

Music Education Increases Student
Academic Achievement

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Dr. Gretta Merwin
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Masters of Education

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FACULTY APPROVAL

Music Education Increases Student
Academic Achievement

Approved for the Faculty

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ABSTRACT

The purpose of this study was to determine if music education helped students perform better on standardized tests. The researcher used data from the mathematics and reading sections of the Measurement of Academic Progress (MAP) and Measurement of Student Progress (MSP) tests.

The research conducted in this study indicated that band students, when compared to their non-band student peers, performed better overall on standardized scores. A discrepancy was found when comparing two sets of data on the MAP test. This discrepancy was discussed during the study.

Recommendations were made for the school selected in the study to continue to offer band programs and to continue to encourage students to join and stay in the band program.

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CHAPTER 1

Introduction

Background for the Project

Schools were forced to make tough decisions with tough economic times and the pressure to meet the federal mandates for school performance (Conrad, 2006). The federal mandates that were established stemmed from the No Child Left Behind (NCLB) act that was signed into place by President Bush in 2001.

Schools were required to meet the Annual Yearly Progress (AYP) benchmarks or face disciplinary actions. This tremendous pressure caused some schools to eliminate extracurricular and non-essential programs to allow for more classroom instructional time on the subjects that were tested during the annual standardized testing.

Classes such as music, drama, and art were categorized as non-essential in some schools. For example, in California alone, schools decreased their student enrollment in music programs by 50% from 1999 to 2004. The number of music teachers dropped 26.7%

equaling 1,053 teachers, and in 2010 this number was even higher (Posnick-Goodwin, 2010).

Statement of the Problem

Research indicated that students needed more instructional time to meet the mandated AYP benchmarks and one solution was to increase instructional time by removing students from their elective classes and classes considered to be non-essential. What was found in recent studies was students that were removed from their elective classes were showing a decrease in academic achievement. One theory was that the rate of student burnout was increasing. Students' view of extra instructional time was that it was punishment rather than help, and removing students from a class they felt successful in, especially music, was counterproductive.

Music had been proven to be beneficial to student achievement both in and out of the classroom. Data indicated that music programs and music in general should be increased in schools that were struggling to

meet AYP rather than removed and considered non-essential.

Purpose of the Project

The purpose of this study was to determine if music education helped students perform better on standardized tests. The researcher used data from the mathematics and reading sections of the Measurement of Academic Progress (MAP) and Measurement of Student Progress (MSP) tests.

Delimitations

The researcher selected a middle school made up of grades 6th, 7th and 8th in Southeastern Washington. The school's total population for the 2010/2011 school year was 915 students. The student population was comprised of 89.5% Hispanic, 7.2% White, 0.2% Asian, 1.9% African American, and 1.1% Multiracial. There was a rate of 89.3% Free and Reduced lunch with a Transitional Bilingual rate of 43.8% (Office of Superintendent of Public Instruction, 2012).

The research was confined to two groups of students, band students and non-band students. This

study did not distinguish between what type of instrument the student played, gender, socioeconomic status, ethnicity, or grade point average (GPA). The study did not take into account students who were students of music outside of school such as those taking private instrumental lessons.

Assumptions

The researcher assumed that all students in the study were continuously enrolled in school for the complete school year in the selected middle school. All 6th grade students in the study came from the same elementary school as their classmates. All 7th and 8th graders attended the same selected middle school during the 2010-2011 school year.

Hypothesis

Middle school band musicians demonstrated an increase in academic progress in mathematics and reading as measured by MAP and MSP scores over their non-musician classmates. The significance levels were tested using a t-Test.

Null Hypothesis

Middle school band musicians did not demonstrate an increase in academic progress in mathematics and reading as measured by MAP and MSP scores over their non-musician classmates.

Significance of the Project

The purpose of this project was to provide data to support the importance of a music program in schools as essential to student achievement. In order to increase student overall academic achievement students needed to be exposed to all subjects and no subject was considered non-essential.

Procedure

Data was gathered from a middle school located in Southeastern Washington. The data gathered consisted of MAP and MSP scores in mathematics and reading from all students in the study. The scores were broken out into grade levels and then into band students and non-band students and compared.

Definition of Terms

Measure of Academic Progress. The MAP was not a state-mandated test. This test was used by schools to have an instantaneous numerical value of where their students were academically.

Measure of Student Progress. The MSP was issued by the State of Washington Office of Superintendent of Public Instruction (OSPI). The OSPI used approved scoring techniques that calculated scores accurately.

Mozart Effect. This was a scientific concept formulated by data that indicated music helped the brain develop and increase spatial reasoning skills.

Acronyms

MAP. Measurement of Academic Progress.

MSP. Measurement of Student Achievement.

NCLB. No Child Left Behind.

OSPI. Office of Superintendent of Public
Instruction

SAT. Standardized Aptitude Test.

CHAPTER 2

Review of Selected Literature

Introduction

Music was an essential element to a complete education that did not get the accolades in American schools that it deserved. Music affected students' lives on a daily basis. If educators understood how they could incorporate music into their classrooms students would perform better in the classroom and on standardized tests.

To have a complete music program it took more than performing ensembles that only taught students how to mechanically play instruments. Music programs taught students how to play music, how to incorporate analytical skills, teamwork, and work ethic into their lives (Duncan, 2010).

Eliminating music from schools was not the answer to increased scores on mandated standardized tests. In fact, it was counterproductive to eliminate music programs from schools.

This chapter was organized around the following topics: the Mozart Effect, the importance of studying music to increase standardized tests scores and the importance of music in schools.

The Mozart Effect

The Mozart Effect was formulated by a concept that indicated music helped the brain develop and thus increased spatial reasoning skills. Research suggested as children grew, if they were exposed to music, both playing and listening, they would have an increased IQ. Data also showed music caused students to perform better on standardized tests than their peers (Droscher, 2001).

