Effects of Music Education on Academic Achievement

by

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ABSTRACT

This study aims at exploring whether English Language Learners (ELL) who are enrolled in a music education program have higher standardized test scores compared to those who are not engaged in a music education program. A West Phoenix, inner city school was studied were the majority of students are Hispanic and qualify for free and reduced lunch. The main purpose of this dissertation was to analyze the effects of instrumental music courses on the AZmerit assessment scores. AZMerit is a standardized assessment used to measure student growth during the given timeframe of one school year (AIMS A Science, n.d.). In this study, I compared a cohort of instrumental music students who studied performance against a cohort of comparable students who did not volunteer to participate in an instrumental music program. Many of these students are bilingual in English and Spanish. As such, students were divided into subcategories based on their level of language acquisition in sixth grade. The secondary purpose of this study was to determine if being a part of an instrumental music program affected students at different languages levels in different manners. Over a two-year period, the English Language Learners (ELL) students were examined to determine the effects of music education by focusing a large part of this research on ELL students' success within music education programs and academic content areas.

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CHAPTER 1

INTRODUCTION

This study aims at exploring whether English language learners (ELL) who are enrolled in a music education program have higher standardized test scores compared to those who are not engaged in a music education program. It has been argued that gifted or well-behaved students are naturally attracted to music education classes despite the lack of factual evidence to support this claim. As an educator of music for fourteen years, I have observed that music education programs develop those students involved in the program including those students categorized as at-risk or English Language Learners (ELL) into intelligent and well-behaved students, which is contrary to those students being attracted to the program. This observation provides a structure for the foundation of this research.

It has been known for quite some time that learning music has nonmusical outcomes. Summaries of early research in the effects of music education are provided by Hanshumaker (1979) and Wolff (1978) and are indicative of positive or equivocal effects of music instruction and nonmusical outcomes – most notably, academic achievement. (Catterall, 1998; Johnson & Memmott, 2006; McCrary & Ruffin, 2006; Wallic, 1998) These students advocate the idea that instruction in music reinforces or catalyze other forms of cognition yet schools still conform to a theory that the only way to improve test scores and academic achieve is to insist on more time studying the courses being assessed and thus less time in electives or exploratory classes. Additionally research shows that being excused from nonmusic classes to attend instrumental lessons does not adversely affect academic performance. (Corral, 1998; Cox, 2001; Dryden, 1992).

Over the course of my career I have had many interactions with well-intentioned teachers who do not believe that the students who are English Language Learners should be allowed to participate in band or orchestra. With their belief that students who are struggling to learn English need to spend more time studying English, these students often miss out on a worthwhile and beneficial musical education. It is with these experiences that I research the effects of a music education on English Language learners. For this study I am posing two main questions:

1) What are the differences in AzMerit reading and math assessment scores between the students who have committed to participate in an instrumental music program and non-instrumental music students at the varying language levels?

2) *What is the annual rate of change between students of varying English Language Proficiency levels during the two years in instrumental music?*

These two research questions can help to better understand the longevity of the benefits of music education. The hypothesis guiding this study is that, as students continue in music education courses, there is still a value and benefit for the music education student from one year to another.

Due to the data and personal experiences related to the benefits of music education for students, it can be proposed that education without a music education component is incomplete and a disservice to students. There is historical importance and recognition attributed to the extensive values associated with music education. The academic, social, cognitive benefits to music education strongly support the

implementation of music education programs for the enrichment and application of academic courses in a more hands-on and interactive setting. As part of this study, I examined how music education impacts academic test scores.

