains a contradiction between what music teachers are taught and what they are allowed to teach, given their parameters. Jones (2009) recommended that building the teachers' capacity to understand and study policy, using the Nye (2004) approach, can lead them to have great influence on those policies.

This article is helpful in my study, since it helps set the background for the current status of music education in our country, and explains somewhat how we are not offering a progressive up to date music education. It also gives light to the possibilities of a well funded and supported music program.

Horsley (2009) discussed some of the issues of accountability that affect music education policy and implementation in today's educational system. Horsley argued that accountability has been lost in our "neoliberal" educational system. She explained how, in traditional models, student achievement and records were being made public so that the "consumers" of education can make informed choices. This practice led to a business-like model of education, in which the consumer has power to influence the schools.

Emphasis on this accountability led to government involvement. Teacher certifications, budget practices, administrative hierarchies, and student assessments were implicated. This is where, over time, music began to be discluded from the picture, as math, reading, science, and writing became viewed as more important for pleasing consumers. As more time passed these and more legislative implications were made, scholastic achievements were compared and

rewarded based upon their performance among other schools. This approach has ended up in the loss of accountability and instead a “hierarchical answerability over communicative reason and top-down over bottom-up policy making,”(p.6).

Horsley (2009) analyzed two examples of educational reform that took place in Ontario, Canada to back this up. She shows how the very process described above has ruined the music education system. She stated how music curricula are now often developed to meet political ends rather than educational. The integrity in the educational field is now questionable.

Horsley (2009) recommended that policy makers need to reinstate their accountability not just to each other, but also to the “consumers” once again. This shared accountability results in “policies that are constructed through compromise and equal emphasis is placed on the quality of policies and the results they aim to achieve,”(p.11). She believed that consumers do support music education, but their voice is not heard when it comes to the policies being made.

This is another article that helps set up the current trends of what is wrong in the educational field. Horsley (2009) is more direct in her arguments for music education than Jones (2009). She lays out clearly the process of how music education has been neglected over time and gives clear examples for this. The decisions being made with music in the schools, as described by Horsley, along with the results of my research will only amplify the contradictions in the educational field and the need for change.

Pinzino (2009) discussed how children are born with innate musical ability. Pinzino (2009) argued the need to offer proper attention and shaping to these gifts in the early stages of life rather than later. She also argued that these innate abilities will wither if not nurtured soon enough. The article was aimed to parents of young children.

Pinzino (2009) promoted teaching elements of music that are already basic to the interests and development of young children. These elements are rhythm (relating to beat) and tone (relating to pitch). These items will remain central to the musical process for the duration of the child's musical career. They are by definition, musical elements.

Learning music is much like learning language. The prime difference is in the language itself. The young child's thinking mind processes words. The young child's musical mind processes music. A child's imagination can be captured by words. A child's musical imagination – another innate potential that is a powerful force from birth – is not captured by words. Its native language is music. Parents are always surprised when they witness their infant, baby, or toddler's focused attention to rhythm and tone, the intensity of their gaze, and how long they tune in... With little guidance, parents' wonderful creativity, and intuitive sense of their child can propel music learning (Pinzino 2009, p.46-47).

This is a key argument in the notion to start musical training at the early stages of development.

Pinzino (2009) went on to give examples and ideas of things parents can do with their children at an early age to foster their musical growth and development.

This article is useful for the research study because it supports reasoning for using elementary school students. This reasoning basically concludes that children's minds are most receptive (functionally) to learn music when they are young and that delay in musical training could harm their future musical abilities. Pinzino's (2009) methods of teaching also reflect that of the Orff-Schulwerk. This is a method of teaching that will be looked for when choosing subjects for data.

In a presentation at the American Music Conference (AMC) the trends of music throughout our country's history was discussed. Talk about the role music played in the early parts of the 19th century and how those changes developed over the years occurred.

There was a time in America when the ability to make music was thought to reside only in a select few. In New England in the early years after independence, these talented people attended private "singing-schools," which had their roots in the desire for competent singing at church services. Though many early American public schools began to offer music as an elective subject, the extension of regular music education into public schools dates from 1838, when the Boston School Committee voted to make music part of the core curriculum in the city's schools, under the direction of educational pioneer Lowell Mason (American Music Conference 2007).

AMC basically gives a short advocacy statement for the reinstatement of the importance of music in to our country's educational system .

This article gives a more historical look at the role of music in our country. This gives some ground to build upon as the researcher seeks to emphasize the importance of music in our educational system. It also serves as a bridge when discussing current trends in music education.