When a child was born the brain was not fully developed and the brain was stimulated by exposure to enriching experiences in early childhood. This development could be enhanced by increasing connections made in nerve cell networks (Yoshimura, 2005). Music was not only linked to an increase in intelligence but the discipline required to learn and

play music was beneficial to academic achievement (Yoshimura, 2005).

The Importance of Studying Music to Increase Standardized Test Scores

Schools tried to improve their scores and one way they had tried was to eliminate the perceived non-essential subjects such as music. However, schools found that cutting music programs was not the answer to improving scores. What was found was that the opposite was the answer, and, according to NCLB, the arts were considered core subjects (Posnick-Goodwin, 2010).

Evidence showed that musicians and students who studied music achieved higher test scores on standardized tests such as the SAT (Phillips, 2006). In 1999 the mean SAT scores for students who either studied music or studied music performance scored 61 points higher on the verbal section and 53 points higher on the math portion (College Board, 1999). A similar study was conducted in 2006 and showed students who took 4 years of music classes in high

school scored 103 points higher than students who took a semester or less of music (College Board, 2006).

Importance of Music in Schools

A study of the arts provided students with a perspective of other cultures and taught them to be empathetic towards other people (Droscher, 2012). Music had been shown to increase the section of the brain that contributed to spatial reasoning and learning patterns.

"Music is a universal language and truly the greatest of the arts" (Kappa Kappa Psi, 1919 p. 1). Music had shown to be a catalyst for student improvement. Everything from test scores going up to behavior problems going down played key roles in student academic achievement.

There were 12 core benefits of music that supported why music should be continued throughout the student's life (Phillips, 2006). They were:

- 1) Musical training helps develop brain areas that process language and reasoning.
- 2) Music helps with spatial intelligence.

- 3) Increase ability to think creatively and develop more than one possible answer when solving problems.
- 4) Musicians score better on standardized tests such as the SAT.
- 5) Students who study music are more compassionate and empathic towards others.
- 6) Musicians learn what it takes to be a craftsman.
- 7) Musicians learn from their mistakes and take time to fix the mistakes, learn from them and try until the mistake is eliminated.
- 8) Music enhances teamwork and discipline.
- 9) Music provides students with a means of self-expression in a safe environment and, in turn, that helps students develop positive self-esteem.
- 10) Music focuses on doing rather than observing.
- 11) Music performance teaches students to conquer fear, take risk, and learn to handle a little anxiety.

12) Music education exposes students to the
incomparable. (p. 1)

Music was a core method of learning, and should not be eliminated from the students' curriculum simply because they grew older.

Summary

Schools were making tough choices about the education provided to students based on federal mandates to meet Annual Yearly Progress (AYP) benchmarks in mathematics, science, reading and writing as well as having enough money to keep the schools open in difficult economic times. To increase emphasis on these tested subjects and cut costs, many schools had eliminated or severely cut their music programs to allow more classroom instruction time for the subjects being tested under NCLB. However, according to NCLB, the arts were considered core subjects (Posnick-Goodwin, 2010).

Data had proven that if students were exposed to a music program, they would have learned to think outside of the box and to look at a situation with

fresh eyes compared to a non-music student.

Eliminating music programs was not the answer to improving tests scores in schools. Music needed to be incorporated into the classrooms where it could enrich the lives of students. Scholastic Aptitude Test (SAT) data indicated the need for more attention to be given to developing more comprehensive music programs in schools and not only performing ensembles where students learned to play an instrument.

CHAPTER 3

Methodology and Treatment of Data

Introduction

The researcher conducted a correlation study comparing music students and non-music students and standardized tests scores from the 2011 - 2012 school year. Students were selected from a middle school in Southeastern Washington.

Methodology

A quantitative study was chosen to determine whether music students scored higher than non-music students on the mathematics and reading portions of the MAP and MSP during the 2011-2012 school year. "Quantitative research is the collection and analysis of numerical data" (Gay, Mills, & Airasian, 2009, p. 7). The researcher selected this type of study to analyze the numerical data effectively and show an accurate depiction of the data that was gathered.

Participants

The researcher included all students who participated in testing over the course of the

academic year across 6th, 7th and 8th grades. The total population consisted of 915 students. The student population was comprised of 89.5% Hispanic, 7.2% White, 0.2% Asian, 1.9% African American, 0.3% Native American/Alaskan Native and 1.1% Multiracial. There was a rate of 89.3% Free and Reduced lunch with an English Language Learner rate of 43.8% (OSPI, 2012).

The students selected to participate in the study were students who took the mathematics and reading portions of the MAP and MSP. Students had to have taken both portions of the MAP test to be included in the MAP study and students had to have taken both portions of the MSP to be included in the MSP study.

Instruments

During the course of the 2011-2012 school year the students completed the MAP and MSP tests. At the conclusion of the testing, the tests scores were gathered by the selected school's administration staff as soon as the scores were available.

The MSP was issued by the State of Washington Office of Superintendent of Public Instruction (OSPI). The OSPI used approved scoring techniques that calculated scores accurately.

The MAP test was not a state-mandated test but was used by the selected school to have an instantaneous numerical value of where its students were academically. Students that took the MAP answered questions on the computer and as they answered the questions the computer adjusted to their answers by either asking harder or easier questions.

Design

A correlation study was chosen to determine whether music students scored higher than non-music students on the reading and mathematics portions of the MAP and MSP during the 2011-2012 school year. A correlation study was chosen because it has been used to represent a relationship between variables.

Procedure

The students at the selected middle school took both the MAP and MSP during the 2011-2012 school year.

The data from the test scores was gathered and consolidated into groups based on the tests the students took.

