

The Sweet Sound of Student Success:
Understanding the Relationship Between Elementary
Musical Activities and Successful Attributes

A Special Project

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FACULTY APPROVAL

The Sweet Sound of Student Success:
Understanding the Relationship Between Elementary
Musical Activities and Successful Attributes

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ABSTRACT

The author investigated student attributes at the secondary level of students involved in musical activities. Topics such as brain development, academic achievement, social capital, positive behavior characteristics, and a positive school connection were reviewed. That information was applied to a research project using fourth and fifth grade students at a low-income, high-minority school. This project surveyed 84 students, determined their involvement in school activities, and compared the academic scores, attendance and behavioral issues of students involved in musical and non-musical activities. The purpose of this project was to determine if elementary students who were involved in musical activities benefited in measureable ways.

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TABLE OF CONTENTS

	Page
FACULTY APPROVAL.....	ii
ABSTRACT.....	iii
PERMISSION TO STORE.....	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
CHAPTER 1.....	1
Introduction.....	1
Background for the Project.....	1
Statement of the Problem.....	3
Purpose of the Project	4
Delimitations.....	4
Assumptions.....	7
Hypothesis.....	7
Null Hypothesis.....	8
Significance of the Project.....	8
Procedure.....	8
Definition of Terms.....	10
Acronyms.....	11

CHAPTER 2.....	12
Review of Selected Literature.....	12
Introduction.....	12
Secondary Student Benefits.....	12
Biases.....	15
Elementary Music.....	18
Summary.....	19
CHAPTER 3.....	21
Methodology and Treatment of Data.....	21
Introduction.....	21
Methodology.....	22
Participants.....	22
Instruments.....	23
Design.....	24
Procedure.....	25
Treatment of the Data.....	25
Summary.....	26
CHAPTER 4.....	27
Analysis of the Data.....	27
Introduction.....	27
Description of the Environment.....	27

Hypothesis.....	28
Null Hypothesis.....	28
Results of the Study.....	28
Findings.....	32
Discussion.....	33
Summary.....	35
CHAPTER 5.....	36
Summary, Conclusions and Recommendations.....	36
Introduction.....	36
Summary.....	36
Conclusions.....	38
Recommendations.....	40
REFERENCES.....	42
APPENDICES.....	45

LIST OF TABLES

	Page
Table 1. Fourth Grade Individual Scores.....	47
Table 2. Fifth Grade Individual Scores.....	49

LIST OF FIGURES

	Page
Figure 1. Measurement of Academic Progress – Reading.....	29
Figure 2. Measurement of Academic Progress – Mathematics.....	30
Figure 3. Attendance Infractions.....	31
Figure 4. Behavior Concerns.....	32

CHAPTER 1

Introduction

Background for the Project.

Over the last 10 years, the educational system in America had made tremendous changes. One of the bigger changes had been the creation, adoption and implementation of the No Child Left Behind Act (NCLB). This act was intended to push educators and students to achieve higher goals beyond what the American educational system had ever had (Executive Summary, 2004; Gaona, 2007). The NCLB Act held states, districts and teachers accountable and funded those schools that met the standards or made adequate yearly progress (AYP) (Henley, McBride, Milligan, & Nichols, 2007). Everyone had to work hard so that every student achieved the standards.

Some of the fallout of the NCLB Act was that many co-curricular and extra-curricular activities were either cut back or eliminated altogether (Henley et al., 2007; Pederson, 2007). Administrators, concerned that students passed the tests in reading, writing and mathematics, discovered that many students were not. This led to a reallocation of resources to help students pass the tests in core subjects (Henley et al., 2007; Pederson, 2007). Many arts, including music, gifted programs, history, recesses, special education, social sciences and vocational programs were eliminated (Circle, 2005; Henley et al., 2007). Co-curricular enrichment classes that remained were left for the smarter students who met or

exceeded the standard (Gaona, 2004). Students who scored low were often put into a second class of the subject they were struggling in to help them catch up with the students who met standard (Southgate, 2004). Overall scores went up slightly, but not to the level that the law makers had hoped or intended (Pederson, 2007).

A well-rounded education was valued by most Americans. That meant that a student should not only be good at math, but also at other subjects such as physical education, science, writing, reading and an art. Southgate (2004) suggested that with such an emphasis on reading, writing, mathematics and science, students with lower scores in those subjects had little reason to go to school – they were taken out of classes they enjoyed to take twice as much of the classes that were their hardest. Students with lower scores needed enriching, divergent classes the most, and they were the ones who had them taken away (Gaona, 2007).

Music was considered a co-curricular activity, a part of a well-rounded education, or an extra-curricular activity. “Students who become heavily involved in extra-curricular activities tend to be model students and seldom get involved in delinquency and crime,” (Cassel, Chow, Demoulin, & Reiger, 2000, p. 247) Involvement in extra-curricular activities, such as music, had shown to be beneficial to personal development and good personal development led to effective learning (DeMoulin, 2002). There were many benefits to students

involved in a music program (Gooding, 2009; Respress & Lutfi, 2006; Southgate, 2004). Music gave students a chance to perform in front of others – to take a chance, be bold and survive, and learn to do better. Music also gave students a class that valued teamwork where many different parts worked together for a common goal (Gooding, 2009; Peterson, 2004; Southgate, 2004). Music required expert precision. A music group that only performed 95% of the notes well likely did not give an enjoyable performance. Ideally, all of the students needed to perform all of the notes with 100% accuracy. This discipline of a pursuit to perfection may have been more attractive to higher achieving students (Gouzouasis, Guhn, & Kishor, 2007; Southgate, 2004; Southgate & Roscigno, 2009).

Statement of the Problem.

The researcher was concerned, with such an emphasis put on students passing the NCLB standardized tests, that music classes had lost validity to school district administrators and to the public. Some schools over-emphasized the standards and non-tested subjects were simply eliminated. Students who were more mentally developed and emotionally mature tended to perform better academically. Music helped students develop mentally and emotionally. Research had shown that the longer a student was involved in a music program, the more successful attributes the student showed (Southgate, 2004; Gooding, 2009; Leung, 2003). Students involved in music were more likely to achieve

higher academic scores and meet the NCLB standards (Cox, & Stephens, 2006; Gouzouasis et al., 2007). Musical activities at the elementary level had also been shown to develop successful attributes in students (Peterson, 2004; Newcomb, & Thompson, 1994).

Purpose of the Project.

The purpose of this project was to determine if elementary students who were involved in musical activities benefited in measureable ways. This project studied fourth and fifth grade students at a high-poverty elementary school and determined if those who were involved in musical activities scored higher academically, had better attendance, and had fewer behavior concerns than other students who were not involved in any activities. As a part of this project, the academic, attendance and behavior scores were discussed for the following student groups: marimba, orchestra and no activity.

Delimitation.