The Gallup Poll (2003) was designed to gauge the attitudes of Americans towards music. A random sample of consumers, 12 years of age or older, in U.S. households was used to complete 1,005 telephone interviews between February 4 and March 8, 2003. Interviews lasted about eleven minutes. A three-call design was used; that is, if the eligible respondent was not available during the initial call, up to two additional calls were made to reach the respondent.

These questions asked cover a wide range of musical topics such as: musical instruments played, parental involvement, age when musical lessons started, where musical lessons took place, social attitudes towards music and many more. Percentages are used to describe data.

Many of their findings show that Americans do enjoy music, desire for it to be a more central part of their children's learning experience, and that people who started musical training at a young age greatly appreciated its benefits later in life.

This poll is useful for my research because it shows how educational "consumers" desire more music in their education. This poll will show support for my argument by the American people. Ideally I would have liked a larger test group to work with, but the results were very much in my favor, and since subjects were selected randomly I feel it does have some value.

Conclusions

The literature give great insight into answering many of the subquestions mentioned earlier. The subquestions serve to fill out the details to the purpose of the research. To know of the impacts musical training has on academic performance, the type of musical study that should take place needs to be determined. There are numerous possibilities with this question. The standard methods are typically instrumental, held within some kind of band format, choral, or a general music class. Therefore the study will include a well funded music program with all of these formats as a test group.

Wetter & Fritz (2009) offered much insight to the research approach attempted in this study. Their test subjects were in musical programs that were well funded and well supported. They were able to offer group instrumental lessons and one on one private lessons. E. Glenn Schellenberg (2006) also had similar test subjects in his study. They were able to get a good picture of the impacts of music with the traditional style music programs they studied.

What then for the rest of the test population? The test will include a music program that does not have the same funding, but still offers valuable education in that subject. This will most likely be one of the school in which music is an optional elective. Perlemutter (2009) offered valuable insight to this situation. He looked into the implications of the Orff-Schulwerk, which does not require instruments outside of the human body, even though they are preferred. He discussed how this teaching approach does cover the basics of musical training, although not as extensive without instruments. Having studied this approach myself I agree with Perlemutter (2009) and will be looking for a music program that practices Orff's methods as a second test group. Pinzino (2009) also promoted methods of the Orff Schulwerk, although not directly. She mainly described aspects of the Orff Schulwerk without using its name.

Pinzino (2009) also offered insight to my second question: Why is musical study important specifically to elementary students? Pinzino (2009) believes that the younger children are when they learn music, the better. She stated that musical ability can be lost if not nurtured at a young age. Schellenberg (2006) offered anatomical support to this argument. He stated that musical training was associated with growth in areas of the brain that are essential in the cognitive development of young children (ages 6-11). This is why I will do my research with elementary school children. I believe that they will benefit from this being a part of this study, regardless of the outcome. While my research will look into long term effects, there is enough evidence in the scientific world to operate under these assumptions.

Jones (2009) states in his study that the current trends in music education are actually hindering the education we offer to students. These trends, he said, are set by government and administrative policies that do not reflect the needs of the students. My research overlaps with Jones' because it directly addresses those needs. If students need better education, then they need

better supported music programs. Jones (2009) sets a good background for why better supported programs are needed. Horsley (2009) accomplishes a similar goal in her article. Her main difference is that she lays out clearly the process of how music education has been neglected over time and gives clear examples for this. The American Music Conference (2007) overlaps with these two, because it provides a historical look at the role of music education in our country. So, with these three articles one can see the current trends in music education, how they developed, and where they began. All of them agree that the importance of music in the education world should be much greater than it currently is.

Overall these articles give great shape to the research. They paint a great background picture for the way things were and the way things are in music education. They also offer guidance as to the types of music programs to be studied in the research. And lastly they support the notion that musical training is most effective at the early stages.

CHAPTER 3

RESEARCH AND DESIGN METHODOLOGY

Introduction

The purpose of this study is to examine the impacts of musical study on overall academic performance in elementary school children. This study will take a look into both inner city and suburban schools to trace these impacts over the course of 5 years. Methods will be similar to those of Wetter & Koerner taken in their study.

Research Questions

The question which lies at the core of this study is: “How does musical study influence academic performance in elementary school children?” Most school programs cut musical funding with the intentions of placing more focus on other core subjects. They do this to raise the academic performance of their students in those areas. This could be either to gain funding or simply because they believe these other areas are more important to the overall educational experience of their students.