The scores from the MAP test were broken down by grade level. The data then was broken into band students and non-band students in each grade level. Band students' scores were analyzed to show the minimum, maximum, median, and mode. This process was also followed for the non-band students' scores.

Treatment of the Data

The data was analyzed to find the overall minimum, maximum, median, and mode for all subcategories using the statistical data package in Microsoft Excel. All charts and graphs were constructed by the breakdown of the data with Excel and imported into Microsoft Word.

Summary

The data was comprised of mathematic and reading scores from both the MAP and MSP tests. These tests were conducted during the 2010 - 2011 school year. The researcher broke down the data into groups based

on test, grade level, and band students and non-band students.

The data was analyzed for a correlation between music and increased test scores tested by calculating a t-Test score. All of the statistical analysis was conducted using Microsoft Excel software.

CHAPTER 4

Analysis of the Data

Introduction

The purpose of this study was to determine if music education helped students perform better on standardized tests. The researcher used data from the mathematics and reading sections of the Measurement of Academic Progress (MAP) and Measurement of Student Progress (MSP) tests.

Description of the Environment

The researcher selected a middle school made up of grades 6th, 7th and 8th in Southeastern Washington. The school's total population for the 2010/2011 school year was 915 students. The student population was comprised of 89.5% Hispanic, 7.2% White, 0.2% Asian, 1.9% African American, and 1.1% Multiracial. There was a rate of 89.3% Free and Reduced lunch with a Transitional Bilingual rate of 43.8% (Office of Public Instruction, 2012).

The research was confined to two groups of students, band students and non-band students. This

study did not distinguish between what type of instrument the student played, gender, socioeconomic status, ethnicity, or grade point average (GPA). The study did not take into account students who were students of music outside of school such as those taking private instrumental lessons.

Hypothesis/Research Question

Middle school band musicians demonstrated an increase in academic progress in mathematics and reading as measured by MAP and MSP scores over their non-musician classmates. The significance levels were tested using a t-Test.

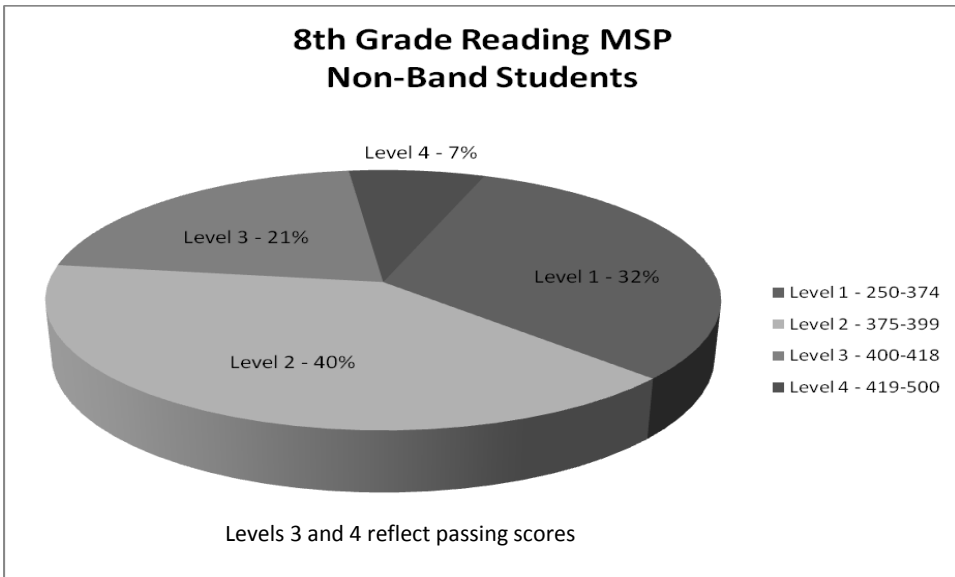
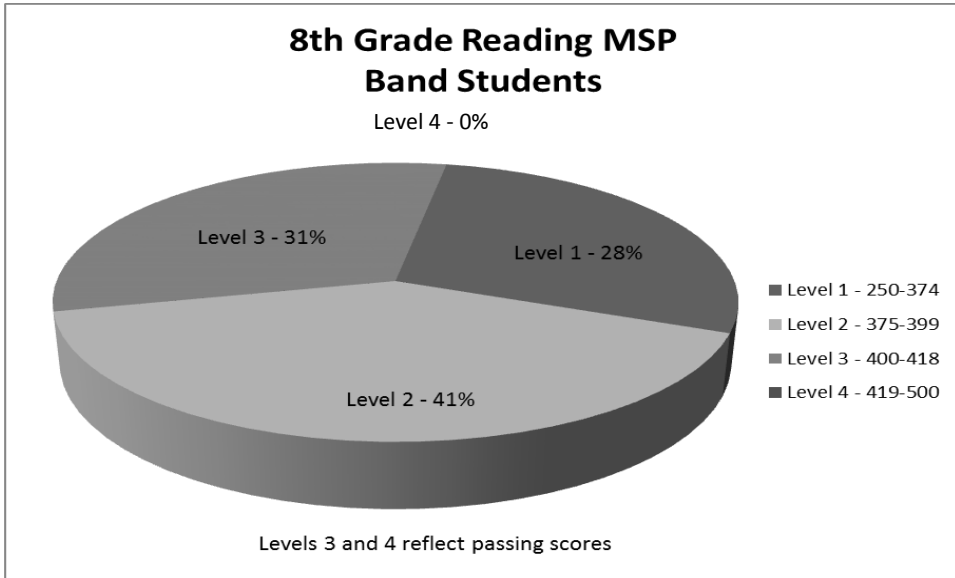
Null Hypothesis

Middle school band musicians did not demonstrate an increase in academic progress in mathematics and reading as measured by MAP and MSP scores over their non-musician classmates.