The main purpose of this dissertation study was to analyze the effects of instrumental music courses on the AZmerit assessment scores. AZMerit is a standardized assessment used to measure student growth during the given timeframe of one school year (AIMS A Science, n.d.). In this study, I compared a cohort of instrumental music students studied performance against a cohort of comparable students who did not volunteer to participate in an instrumental music program. Many of these students are bilingual in English and Spanish. As such, students were divided into subcategories based on their level of language acquisition in sixth grade. The secondary purpose of this study was to determine if being a part of an instrumental music program affected students at different languages levels in different manners. Over a two-year period, the English Language Learners (ELL) students were examined to determine the effects of music education by focusing a large part of this research on ELL students' success within music education programs and academic content areas. ELL students are often seen as students that need to be fully immersed in language programs to bring them up to the required academic level in English. By showing through this quantitative study, that ELL students benefit from music education in academic courses as well, those students can hopefully be granted more opportunities in music education programs. These music education programs that involve ELL students will also be able to help ELL students develop their English language skills through applicable practices within the music curriculum.

This study is timely because with high stakes testing and data driven classrooms,

this study shows the importance and credibility of a music education. English Language Learners are being done a disservice when they are forced to only learn English for the majority of the day. This study shows that there are many different ways for a student to learn, by trying something different. Such as learning to play an instrument can also have a positive impact on test scores.

Contemporary Threats to Music Education

Since the turn of the 21st century, shifts in student learning have occurred. Although there have been shifts in the education system for decades, with many of the same arguments about the value of school music programs that go back to the founding of the first US music program in Boston in 1838 by Lowell Mason, the most modern shift in education theories have been disadvantageous to music education programs. Subjects taught and societal values have caused a gradual diminishing or elimination of music programs in the United States for a multitude of reasons. Music education has seen diminishment of value in the past, and the current education focuses have caused damage to modern music education courses. Even though more schools are placing higher values and more importance on other academic classes, the benefits of music education classes on academic principles have not changed.

As teacher and student accountability increases, new measures of success have been put into place that are not conducive to the nature of some courses like music classes and curriculum. The United States' education system has come to value what can be tested in some form of formal assessment with data that can be compared, against other schools, states and countries, over any other beneficial factor that a course can offer. For music programs specifically, it is very challenging and costly to objectively

assess what a student has learned. While there are aspects of a music education program that can be formally assessed, there are even more aspects that cannot be respectfully assessed without a thorough knowledge of music education and much training, on the part of the person assessing what students have learned.

Another threat to modern music education courses is commonly found among all courses, even academic classes. Students in this current generation are not seeing education as a vital component of their future. From the earliest stages of education, students are quickly overwhelmed by the academic demands of the modern educational system. High-stake standardized tests, over submersion in academic classes, and a lack of opportunity for self-expression have lead some to a growing negative view of public education. Those students that still see a value in education are typically so involved in academic achievements that there is little to no room for music education classes. Regardless of the view of education or areas of motivation, the modern student may be disengaged when regarding a music education course.

This study suggests that music education programs are beneficial and do not take away from any other class. Stakeholders, including administrators and students, can see that music programs offer more than simply learning how to play an instrument and perform in concerts. While numerous studies have found that music education programs are beneficial for students, this study makes those assumptions and theories more concrete as well as demonstrates that music is beneficial for English language learners. This study helps to emphasize the importance of music education in West-Phoenix public schools, with the greatest impact on ELL students within this school district.

Limitations to Student Enrollment in Music Education

Fear of inadequacy when compared to other countries has brought a national initiative to improve math and literacy scores on formal assessments regardless of the means it takes to achieve adequate scores. The most common manner in which districts strive to improve academic assessment scores is to increase the amount of time students are in an academic classroom. This pressure to increase academic classroom time has caused students to be removed from elective courses and placed in additional academic courses, typically in subjects where they are struggling. While there have been academic improvements shown using this method, there are other pieces of evidence that back the implementation of cross-curricular concepts into classes like music or other art classes. When students are able to interact with a hands-on curriculum and apply academic concepts to produce a product, there may often be an increase in participation and learning that can take place.

For many students that are in special classifications, such as ELL students or those that are deemed as 'at-risk' students, there is often an even higher demand for them to be placed into additional academic classes. While there are some cases in which a student can benefit from more academic courses, there is more often a greater benefit from students being able to engage in a more hands-on or self-selected curriculum. Many students gain further understanding of concepts taught in academic classes when they are able to apply those concepts to a hands-on application such as music.