This project took place at a low-income, high-minority elementary school in the northwest United States. According to the Office of Superintendent of Public Instruction (OSPI), in January 2011, the student population of the entire school was approximately 71% Hispanic, 21% White, 1% Black, 1% Asian, 6% Multicultural or not provided (PowerSchool, 2011). In January, 2011, there were 85% on free or reduced-priced meals, 46% in transitional bilingual, and 28% migrant (Kennewick School District, 2011). This research project involved 166

fourth and fifth grade students. All 166 fourth and fifth grade students were asked to volunteer for the project. Students who did not attend this school entirely from September 5, 2010, through January 31, 2011, were not considered for this study. Also, students who did not return an informed consent paper signed by their parents were not considered for this study. This left 84 students, 37 in fourth grade and 47 in fifth grade, who allowed their information to be used in this study. The gender make-up of the study was 51 girls and 33 boys. The numbers of participants in each of the following groups were as follows: 14 fourth grade marimba music, 23 fourth grade non-music, 11 fifth grade marimba, 19 fifth grade orchestra, and 24 fifth grade non-music. Seven fifth grade students overlapped in both orchestra and marimba.

There were six different classes of fourth and fifth grades, three for each grade. The teachers' average years of teaching was eight years. One teacher was a National Board Certified Teacher. That teacher and one other had Masters degrees and were also certified to be principals. Two teachers were new to the school – one in each grade. Three teachers were male; three teachers were female. The principal began working at the school the previous year. Previous to being principal at this school, the principal had 11 years of principal experience elsewhere.

Students took Measurement of Academic Progress (MAP) tests for reading and math in September 2010 and in January, 2011. The MAP tests were

an interactive computer test created by the Northwest Evaluation Association (NWEA). When a student answered correctly, the computer gave a more challenging item; when a student answered incorrectly, the computer gave a simpler item. This allowed teachers to determine students' learning levels (Northwest Evaluation Association, 2011). Each class went into a computer lab to take the test. Each class was allowed to have the computer lab for three hours to complete each test. The MAP scores were obtained from the principal.

Attendance was taken by teachers in the classroom on a daily basis. Those records were given to the school's attendance clerk in the office every day. Attendance information was obtained from the attendance clerk. Tardy and absences (excused and unexcused) from September 5 through January 31 were considered for the research project.

Behavior concerns that were considered were only those that included formal, written documentation such as a write-up or a letter home from a classroom teacher, specialist or administrator. These behavior concerns, in general terms, were behaviors that were disrespectful, threatening and/or dangerous. Teachers and education assistants had write-up slips that they gave to students with behavior concerns. The write-up slips had carbon copies with four copies. One copy of the write-up went to each of the following: counselor, principal, classroom teacher and parent/student file. Behavior information was

obtained from the counselor. Behavior concerns that occurred from September 5, 2010, through January 31, 2011, were considered for the study.

Assumptions.

Students were given a survey asking them to identify what extra-curricular groups they belonged to at the school. Students were expected to be honest and forthright on the surveys. The researcher validated student responses with the club advisors (teachers). Teachers were expected to be honest and forthright regarding student information and group membership. Attendance in the musical activities was rarely 100% as many students were involved in multiple activities.

Teachers were also expected to be honest and forthright regarding attendance in the classroom. As professional educators, it was assumed that all teachers and education assistants would respond in similar fashion given the same student behavior concern. If two students, one in Classroom A and one in Classroom B, were disrespectful to their respective teachers, it was assumed that both teachers would give the same response. Another assumption was that all students were treated equally by the staff at this elementary school. The final assumption was that the researcher entered the correct scores into the data spreadsheet with no errors.

Hypothesis.

Students who were involved in musical activities at the fourth and fifth grades would have higher test scores on the MAP tests, better attendance and

fewer behavior concerns than those students who were not involved in musical activities.

Null hypothesis.

Students who were involved in musical activities at the fourth and fifth grades would not have higher test scores on the MAP tests, better attendance and fewer behavior concerns than those students who were not involved in musical activities.

Significance of the Project.

This project determined the relationship between involvement in musical activities and successful attributes for fourth and fifth grade students. Success was defined as students who had higher MAP scores, better attendance and few or no behavioral interventions. While it was possible that some students were naturally interested in certain musical activities, it was equally possible that these activities developed desirable qualities within some students. This study was designed to determine if a correlation existed between students involved in music and their attributes. If students with successful attributes were involved in music, then it may be beneficial to keep musical activities in school to retain those students' interest in the education system.

Procedure.

All 166 fourth and fifth grade students at this school were asked to volunteer for the project. The 84 students who returned an informed consent form

signed by their parents were then asked to complete a survey identifying themselves and what activities they were involved in. After the surveys were returned, the researcher validated the students' answers with club advisors. There were 14 students in the fourth grade marimba group, 23 fourth grade students in the non-music group, 11 in the fifth grade marimba group, 19 students in orchestra (7 of them overlapped with the fifth grade marimba group), and 24 fifth grade students in the non-music group. The researcher retrieved and recorded the students' MAP scores from the principal, attendance record from September 5, 2010, through January 31, 2011, from the school's attendance clerk, and behavior records from September 5, 2010, through January 31, 2011, from the school counselor. All the information was entered for the students in the study. Students were given a number so the information could be consistent for that student. Once the information was entered, the personally identifiable information was eliminated. Then, the students were separated by groups. Next, the averages were taken for: MAP scores (reading and writing, separately), attendance (tardy and absences were each treated with equal weight), and behavior concerns. Suspensions were counted as behavior concerns and as lost days of attendance. And lastly, the scores between the groups were compared.

Definition of Terms.

attendance. Attendance infractions such as tardy, excused absence or unexcused absence, were all given equal weight. Suspensions counted as an attendance infraction and as a behavior concern.

average. All averages used in this study were the mean average. This was done by adding up all of the scores and dividing by the number of scores.

behavior concerns. The behavior concerns measured in this study were those that had written documentation.

marimba music. This was a set of two musical groups at the elementary school – one for fourth grade and one for fifth grade students. Each group met four times on a normal week – two times in the morning before school started and two times during recess. Students did not need to rent or buy an instrument to participate in this musical group.

Measurement of Academic Progress. This was a consistent, standardized test that was used to show academic achievement.

orchestra. Orchestra was a musical activity that happened during school. Students left the classroom and rehearsed with a string specialist for 35 minutes. Students attended three rehearsals on a normal week. Students needed to have an instrument to participate in this group. Some students had their own instrument. Some students rented an instrument from a music store or from the school to participate in this activity.

non-music. All students at the elementary school took music twice a week for 30 minutes. This term referred to students who did not participate in any extra-curricular musical activities at the school.

social capital. This term was used to describe students who had acquired the complex social and emotional skills necessary to fit in a group of individuals.

successful attributes. This term described students who had higher academic scores, better attendance and fewer behavioral concerns in school.

Acronyms.