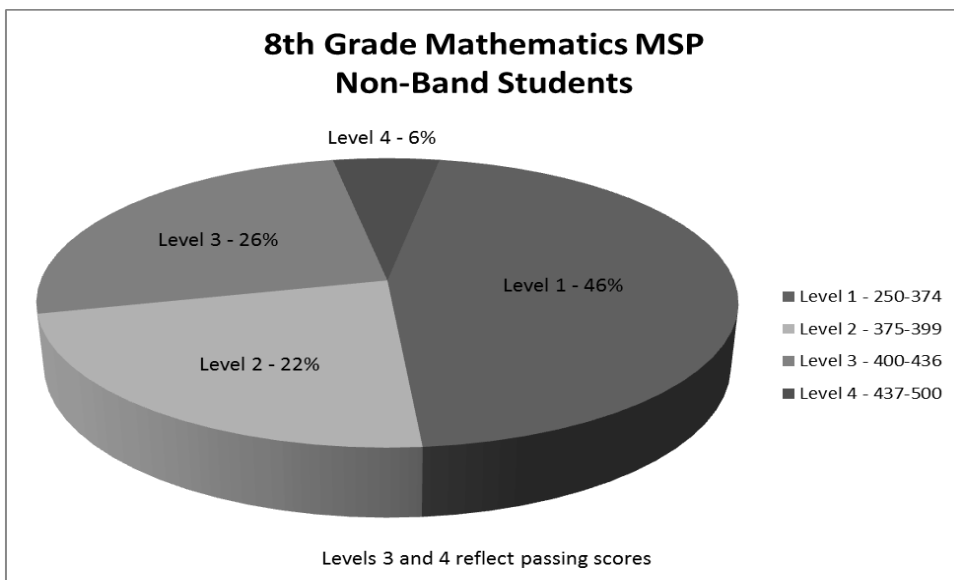
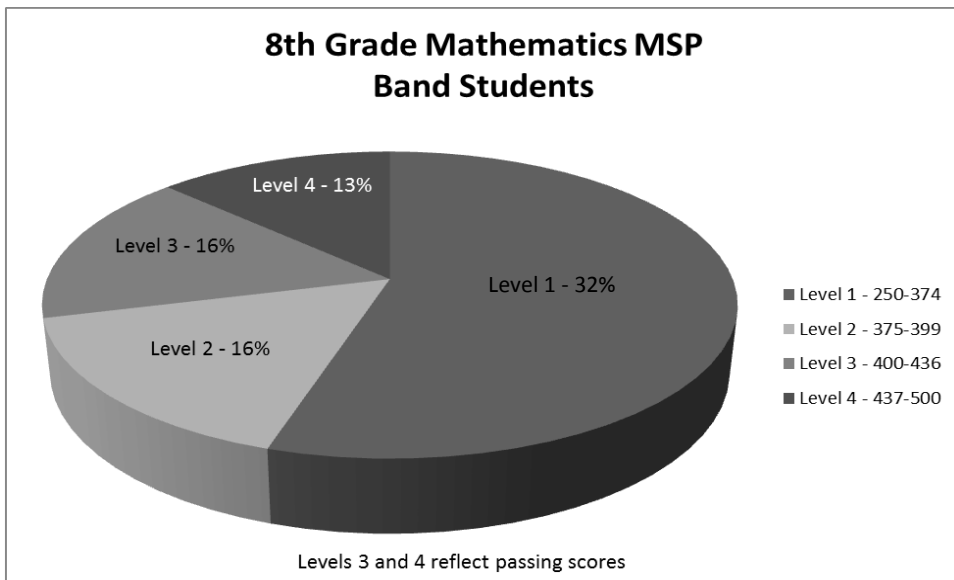
Results of the Study

The researcher compared the MAP test scores of the 6th, 7th and 8th grade band students to the test scores of the non-band students. The 8th grade MAP

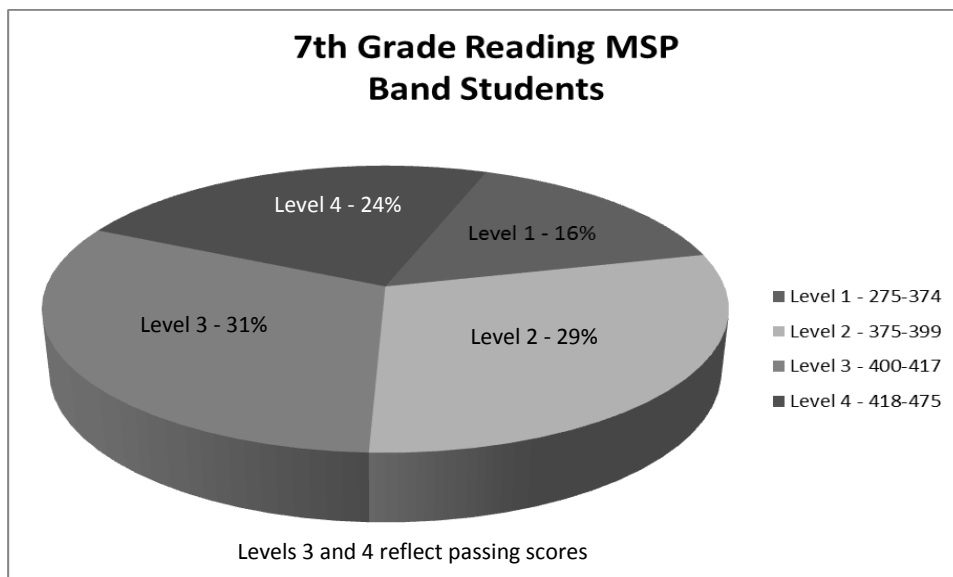
reading scores of the band students showed, overall, a greater percent of passing scores compared to the non-band students.