With the stress and pressure to increase assessment scores in order to surpass other countries, discord can exist between all content areas, which is reducing the cross-curricular learning that is so vital to true understanding. When students are able to implement the concepts learned in one class into the tasks within another class, they not

only increase their knowledge of that concept but they are also increasing their confidence in their education as a whole. Many schools and teachers have come to believe that some subjects are of more importance than others based on the simple fact that those subjects are not formally assessed or compared to other countries. It is the responsibility of music education students, educators, and other supporters to demonstrate that this negative view of music education is simply untrue.

Economic Significance of Music Education Programs

Moreover, as the economy struggles to recover from a recent recession, expensive instrumental music programs often come under review. While the importance of music programs may be seen by school districts, the requirement of other academically related needs is also important. Often school administrators or district leaders make decisions to diminish or terminate instrumental music programs due to the costs associated with music programs (Major, 2013). A large component of the school administrator's or district leader's decision to keep or close music programs comes from their understanding of the program and its value as well.

A large part of an average school district's budget goes towards funding music programs. While the district does fund the music program, it typically only funds about 90% of the needed funds for the music education program to operate efficiently. If district leaders and decision makers do not see the value of music education programs, they may allocate the funds needed to fund music education programs to other academic classes that they deem as more important. Music programs may have a daunting budget that includes instruments, music, travel, and other expenses that are unusual when compared to other academic classes.

Arts programs, in general, can be broken into four main groups: music, drama, dance, and visual arts. While the other arts programs suffer some of the same struggles as music education, they tend to not have the higher costs of an instrumental music program when it comes to equipment and supplies alone (Dickinson, 1997). As mentioned previously, 1.6% of an average school district's budget is allocated to fund music programs. (Fermanich 2011) Due to the large costs associated with music education programs, they may be the first of all of the arts programs to be considered for reduction or elimination. The amount of funding needed to fund one music education program could sometimes fund several academic classes.

Former Arkansas Governor Mike Huckabee believes that art education programs, specifically music education, are vital to successful student learning. In a statement made recently about the benefits of music education, Huckabee stated:

> "When I hear people asking how we fix the education system, I tell them we need to do the opposite of what is happening, cutting budgets by cutting music programs. Nothing could be stupider than removing the ability for the left and right brains to function. As a CEO what they are looking for in an employee and they say they need people who understand teamwork, people who are disciplined, and people who understand the big picture. Do you know what they need? They need musicians." (Press Release- Music Education's Past Celebrated, 2007, p.8).

Huckabee understood how music allows a student's mind to reference various areas that are not typically targeted in an academic classroom. When students are engaged in music education classes, they are able to engage multiple parts of their brain

and prior knowledge. As students are able to engage various parts of their brains as well as related content from other areas into a task, there is a deeper level of understanding that can take place, which truly enriches the whole learning process. This philosophy of utilizing numerous parts of the brain to engage in the same task relates to Gardner's philosophy of multiple intelligences.

There are also skills that may be learned and acquired through music education that are not usually taught in other classes. This method of acquiring soft skills through music education is exponentially valuable when entering into the workforce as explained by Huckabee. Many employers and political figures understand the need for a student to have soft skills upon graduating high school. Without the acquisition of soft skills, students may not be able to be successful in their careers and the real world.

Modern Music Education

The opportunities offered by music programs as well as the benefits received from music education programs are evaluated by not only potential and current music education students but also their parents, teachers, administrators, and other stakeholders (Hargreaves, Marshall, & North, 2003). This evaluation of value is true for many other elective or voluntary courses that are in public schools today. For students specifically, there are many aspects of a program evaluated before a student decides to invest their time into that elective or not. When a student sees that there is a substantial benefit to a program, such as music education, both socially and academically, they are more inclined to participate in that program. As students evaluate and participate in programs, like music education, other stakeholders begin to see value in the programs as well.