AYP. Adequate Yearly Progress

CEO. Chief Executive Officer

MAP. Measurement of Academic Progress

MENC. Music Educators National Convention

NCLB. No Child Left Behind Act

NWEA. Northwest Evaluation Association

OSPI. Office of Superintendent of Public Instruction

SES. Socioeconomic Status

CHAPTER 2

Literary Review

Introduction.

Research had stated that music improved brain development and academic achievement (Gooding, 2009; Gouzouasis et al., 2007; Southgate, 2004; Southgate & Roscigno, 2009). Research on music classrooms also showed students had better social interactions, social capital and behavior traits (Peterson, 2004; Gooding, 2009; Southgate, 2004; Southgate & Roscigno, 2009). Lastly, research had also shown that music students had a positive school connection (Gooding, 2009; Gouzouasis et al., 2007; Southgate, 2004; Southgate & Roscigno, 2009). Much of the research had been done on secondary students. Little research had been done on the elementary students. One reason for this may have been the lack of extra-curricular activities at the elementary level. However, much of this review was based on studies of secondary students.

Secondary Student Benefits.

Recent studies discussed the effects of music on the brain and learning (Respress & Lufti, 2006; Cox & Stephens, 2004; Gouzouasis et al., 2007; Hornbacher, 2008; Southgate, 2004; Southgate & Roscigno, 2009) which suggested there was something different that happened in a music class compared to other classrooms. A music class was experiential and participatory (Respress & Lufti, 2006). Performing music was more than just academic knowledge.

Music - listening, learning and/or performing - aided in brain development.

Music students had to be able to do many things at once to give a quality performance and even more so for a quality ensemble. Some of the cognitive activities musicians had to do simultaneously were read the music, decode the music, perform, assess, and adjust continuously while monitoring dynamics, pitch, articulation, tone, timing and rhythm, and read foreign languages. Cox and Stephens (2004) suggested that brain cells and synapses were strengthened, increasing the brain's capacity. "In addition, the size of the corpus callosum in non-musicians versus musicians has been studied . . . In musicians, the front of the corpus callosum was larger than those of the non-musicians" (p. 758).

Southgate (2004) quoted Michael Green, President and CEO of the National Academy of Recording Arts and Sciences, in a speech where he spoke of, "the ability of music to cause neurobiological positive effects thereby facilitating physical healing of ailments such as Alzheimer's, depression, Parkinson's and autism" (p. 2). Numerous studies had been done that indicated "listening to music stimulates cognition and music training bolsters this effect in both mathematics and language" (Southgate & Roscigno, 2009, p. 6).

Students learned many positive social interaction techniques such as teamwork, cooperation and good communication in a music class. In America and Canada, performing music groups were highly esteemed (Leung, 2003). School music programs in the United States had students that performed in a

variety of venues and every student encountered mistakes. By doing so, students established their own values of what they liked and what they did not like in their performances through the criticisms by themselves and others. Criticism gave students an opportunity to learn and use communication skills. These situations also helped music students better learn how to work through conflict. Many researchers also looked at other positive behavioral traits that music students acquired such as team spirit, esteem, friendship and discipline (Leung, 2003), developing critical and analytical thinking (Wong, 2005), “focus, reduce stress, enhance concentration and improve behavior” (Chalmers et al., 1999, p. 46), and discipline and use of leisure time (Southgate, 2004). Gooding (2009) stated that, “Music is an inherently social activity... the music classroom is an ideal place to help students develop or improve vital social skills” (para. 2).

Positive school behaviors were also more likely to be seen in the music room. In Southgate’s research (2004) it was found that music students were less likely to be late for class, skip class, get in trouble in class, be suspended from school, be transferred from school for disciplinary reasons, or to be arrested compared to the students who did not take any music. The positive social and academic behaviors that music students exhibited led to students liking music more, which led to learning music better, which led to higher retention of music students in music programs (Gooding, 2009). This also helped create a positive attitude toward the school.

Music allowed students to make positive school connections. There was the exhilaration of performing in front of others. When one person struggled, the rest of the ensemble carried through. Students also received the positive connection to school when they left school for outside performances. This gave students a feeling of privilege and freedom while still in school. Students enjoyed getting out of the traditional school atmosphere, yet still experienced a school-related activity. And students also had a tremendous sense of accomplishment and work ethic after being in a performing music group. Gouzouasis and others (2007) agreed that, “students who participate in music may gain a more positive attitude toward school and toward learning in general” (p. 89). Music students also performed better academically which was another positive school connection (Leung, 2003; Respress & Lufti, 2006; Cox & Stephens, 2006; Gouzouasis et al., 2007; Southgate, 2004; Southgate & Roscigno, 2009). Music students also had another adult mentor that gave them spontaneous feedback on their performance (Southgate, 2004). Some music students also had private music lessons in a one-on-one setting with an additional mentor to hone their skill. Students who had mentoring support, a positive experience, and a positive attitude toward school stayed in school and had a more positive outcome.

Biases.

Researchers discovered there were several biases in music. Music, particularly at the secondary level, was not available to all students. Music

availability favored those students from middle and upper-class, with higher academic scores, who were white, female, and had appropriate social capital (Southgate, 2004; Southgate & Roscigno, 2009).

Lower-class families (those with lower incomes, also known as lower-socioeconomic status or lower-SES) tended to not value education and considered education not a useful part of reality. Lower-SES as a whole thought elective, high-demand classes like music were better left for other students (Southgate & Roscigno, 2009). Furthermore, lower-SES families could not afford the extra expenses to buy or rent an instrument for band or orchestra. Southgate and Roscigno (2009) confirmed, “Indeed, there exists a relatively obvious social class bias in the methods used to measure these relations, as poor students have limited resources that may hinder music participation from the outset” (p. 7). Lastly, “Lower-SES parents, in comparison, are less likely to structure their children’s time outside school in educationally important ways” (Southgate & Roscigno, 2009, p. 9). This suggested that lower-class parents were not structuring or scheduling homework time or bedtimes let alone time to practice an instrument for music class. Musicianship required time to develop, and if a home did not structure any skill-building time, then the unpracticed music student would look foolish when s/he performed. Given this information, music class preferred the middle and upper-class students.

Many students had been withdrawn from music to be enrolled in enrichment classes in subjects they were struggling in. Southgate (2004) asserted from Catterall's (1999) study, "a student is often required to maintain a high GPA which would contribute to the higher academic ranking of music students compared to non-music students" (p. 11). With the implementation of NCLB, students were expected to meet standards. Some districts put students in remedial courses in the subject(s) in which they struggled. As there were only so many periods in a school day, struggling students were taken out of music classes that they enjoyed so that they could take more of the classes that were difficult for them. Students had a better chance catching up when left in music where they had some positive experiences of school.