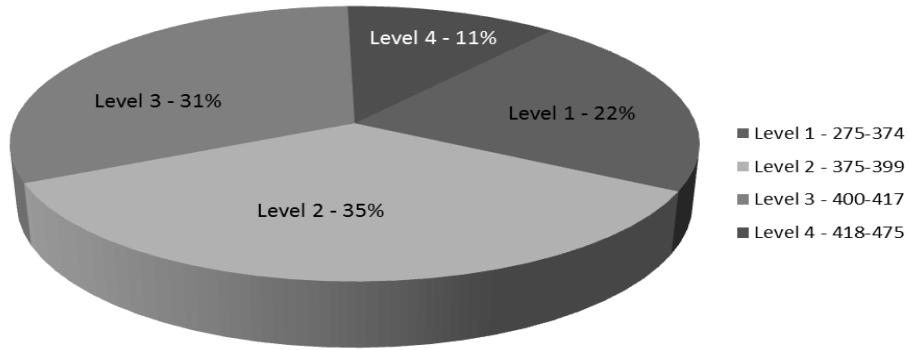
The 8th grade MSP scores in mathematics did not show the same result. Eighth grade band students had 29% of the population pass while the non-band students had 32% of the population pass.



The 7th grade data reflected the band students' performance on both the reading and mathematical portions of the MSP. The band students had 55% who passed the reading and 47% who passed the mathematics portion of the test while the non-band students had 42% who passed the reading and 33% who passed the mathematics portions.