Working through the process one must be able to set boundaries to give specific direction to the analysis of the research. The following subquestions for this study will help set these boundaries:

1. What kind of music study is required to raise academic performance?
2. Does duration of musical study have an impact on the impact it has on academic performance?
3. Why is music study important specifically to elementary school students?
4. What else does musical study influence within the student experience?
 - a. Does this indirectly influence academic performance?

5. How does this study relate to the overall importance of music education?

Research Hypothesis

This is an important topic for all members of the educational system. It affects the students, teachers, and administration. Not providing solid evidence to validate the importance of music education continually results in the lack of funding for music programs. This lack of funding has direct negative impact on the quality of the music education offered in schools. This study will demonstrate how a poor quality of music education can influence students' overall academic performance.

Population and Sample

This non randomized study will take place in 4 different school centers from different school districts. Two of these will be from an inner city school district and the others will be in suburban school districts. These locations will provide a diverse sample of musical programs, teachers, and students. Two of these schools will offer optional music classes/lessons for their students, one of the schools will not have a music program, and the other will have a mandatory music program for their students. Students attending these schools will be starting their music training in the first grade. Training will be reflective of that which the school has to offer

Data Collection and Procedures

Teachers will provide the progress reports of the children over the 5 year term of this study. Results will be recorded by percentage on an individual basis. Analyzation will take place according to grade level and group for each school using Table 1. Impacts of musical training will be recorded from their math, reading, and science classes. This table will be filled out on a quarterly basis taken from the students' progress reports.

Table 1

Grade Level	Group Type and Number	Music Grade (%)	Math Grade (%)	Reading Grade (%)	Science Grade (%)	Average Increase/Decrease
Grade 1	Music (1-5)					
Grade 1	Control (1-5)					
Grade 2	Music (1-5)					
Grade 2	Control (1-5)					
Grade 3	Music (1-5)					
Grade 3	Control (1-5)					
Grade 4	Music (1-5)					
Grade 4	Control (1-5)					
Grade 5	Music (1-5)					
Grade 5	Control (1-5)					

A sample of 20 students will be taken from each grade level at each of the schools with optional music programs. 10 students will be non music students for the control group and the others will be music student for the music group. 20 students from each grade level will be taken from each of the other two participating schools. Each of these grade levels will be followed and recorded over the course of this study. The group number attached to the type will reflect the year each class started their involvement in the study.

Music teachers will also provide practice logs for students who have private lessons or participate in an ensemble. This will be to record how the quantity of musical training effects students on an individual level. The music students will also be asked to fill out an annual journal to reflect on their musical experiences. Questions for this portion of the study are shown in appendix A.

Data Analysis

Table 1 will be filled out for each school on a quarterly basis, according to the school calendar. Average increase will show how much students improve proportionally over the course of the study. This same increase will be looked at for each of the individual school subjects to see how music influences each of them. Music grades will be recorded to see how group 's performance in music impacts the effects of their musical training on the other subject areas.

There are few limitations to this study, one of them largely being parent involvement. It is difficult to record the quality of parenting and parental involvement in the schools. This seems to be a significant factor in the performance of children in school. Simply being notified of the research may influence the parents' normal behavioral patterns.

Threats to Validity and Reliability

The main problem with these measurement instruments is that they do not include analysis of the quality of teacher these students have in any of the subjects. This is a major variable in the performance of these students, particularly for this age group (1st -5th grade). This is why the study is to take place over the course of a full elementary school career. These instruments also cannot calculate teacher turnover, parental involvement, or the home life of a student. The instruments themselves assume that students come from the same background and have similar lives outside of school. This is why samples are taken from both inner city and suburban school districts.

Conclusions

The researcher anticipates that the music students will have a greater average increase in their grade report than students in the control group. This will be a beneficial find for the music education community.

Students can benefit from this study because, if used for funding purposes, of the funding that can be put into their music programs as a result of it. This would, again, increase the quality of their musical education, which would improve their overall academic performance.

Teachers would be able to use this study as a tool in their defense for their music programs or for the request of funding. This would directly influence the tools and resources they could use to teach their students. Music education funding also impacts the quality and

quantity of music faculty schools can afford to hire. This is important for trained musicians looking for teaching jobs. The higher the training, the more expensive it is to hire the teacher.

School administrators benefit from this study because of the positive impact it has on students. If students have higher academic performances, the academic reputation or prestige of the school increases. With the way certain government funding programs are set up, better academic performance results in more funding for the school. Administrators also benefit in the amount of parent support they receive. With better funded music programs parents are likely to be pleased when they see their kids perform at Christmas concerts or spring musicals put on by the school.

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