Music class was also biased in favor of white, female students with social capital. As many minorities struggled with being low-SES, and as low-SES students tended to not be in music, it stood to reason that the music classroom had a whiter demographic than the school the music class was in. This was supported by Southgate and Roscigno (2009) who stated, "A white student advantage exists in music involvement during early childhood and the high school years" (p. 18). Furthermore, music in America was associated with feminine attributes and as such was predominantly female. Lastly, the right social capital was also beneficial for the musician. Gouzouasis and others (2007) found that, "Students in band in grade 11 typically have acquired the complex cognitive skills that are

required to play an instrument in a band, as well as the social and emotional skills that are necessary to be a contributing member of a band” (p. 88).

Elementary Music.

Music at the elementary level avoided many of the biases these studies found at the secondary level. Nearly all elementary schools across America gave students a musical class at least once a week (Clayton, 2001). Whether male or female, rich or poor and usually regardless of academic performance, elementary students received a music class. Few studies were found at the elementary level regarding student involvement in music or any extra-curricular activities and academic achievement.

Clayton (2001), a former president of the Music Educator’s National Convention, made an alarming statement about elementary music programs. He stated districts considered the elementary music program, “to be the most expendable” (p. 6). Elementary music teachers were the catalyst for students enrolled in music programs at the secondary level. Music at the secondary level had been shown to be beneficial to the students enrolled in that program. As students progressed through their schooling, more and more dropped music to pursue other interests. In order to entice secondary students into taking music, there had to be a supported quality program at the previous level. Researchers noticed a decline in music programs in the last few years (Abril & Gault, 2006) and this was detrimental to the youth not to afford them this enhancing subject.

Music had been shown to be a powerful tool for other subjects at the elementary level. Elementary counselors used music with students with poor or no communication abilities to communicate using music (Newcomb & Thompson, 1994). Music was used in an elementary cafeteria to reduce noise by about 10% and reduce behavior interventions by 60% (Chalmers et al., 1999). A music teacher had found many cross-curricular benefits to using a musical and having student-centered rehearsals (Peterson, 2004). Musical activities had developed students, and the development level of a student affected his/her ability to learn (DeMoulin, 2002). Music programs were important to the successful development of young children (Clayton, 2001; Leung, 2003) and “music has been found to help students focus, reduce stress, enhance concentration, and improve behavior” (Chalmers et al., 1999, p. 46).

Summary.

Music had been shown, to a greater extent than other extra-curricular activities, to help develop successful attributes in students at the secondary level. These attributes included brain development and academic achievement, social interactions, social capital and behavior traits, and a positive school connection for the student. Music was also shown to be very useful in a variety of settings at the elementary level. While there were many biases at the secondary level, many of those biases were eliminated at the elementary level where all students received a music class. Some cultural biases still existed, but elementary students were

young enough that many of the social roles were not clearly defined and were still malleable. Student academic performance, attendance and behavior should be studied to determine if there was a relationship between these attributes and involvement in musical activities.

CHAPTER 3

Methodology and Treatment of Data

Introduction.

All students in the fourth and fifth grade at the elementary school were asked to volunteer for the research project. Those students who returned an informed consent form signed by their parents were then asked to complete a survey identifying themselves and what activities they were involved in. Once the surveys were returned, the researcher validated the responses with the activity group advisors (teachers). The researcher used 100% of the students who returned the informed consent form and met the attendance requirement. That number totaled 84 students. The number of participants in each group was as follows: 14 students from the fourth grade marimba music, 23 fourth grade non-music students, 11 students in fifth grade marimba music, 19 students in fifth grade orchestra (7 of these students overlapped with fifth grade marimba), and 24 fifth grade non-music students. The researcher then recorded the students' MAP, attendance and behavior information. This information was obtained from the school's principal, attendance clerk and the school's counselor. All of the information was compiled on a chart and any personally identifiable information was then deleted.

Methodology.

This research project examined quantitative data to determine the correlation of students with differing school extra-curricular activity involvement and their academic, attendance and behavioral scores. According to Gay, Mills and Airasian (2009), a quantitative study collected “numerical data to explain, predict and/or control phenomena of interest” (p. 605). Comparisons were made between students involved in musical activities and those in non-music activities concerning their academic, attendance and behavior scores. The researcher then determined if there was a significant correlation between student groups (music and non-music) and the scores (MAP reading, MAP math, attendance and behavior). Correlation research determined “whether, and to what degree, a relationship exists between two or more quantifiable variables” (Gay et al., 2009, p. 196). This research only determined if there was any relationship between groups and scores and did not determine if the student activities were the cause for the scores.

Participants.

Participants were students in the fourth and fifth grades at a low-income, high-minority Kindergarten through fifth grade elementary school who had returned an informed voluntary consent form with a parent signature on it. Students who did not attend the school entirely from September 5, 2010, through January 31, 2011, were not considered for this study. The researcher used 100%

of the students who returned the informed consent form and met the attendance requirement. That number totaled 84 students. The numbers of female and male students for each group were fourth grade marimba: eight girls, six boys; fourth grade non-music: fifteen girls, eight boys; fifth grade marimba: eight girls, three boys; orchestra: thirteen girls, six boys; and fifth grade non-music: thirteen girls and eleven boys. According to the OSPI, in January 2011, the student population of the entire school was approximately 71% Hispanic, 21% White, 1% Black, 1% Asian, 6% Multicultural or not provided (PowerSchool, 2011). In January, 2011, there were 85% on free or reduced-priced meals, 46% in transitional bilingual, and 28% migrant (Kennewick School District, 2011).

Instruments.

Measurement of Academic Progress (MAP) tests were considered to be valid and reliable. All of the students took a MAP test in January 2011. The January 2011 MAP test scores were considered for the study. The MAP consisted of two parts, reading and mathematics, and the scores were separated in the research.

Attendance was taken by each teacher. The researcher assumed that all teachers and office workers were diligent, honest and forthright in marking students tardy or absent. All attendance sheets were given daily to the attendance clerk who entered the information into a central data base. Attendance

information was retrieved from the attendance clerk. A tardy was given the same weight as an absence.

Write-ups and other behavioral concern documentation were retrieved from the counselor. Write-ups generally consisted of students with minor behavioral infractions such as disrespectful or inappropriate behaviors. Write-ups were given to students by teachers and education assistants. Other behaviors that were more serious such as drug possession, sexual harassment and fighting did not always warrant a write-up. Instead, students with those offenses were given suspensions. Suspensions counted against students twice, once as an attendance issue and again as a behavior concern. As suspensions counted in two categories, they were given the same weight as a write-up in the behavior category.

Another instrument was the student survey. This was given to all students during their music class. Students were asked to write their names, answer if they had gone to the school since the beginning of the school year, and identify in what student club they participated. The only student surveys that were used were those of students who returned an informed consent form signed by a parent.

Design.

This research project was a quantitative correlation study. The purpose of the study was to determine if there was a relationship between students' MAP scores, attendance and behavior issues and their involvement in musical activities or non-musical activities.

Procedure.