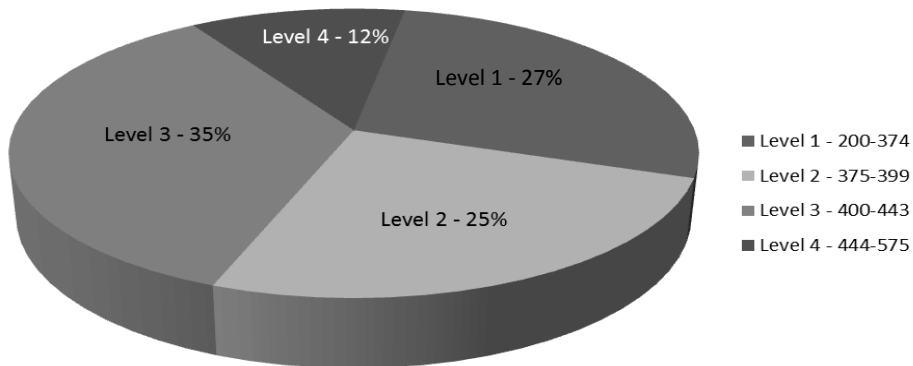


7th Grade Reading MSP Non-Band Students

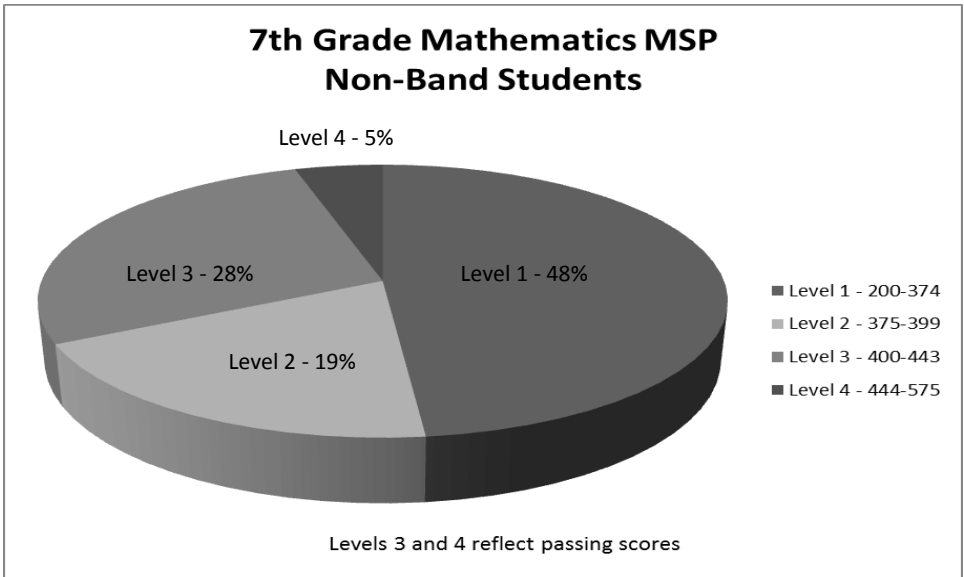


Levels 3 and 4 reflect passing scores

7th Grade Mathematics MSP Band Students

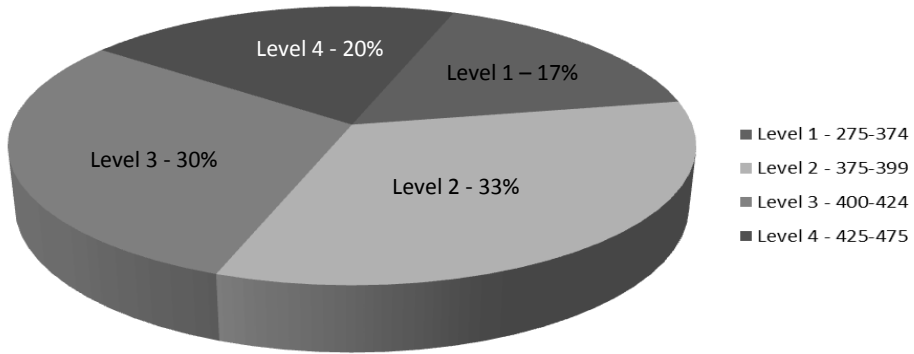


Levels 3 and 4 reflect passing scores



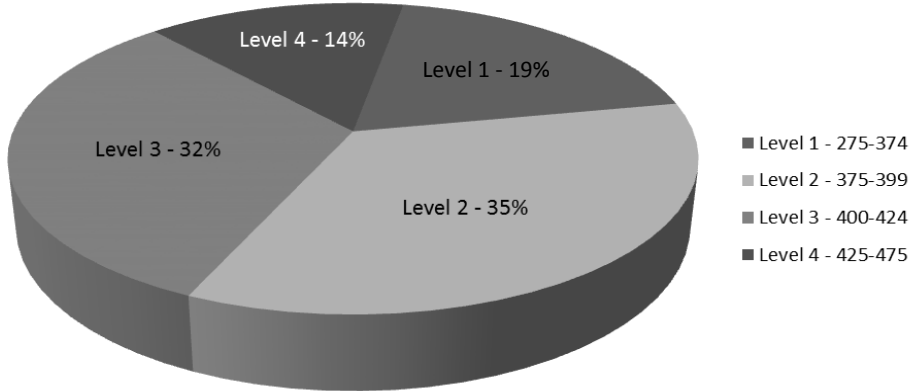
The 6th grade test scores were similar in the overall outcome as the 8th grade. Band students had 50% pass the MSP reading portion of the test while 46% of the non-band students passed the same portion of the test. In mathematics, 35% of band students passed while 43% of non-band students passed.

6th Grade Reading MSP Band Students

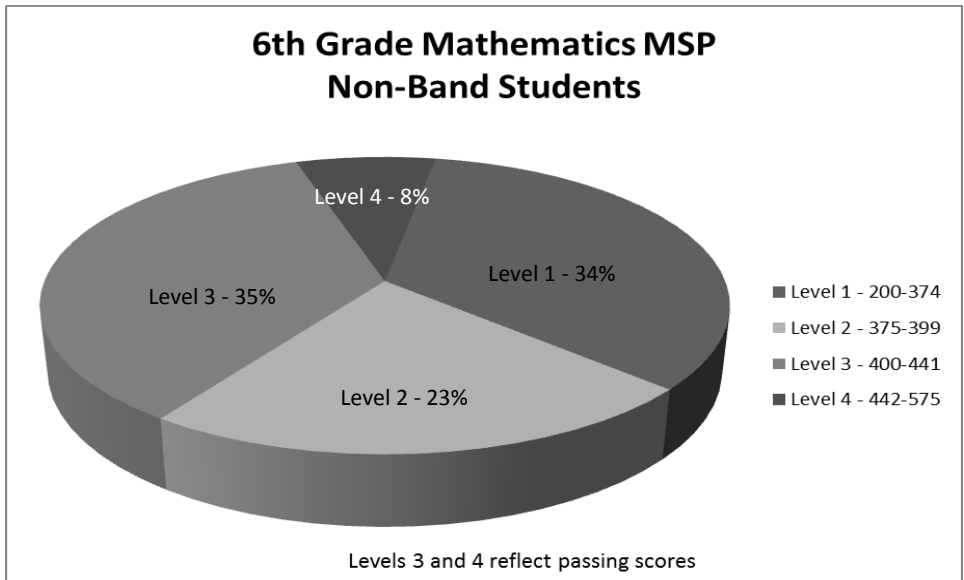
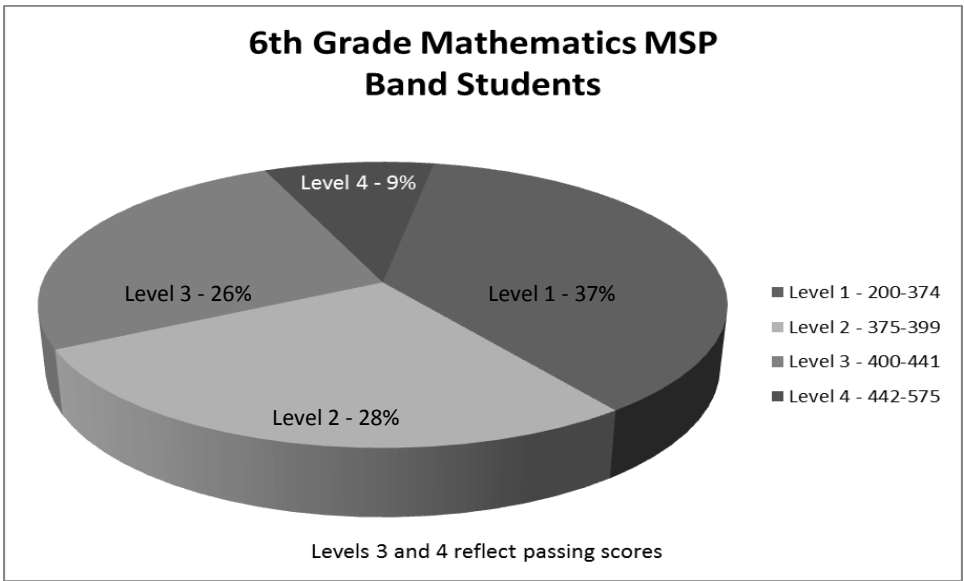