All fourth and fifth grade students were asked to complete a survey identifying themselves, if they had attended the school since the beginning of the school year, and the extra-curricular activities in which they participated. The researcher then gave students an informed consent form to be signed by the students' parents. All of the students who turned in an informed consent form were used, $n = 84$. Students were separated into five different groups: fourth grade marimba ($n=14$), fourth grade non-music ($n=23$), fifth grade marimba ($n=11$), fifth grade orchestra ($n=19$), and fifth grade non-music ($n=24$). There were seven fifth grade students who overlapped in both orchestra and marimba. The scores (MAP, attendance, behavior issues) were compared for each group. Score information for the MAP, attendance, and behavior was obtained from the principal, attendance clerk, and counselor, respectively.

Treatment of the Data.

First, the researcher obtained a list that contained the names of each student in a classroom. The researcher recorded the names onto a Microsoft Excel worksheet. The researcher received all attendance, behavior and MAP scores and recorded the information for each student. Then the researcher asked the students what activities they participated in on a brief survey. Next, the researcher asked the students to return an informed consent form signed by their parent(s). Those students who did not return the informed consent were

eliminated from the study. Those students who did not attend the school from September 5, 2010, through January 31, 2011, were also eliminated. The remaining students were grouped together: fourth grade marimba, fourth grade non-music, fifth grade marimba, fifth grade orchestra, and fifth grade non-music. Numbers were substituted for names which were eliminated. Averages for each group were determined and rounded to the nearest tenth. Bar graphs were made for each scored area. The bar graphs showed the average scores each group had for that criterion.

Summary.

This research project was a correlation study of 84 students in five different groups; 14 students in fourth grade marimba music, 23 fourth grade students not involved in music, 11 students in fifth grade marimba music, 19 students in fifth grade orchestra (7 students overlapped both orchestra and marimba), and 24 fifth grade students not involved in music. The researcher compared the groups using MAP, attendance and behavior scores.

CHAPTER 4

Analysis of the Data

Introduction.

The researcher was concerned that, with an emphasis on NCLB standardized testing, the validity of music had lessened in public schools. Research had shown that the longer secondary students were involved in a music program, the better they tended to perform academically. This was partially due to biases concerning academic achievement, race and socioeconomic status. Music favored students who were smarter, white and middle-to-upper-class. This study was performed in a low income, high minority elementary school with academic scores nearer to the bottom of the district. This study determined if, and to what degree, a correlation of successful attributes existed between students in extra-curricular musical activities compared to students not involved in extra-curricular musical activities. Successful attributes were described as students who had fewer behavior concerns at school, had better attendance and higher Measurement of Academic Progress scores in reading and mathematics.

Description of the Environment.

All 166 fourth and fifth grade students were asked to participate in this study. Students who did not attend the school from September 5, 2010, through January 31, 2011, were eliminated from the study. There were 84 students who returned an informed consent paper signed by a parent and met the attendance

requirement. The MAP scores for reading and mathematics from January 2011, attendance infractions and behavior concerns from September 5, 2010, through January 31, 2011, were recorded for each student. Students were separated into five groups; fourth grade marimba (n = 14), fourth grade non-music (n = 23), fifth grade marimba (n = 11), fifth grade orchestra (n = 19) (7 students overlapped both orchestra and marimba) and fifth grade non-music (n = 24). Averages of the scoring criteria were taken for each group and compared.

Hypothesis.

Students who were involved in musical activities at the fourth and fifth grades would have higher test scores on the MAP tests, better attendance and fewer behavior concerns than those students who were not involved in musical activities.

Null hypothesis.

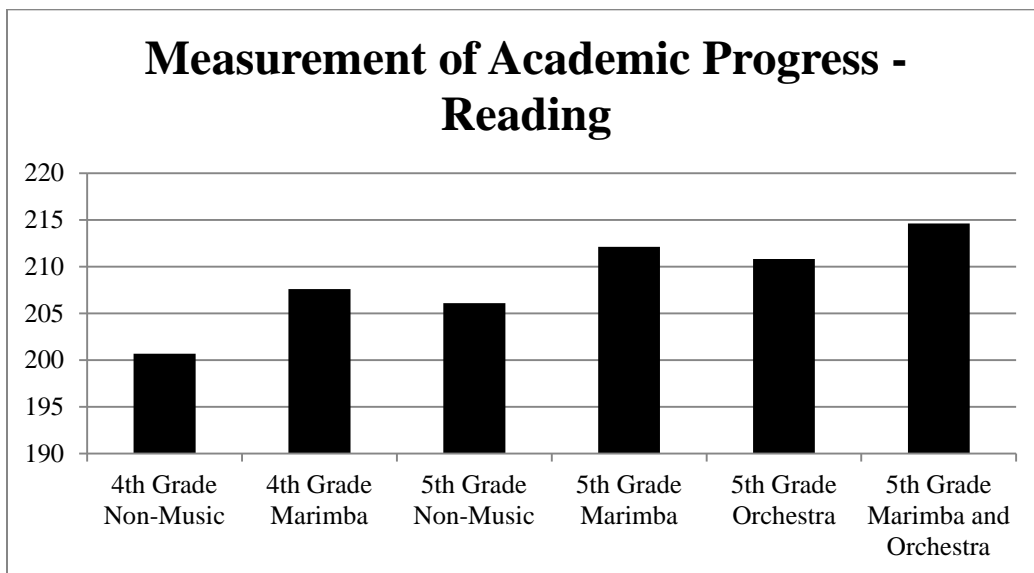
Students who were involved in musical activities at the fourth and fifth grades would not have higher test scores on the MAP tests, better attendance and fewer behavior concerns than those students who were not involved in musical activities.

Results of the Study.

The first criteria that the researcher observed were the MAP reading scores. This study showed that students in fourth grade marimba scored an average of 207.6 while the non-music group scored an average of 200.7. This

was a difference of 6.9 at the fourth grade level. The fifth grade marimba group scored an average of 212.1, and the orchestra group scored an average of 210.8. The non-music fifth grade group scored an average of 206.1. The fifth grade marimba group scored 6.0 points higher and the orchestra scored 4.7 points higher than the fifth grade non-music group. The researcher also determined the MAP reading scores for those students who participated in both marimba and orchestra. The average score for those students was 214.6, 8.5 points higher than the non-music group. These scores were presented in Figure 1.

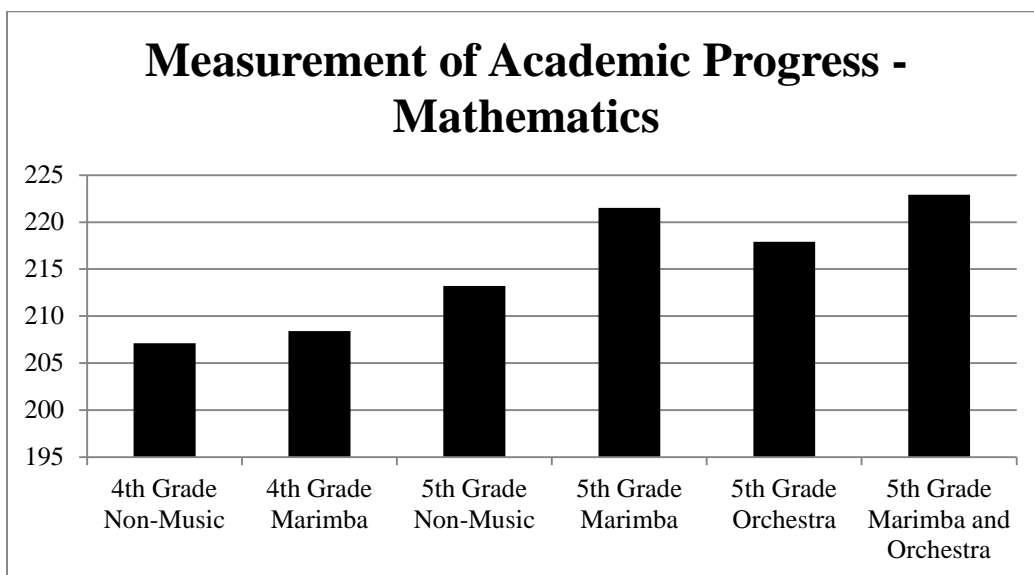
FIGURE 1



Next, the researcher examined the scores for the MAP in mathematics. This study found that the music groups scored higher than the non-music groups in both grade levels. The fourth grade marimba group scored an average of 208.4 and the non-music fourth grade group scored an average of 207.1. The fourth

grade music group scored 1.3 points higher than the non-music group. The fifth grade marimba group scored an average of 221.5 and the orchestra's average score was 217.9. The non-music fifth grade average score for mathematics was 213.2. The fifth grade marimba and orchestra groups scored 8.3 and 4.7 points higher than the non-music group, respectfully. Again, the researcher determined the average score for those students participating in both fifth grade orchestra and marimba. That score was 222.9, 9.7 points higher than the fifth grade non-music group. This information was presented in Figure 2.

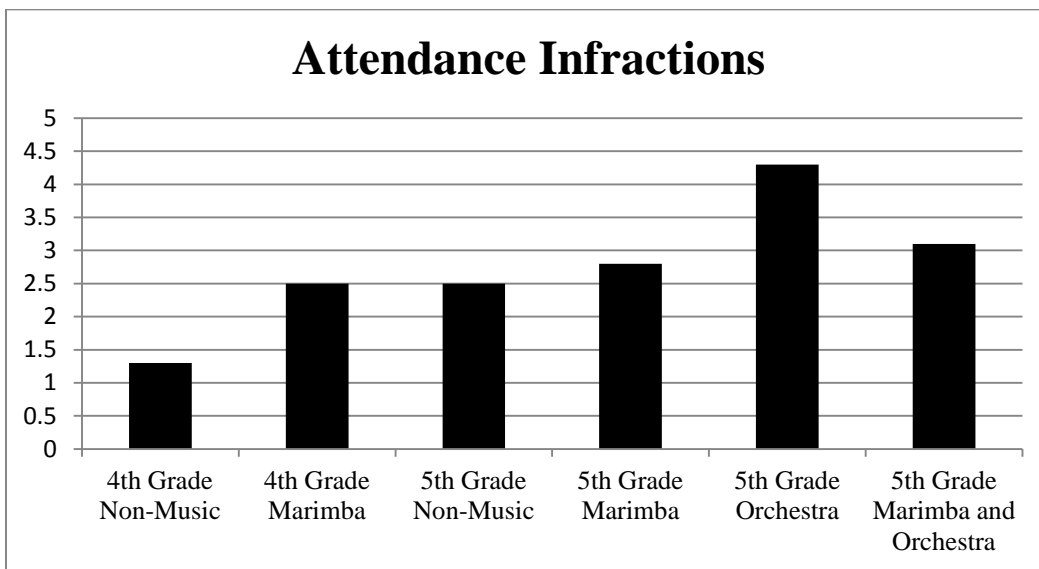
FIGURE 2



The researcher also wanted to review attendance to see if there were any differences between music and non-music groups. This study found that music students on average had more attendance infractions than non-music students at both grade levels. Fourth grade non-music students had an average of 1.3

attendance infractions while fourth grade marimba students had 2.5. That was a difference of 1.2 attendance infractions. Fifth grade non-music students on average had 2.5 attendance infractions while fifth grade marimba had an average of 2.8 and orchestra had 4.3. Fifth grade music groups had an average of .3 and 1.8 more attendance infractions than non-music students in marimba and orchestra, respectfully. The students who were in both fifth grade marimba and orchestra scored an average of 3.1 attendance infractions, .6 higher than the non-music group. This information was shown in Figure 3.

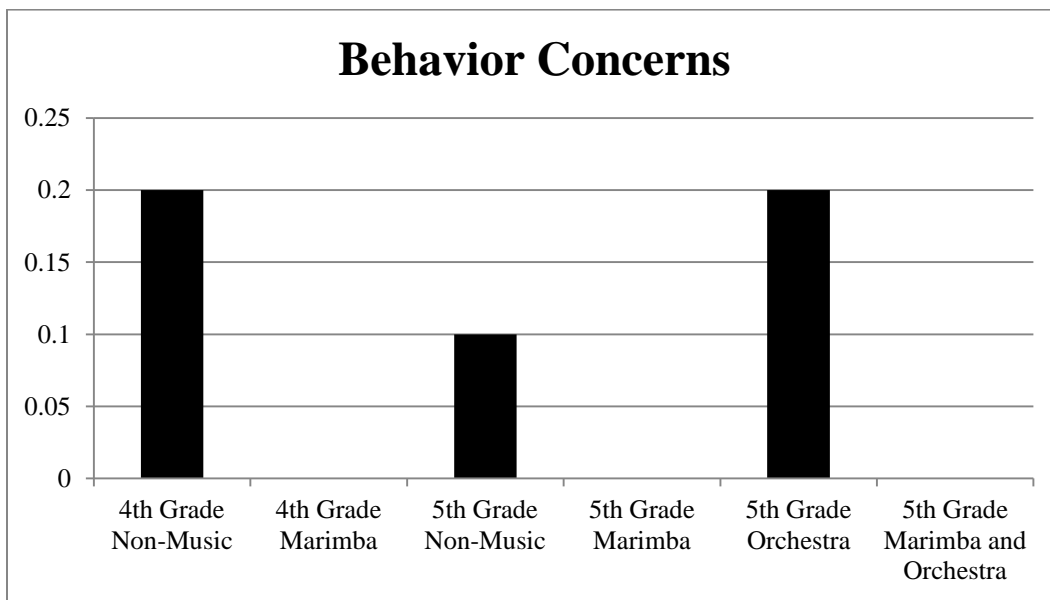
FIGURE 3



Lastly, the researcher reviewed student behavior concerns. Both marimba groups scored better than the non-music groups at each grade level. However, the orchestra group averaged worse than the non-music group. Fourth grade marimba students had no behavior concerns. Fourth grade non-music students averaged .2

behavior concerns. Fifth grade marimba students had no behavior concerns. Fifth grade orchestra averaged .2 behavior concerns. The fifth grade non-music group averaged .1 behavior concerns. Those seven students who participated in both fifth grade marimba and orchestra had no behavior concerns. This information was stated in Figure 4.