Levels 3 and 4 reflect passing scores

6th Grade Reading MSP Non-Band Students

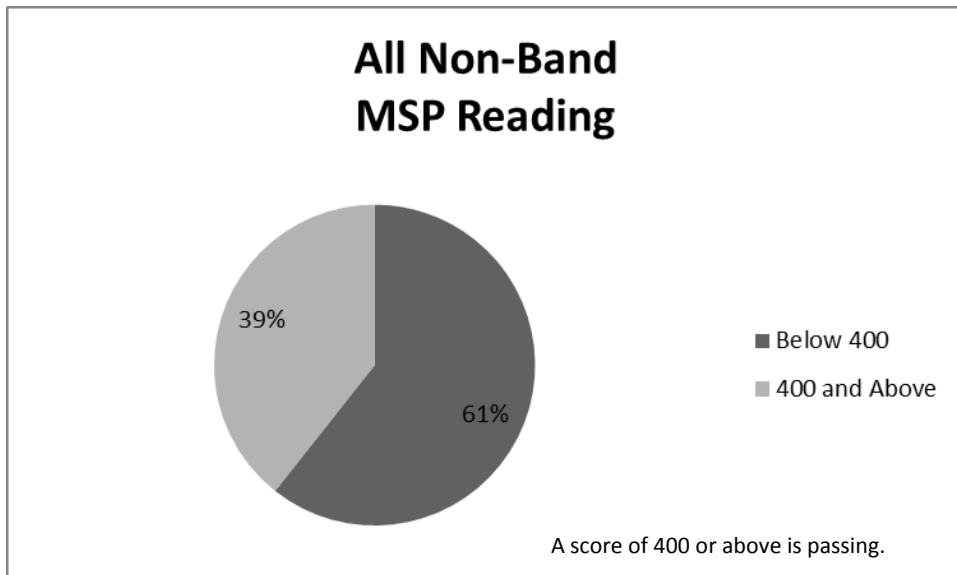
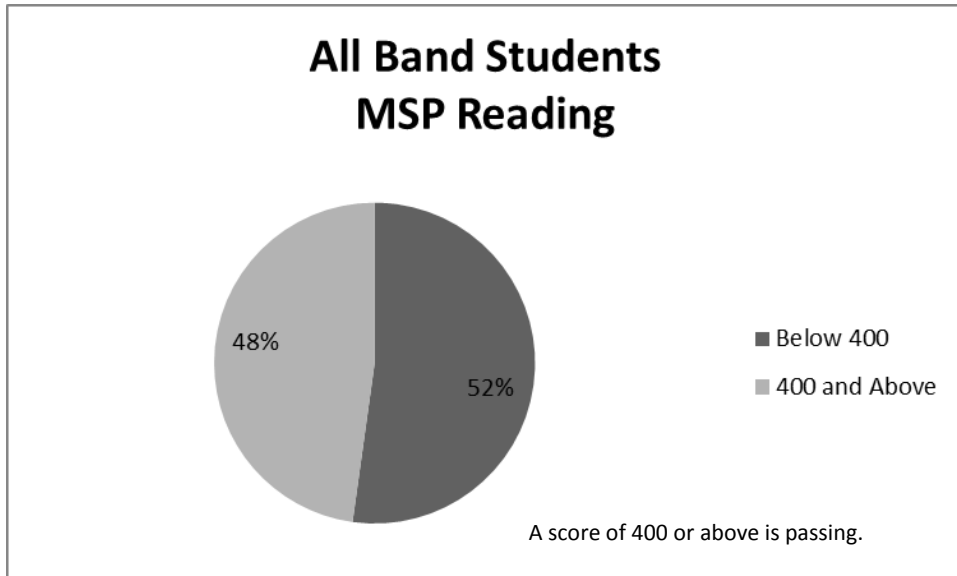


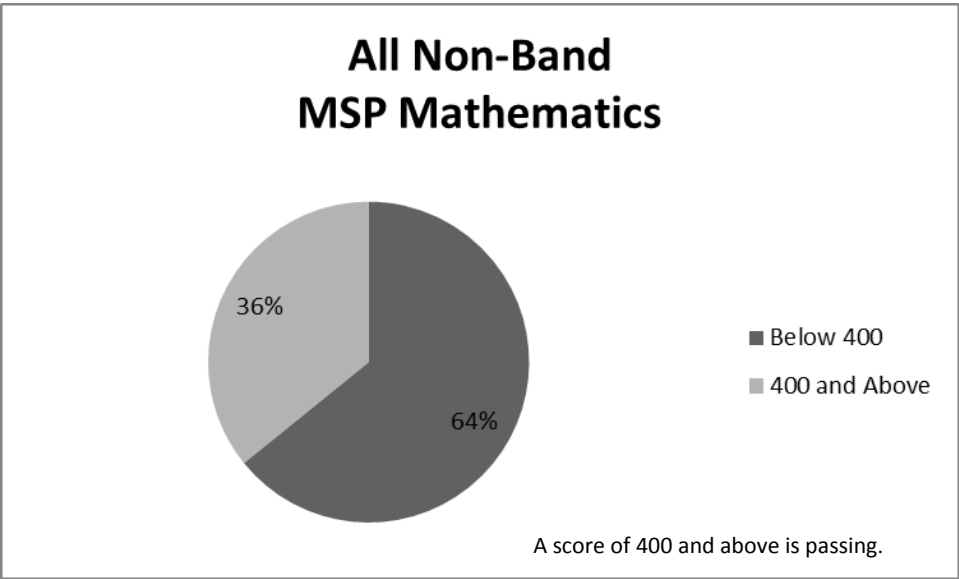
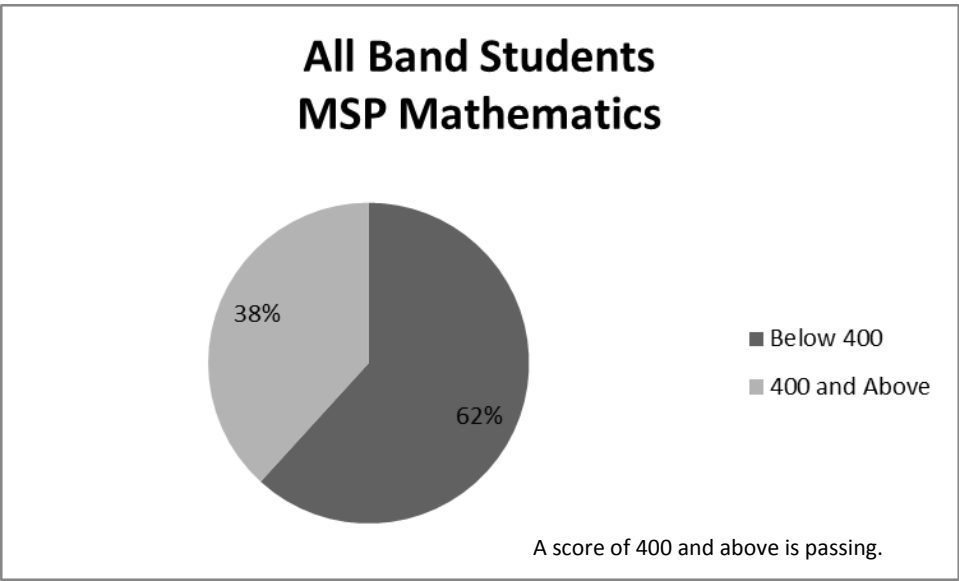
Levels 3 and 4 reflect passing scores