FIGURE 4



Findings.

Part of the hypothesis was supported. Students involved in extra-curricular musical activities scored higher on the MAP scores, both in reading and mathematics at both grade levels. Also, marimba students had fewer behavior concerns as they had none at both grade levels.

Part of the hypothesis was not supported. All of the music groups had more attendance infractions than students in the non-music group at each grade level. Also, the orchestra group had more behavior concerns than all the other groups.

Part of the null hypothesis was accepted. The fourth grade MAP mathematic scores showed little difference between the music and the non-music groups. The rest of the null hypothesis was rejected. There were differences found between the music and non-music groups in all the other areas.

Discussion.

The higher MAP scores of the music students at the elementary school were consistent with studies and literature mentioned in Chapter 2. Both music groups had higher MAP scores than the non-music groups. This study also found that the students most involved in music (fifth grade members of marimba and orchestra) scored higher, as a group, than any other group.

The higher attendance violations for the music students seemed counter-intuitive. Students who showed up for less school should not have had higher academic scores. Of the fourth grade marimba students 13 had 0-5 attendance violations; one student had 12 violations. Of the fourth grade non-music students, 23 had 0-5 violations and one student had nine. In the fifth grade marimba group, one student had 10 violations. That student was also involved in orchestra. The rest of the fifth grade marimba group had five or fewer. Two orchestra students

had 11 and 19 violations. Of the fifth grade non-music students, 22 had five or fewer attendance violations. Two fifth grade non-music students had an 11 and 18 violations. Even after taking out the students that skewed the results, the music students still had more attendance violations than the non-music students in both grades. This was not consistent with other research as stated in Chapter 2.

The higher behavior concerns for the fifth grade orchestra were not consistent with Southgate's (2004) research. However, upon further examination, the researcher found there were three orchestra students who had one, two and three behavior concerns. There were only two fifth grade non-music students who had one behavior concern each. Not all of the students agreed to be a part of the research. If they had, that certainly would have changed the results. Those students who were misbehaving and not involved in extra-curricular activities might have been less interested to volunteer for anything, including this study.

This study had mixed results. The purpose was to see if students involved in extra-curricular musical activities scored higher in measurable ways. Students involved in extra-curricular musical activities did score higher in reading and mathematics. This was generally considered a successful result. However, music students also scored higher in attendance violations and behavior concerns which were not necessarily desirable attributes.

Summary.

This study found that, of 84 students in a low-income, high-minority elementary school, those 37 students involved in extra-curricular musical activities scored higher on the MAP tests in both reading and mathematics than those students who were not involved in extra-curricular musical activities in the same grade level. The research also showed that fourth and fifth grade marimba students had fewer behavior concerns than non-music students. These findings supported part of the hypothesis. However, music students had more attendance violations in both grade levels. Fifth grade orchestra students had more behavior concerns than fifth grade non-music students. These findings did not support the hypothesis.

CHAPTER 5

Summary, Conclusions and Recommendations

Introduction.

The researcher performed a quantitative study of fourth and fifth grade students at a low-income, high-minority elementary school. The study compared two groups, music and non-music, and their academic, attendance and behavior scores. The researcher was concerned, with such an emphasis put on students' passing the NCLB standardized tests, that music classes had lost validity to school district administrators and to the public. This study showed that music students scored higher on MAP tests both in reading and mathematics than non-music students. This research also showed that music students had more attendance violations than non-music students. Orchestra students had the highest number of behavior concerns and attendance violations in this study.

Summary.

The No Child Left Behind Act had changed America's public education system. With such an emphasis put on students' passing the standardized tests, some subjects that were not tested disappeared from some schools. The researcher was concerned that music had lost some validity in public education and may be eliminated as well. The researcher wanted to study elementary students to determine if music students showed more successful attributes than non-music students in the fourth and fifth grade. Successful attributes were

defined and limited as higher academic scores on MAP tests, fewer attendance violations and fewer behavior concerns. The elementary school was a low-income and high-minority school with many bilingual students. All 84 fourth and fifth grade students who attended the school from the beginning of the school year and turned in an informed consent form signed by a parent were considered for the study and their information was used.

Research at the secondary level showed that music benefited brain development, academic achievement and social capital. Music students tended to have more developed emotional and cognitive skills and had more positive behavior traits than other students. Research also showed that music was biased in favor of middle-to-upper-class white females who performed better academically. Some studies done on elementary students showed that positive outcomes could be better obtained with the use of music.

This research project was a correlation study of 84 students in five different groups; 14 students in fourth grade marimba music, 23 fourth grade students not involved in music, 11 students in fifth grade marimba music, 19 students in fifth grade orchestra (7 students overlapped both orchestra and marimba), and 24 fifth grade students not involved in music. The researcher compared the groups using MAP, attendance and behavior scores.

This study found that of 84 students in a low-income, high-minority elementary school, those 37 students involved in extra-curricular musical

activities scored higher on the MAP tests in both reading and mathematics than those students who were not involved in extra-curricular musical activities in the same grade level. The research also showed that fourth and fifth grade marimba students had fewer behavior concerns than non-music students. These findings supported part of the hypothesis. However, music students had more attendance violations in both grade levels. Fifth grade orchestra students had more behavior concerns than fifth grade non-music students. These findings did not support the hypothesis.

Conclusions.

In general, this study found that students involved in extra-curricular music had higher scores on standardized academic tests in both reading and mathematics than students not involved in extra-curricular musical activities. The difference was slight in fourth grade mathematics, but greater in fourth grade reading, fifth grade reading and fifth grade mathematics. This study also found that fifth grade students who were involved in both orchestra and marimba had the highest average MAP scores in reading and mathematics. Marimba students were found to have no behavior concerns. This was better than non-music students and much better than orchestra, who had the most behavior concerns. The researcher was surprised to discover that students in all three music groups had higher attendance violations than non-music students and that orchestra students had the highest behavioral concerns.

Despite higher attendance violations, music students scored higher on MAP testing. The reasons for this were unknown. Some of the reasons for this may have been that music students had more support from home, an easier mode of learning, or more motivation to perform well academically. Parents of music students showed their support for their children by coming to watch musical groups perform. One could then assume that those parents were also supportive of and involved in the child's academic performance as well. There was the possibility that the additional decoding, performing and collaborating tasks in a musical group had useful benefits in the regular classroom. And teachers of students in musical groups had some leverage over the students. If students did not perform well academically, the teachers could have pulled the students from the activity if they thought this would help the students perform better in their classrooms.