The researcher compared all band students to all non-band students. The data indicated that, overall, band students achieved a higher passing rate than non-

band students in both reading and mathematics on the MSP tests.





Determining the significance level of test scores of band students and non-band students was calculated by conducting a t-Test. For reading, there was a

97.01% confidence level that band students scored higher on the MSP reading than non-band students. There was an 80.5% confidence level that non-band students scored higher on the MSP in mathematics.

The MAP reading scores from all band students were compared to those of non-band students. The population of band students that scored over 200 was 73.05% while 75.25% of non-band students scored over 200.

MAP Reading Scores Band Students		
Score	Students	%
Below 161	1	0.71%
161 - 170	1	0.71%
171 - 180	5	3.55%
181 - 190	4	2.84%
191 - 200	27	19.15%
201 - 210	26	18.44%
211 - 220	39	27.66%
221 - 230	24	17.02%
Above 230	14	9.93%

MAP Reading Scores Non-Band Students		
Score	Students	%
Below 161	3	0.39%
161 - 170	16	2.09%
171 - 180	17	2.22%
181 - 190	58	7.56%
191 - 200	96	12.52%
201 - 210	160	20.86%
211 - 220	226	29.47%
221 - 230	150	19.56%
Above 230	41	5.35%

Mathematics scores for both band and non-band students were compared. The population of band students that scored over 200 was 91.68% and the

populations of non-band students that scored over 200 was 86.46%.

MAP Mathematics Scores Band Students		
Score	Students	%
Below 161	0	0.00%
161 - 170	0	0.00%
171 - 180	1	0.69%
181 - 190	2	1.39%
191 - 200	9	6.25%
201 - 210	33	22.92%
211 - 220	27	18.75%
221 - 230	29	20.14%
231 - 240	24	16.67%
241 - 250	13	9.03%
Above 250	6	4.17%

MAP Mathematics Scores Non-Band Students		
Score	Students	%
Below 161	0	0.00%
161 - 170	1	0.13%
171 - 180	10	1.29%
181 - 190	21	2.70%
191 - 200	73	9.40%
201 - 210	115	14.80%
211 - 220	168	21.62%
221 - 230	166	21.36%
231 - 240	143	18.40%
241 - 250	58	7.46%
Above 250	22	2.82%

Findings

The researcher had sufficient evidence to reject of the null hypotheses for the MSP reading and mathematics scores. The null was also rejected by the researcher for the MAP mathematics scores. The null was accepted for the MAP reading scores.

Discussion

The outcomes of the research conducted for this study were comparable to the studies conducted by other researchers. Overall, band students scored

higher on reading and mathematical portions of the MSP. The researcher did not account for students that took private music lessons outside of school. These students were categorized as non-band students and if there were any, they could have skewed the data for the non-band students.

Summary

Overall, the data indicated that band students scored higher on the standardized tests that were conducted at the selected middle school. The null hypotheses were rejected for both the MSP reading and mathematical tests and was rejected for the mathematical portion of the MAP test. The researcher found the results to be consistent with other studies that had been conducted when band and non-band students were compared on standardized tests.

CHAPTER 5

Summary, Conclusion and Recommendations

Introduction

The purpose of this study was to determine if music education helped students perform better on standardized tests. The researcher used data from the mathematics and reading sections of the Measurement of Academic Progress (MAP) and Measurement of Student Progress (MSP) tests.

Summary

Schools had to make tough choices as to what to continue to offer in schools due to the difficult economic times and the pressure to show improved test scores. Some schools decided to consider the arts non-essential to student learning and chose not to fund them.

Research showed there was an increase in test scores from students who studied music above those who did not. The researcher gathered data from a middle school in Southeastern Washington State and compared the test scores from the MSP and MAP tests from both

band students and non-band students. The data gathered by the researcher showed that band students scored better in the reading and mathematical portions of MSP and the mathematical portion of the MAP, but not the reading portion of the MAP.

Conclusions

The results of the study were consistent with the documentation analyzed by other studies conducted, as well as the theories explored in chapter 2. This was illustrated by the graphs pictured on pages 28 and 29 from the data gathered from the MSP tests. The data results were mixed from the scores gathered from the MAP tests.

Overall, band was considered an essential subject in schools. From data gathered, participation in band proved to be beneficial.

Recommendations

Since participation in band appeared to be beneficial, it is recommended that the school investigate ways to increase enrollment in the band program as well as increase the retention of band

students from 6th grade through 8th grade. A recommendation is also made that the school selected in the study continue to offer band and encourage students to study music.

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