The researcher differentiated between marimba and orchestra groups because those groups were taught by different teachers and had different meeting times. Marimba students had to give up their own time to be part of the group. Orchestra students had to give up some classroom time to be a part of the group. As marimba students made a sacrifice to attend this school activity, they created their own buy-in factor to their education. This could explain why they had no behavior concerns. And orchestra students were able to leave their classrooms for a short while to attend their rehearsals. Some of these students may have had less

of a buy-in factor to their education and that could explain why they had the highest number of behavior concerns. Some fifth grade teachers may have observed that students were having difficulty learning in the traditional classroom and thought that the students should have exposure to different subjects, teachers and environments. So the more difficult students may have been encouraged to join orchestra. This also may have explained the higher number of behavioral concerns for orchestra students.

This project showed that music, in general, benefitted students. Students involved in musical activities performed better on academic tests than non-music students. Students with behavior and/or academic concerns in the regular classroom could have additional experience during the school day in orchestra. For some students, this could have been reason enough not to give up on school altogether. And, even though music students missed more school, they still had higher scores. There must have been something helpful that happened in music that other students did not get, or there must have been something different about these music students that drew them to music and allowed them to learn better.

Recommendations.

Further study could be done to determine if extra exposure to music promotes successful academic scores or if academically successful students gravitate toward musical activities. Also, research should be done to determine how music students are able to score higher than non-music students despite

having higher attendance violations. Are music students able to decode information better and more easily than non-music students? Are there connections made in reading, decoding and performing music that benefit learning other subjects? Further study could be done between different student groups to see if, and to what extent, any differences exist between students in music and students in another activity group such as patrol or chess club. Finally, a study should be done to see if the results from this study are consistent with elementary schools with different demographics.

This study did not prove that music classes caused students to have higher scores. That would be an exciting topic for further study on another day.

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APPENDICES

Student survey.

Student Name: _____

Teacher: _____

Have you been at Eastgate since the beginning of the school year? Yes No

What activities do you participate in?

Patrol

Library Helpers

Mileage Club

Chess Club

Orchestra

Rockin' 'Rimbass

ASB

Readers' Club

Informed consent.

February, 2011

Dear Parents,

My name is Matthew Rehmke and I am the music teacher at Eastgate Elementary. I have truly enjoyed working with every student this year. We have been working hard learning how to read rhythms and pitches and becoming independent musicians.

I have been working on my Master's degree the past two years, through Heritage University. The last project that I am working on is a study on our 4th and 5th grade students. I am looking at students involved in musical activities (orchestra and marimba) and those students involved in no activity and comparing their scores for: MAP reading, MAP math, attendance and behavior concerns. So I'm hoping that the final results will look something like this: (graph deleted for space)

There will be no personally identifiable information in this project. Even the name of the school is not disclosed. However, to follow the rules, I need your permission to use our student's information in this study. Please sign and return this form so that I may use the information. Your cooperation is greatly appreciated and could be invaluable to music education in our district. Please feel free to contact me if you have any questions.

Sincerely,
Matthew Rehmke
Music Specialist
Eastgate Elementary
(509)222-6400
matt.rehmke@ksd.org

-
- I give my permission to Matthew Rehmke to use my son's/daughter's MAP scores (reading and writing), attendance and behavior information from September 5, 2010 through January 31, 2011 in order to complete his research project, in partial fulfillment of a Master's degree in Teaching and Learning from Heritage University.
 - I understand that there will be no personally identifiable information in the research.

Parent Name

Fourth Grade, Individual Scores.

Music(M)/ Non- Music (NM)	Student Number	Attendance Infractions	Behavior Concerns	MAP Reading	MAP Math
M	1	12	0	212	211
M	2	4	0	230	210
M	3	1	0	199	199
M	4	3	0	203	209
M	5	0	0	189	193
M	6	0	0	206	209
M	7	1	0	211	215
M	8	4	0	199	208
M	9	5	0	211	209
M	10	0	0	204	205
M	11	0	0	203	213
M	12	5	0	218	223
M	13	0	0	200	204
M	14	0	0	221	209
NM	1	2	0	215	211
NM	2	0	0	206	208
NM	3	0	0	199	193
NM	4	1	1	201	206
NM	5	1	0	195	214
NM	6	3	0	204	210
NM	7	0	0	217	221
NM	8	0	2	178	196
NM	9	1	0	205	220
NM	10	0	0	196	224
NM	11	1	0	212	208
NM	12	3	0	179	177
NM	13	1	0	190	204
NM	14	2	0	196	207
NM	15	0	0	186	184
NM	16	9	0	200	211
NM	17	2	0	198	202

Music(M)/ Non- Music (NM)	Student Number	Attendance Infractions	Behavior Concerns	MAP Reading	MAP Math
NM	18	0	0	211	221
NM	19	0	0	223	225
NM	20	0	0	205	203
NM	21	1	0	204	213
NM	22	0	0	203	205
NM	23	2	0	194	200

Fifth Grade, Individual Scores.

Marimba & Orchestra (MO)/ Marimba (M)/ Orchestra (O)/ Non-Music (NM)	Student Number	Attendance Infractions	Behavior Concerns	MAP Reading	MAP Math
MO	1 1	10	0	225	219
MO	2 2	1	0	212	226
MO	3 3	5	0	210	217
MO	4 4	1	0	214	238
MO	5 5	1	0	214	220
MO	6 6	0	0	220	219
MO	7 7	4	0	207	221
M	8	3	0	215	222
M	9	2	0	210	218
M	10	3	0	205	222
M	11	1	0	201	215
O	8	6	0	225	225
O	9	2	0	198	205
O	10	11	0	203	202
O	11	2	0	201	206
O	12	1	0	212	217
O	13	3	0	215	231
O	14	2	0	207	220
O	15	3	0	209	214
O	16	2	1	196	191
O	17	19	3	215	233
O	18	6	0	214	226
O	19	2	2	208	204

Marimba & Orchestra (MO)/ Marimba (M)/ Orchestra (O)/ Non-Music (NM)	Student Number	Attendance Infractions	Behavior Concerns	MAP Reading	MAP Math
NM	1	1	0	209	210
NM	2	1	1	210	225
NM	3	1	0	216	221
NM	4	1	0	207	203
NM	5	1	0	207	210
NM	6	0	0	205	211
NM	7	3	0	197	208
NM	8	1	0	203	213
NM	9	0	0	211	222
NM	10	3	0	211	218
NM	11	4	0	204	229
NM	12	0	0	194	211
NM	13	1	0	200	210
NM	14	11	0	190	200
NM	15	1	0	213	225
NM	16	3	0	206	209
NM	17	0	1	205	198
NM	18	2	0	223	225
NM	19	5	0	213	239
NM	20	1	0	198	204
NM	21	1	0	200	201
NM	22	18	1	212	208
NM	23	0	0	208	210
NM	24	0	0	204	207