When it pertains to student success and overall wellness, music education has

created a standard that generates the environment conducive to student success not just in music but in other classes as well. Music educators must adapt and again show that music education is necessary for a well-rounded and all-inclusive education regardless of the means of assessment and evaluation.

CHAPTER 2

LITERATURE REVIEW

For this study, many literary resources were utilized to create the research questions and to develop the hypothesis. While most of the resources were previous studies that were similar to the purpose and construct of this specific study, there were two main theories of cognitive development that became the foundation on which the assessment and assumptions were tested against. These are the theories of Uri Brofenbrenner and Howard Gardner. The development of a child can be influenced by many different forces, and because this study focuses on the cognitive development I decided to focus on the theories advanced by these two authors. Bronfenbrenner (1992) states that children's environments influence various areas of their lives depending on the proximity of environmental influence. Gardner (1992) theorizes that all humans have different types of intelligence and how we develop influences the development of those domains of intelligence as well. Both of these theories strongly support the fact that when children are able to utilize information taught in one area to create an art form, like music, they are utilizing different parts of their brain and being influenced from different areas of their life.

Uri Bronfenbrenner and Child Development Theory

In the book, *Six Theories of Child Development*, author Uri Bronfenbrenner introduces an ecological system to child development (1992). This book by Bronfenbrenner was monumental in the area of child development. Bronfenbrenner identified the complex layers of the environment in which a child is to have an effect on their cognitive and emotional development. Bronfenbrenner suggests that a child's micro-

system is the most influential external environmental layer in their lives. The micro-system involves the direct contact they have with their family, school, neighborhood, childcare, or other external interactions that the children have throughout their childhood. Bronfenbrenner stresses that the parent, or another important influential adult figure, and the child must have a strong relationship or the child will seek out another influencing adult. Breaks in relationships with the child and influencing adult can also cause developmental issues if not resolved properly and repaired fully.

If or when a child and parent's relationship breaks down, children will begin looking for affirmation in inappropriate places. The locations in which children look for affirmation may be adults at school or other places in which they interact with adults. While the relationship with the teacher is important, for a teacher to be able to successfully do their job, they cannot fulfill the main adult figure in a child's life. In order to maintain a fully responsible and normally developing child, relationships with parents must be successfully maintained.

In addition to a child's relationships within the micro-system, the relationships that children are exposed to among other people or bi-directional relationships are also influential. Children, especially during their developmental stages, are constantly looking at other influential and example setting figures for guidance as to how they should behave, feel, and interact. For example, when parents and teachers have a good relationship, the child may indirectly benefit from that relationship through the example set by both the parent and the teacher. If a bi-directional relationship occurs between members of the same environmental layer, the micro-system is created with is a relationship between layers. If a relationship is created between systems, for example, if a

student's parents has a good relationship with their neighbors, this creates a mesosystem. This is most beneficial to the child since they fully emerge in positive and influential relationships.

In the model of a macro-system, the child's environment is the outermost layer that encompasses the most relationships and influential figures. The macro-system layer involves the child's cultural values, customs, religions, and laws. The last component of this layer to affect a child within their environment is time, as known as the chrono-system layer. The chrono-system layer is not just the passage of time but the times in a child's life when different things happen to the child. For example, the amount of time a child spends watching television as a toddler or preschooler will impact them as part of their environment. Also, the length of time that a child develops within each stage will also affect their overall development and view of the world. Other growth stages and time spent in each stage will also have an impact on children and their development. Overall, the development stages and all influences of others within their environment have an impact on the development and future actions of a child, all in accordance with the theory set by Uri Bronfenbrenner.

Howard Gardner and Multiple Intelligences Theory

Howard Gardner introduced the theory of multiple intelligences in 1983. The theory of multiple intelligences divides intelligence into specific domains. The domains include spatial, linguistic, logical-mathematical, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic ("The Components of MI", n.d.). Dividing intelligence into specific domains allows an individual to concentrate on each type of intelligence individually rather than focus on intelligence as a whole. Gardner arrives at

these areas or domains of intelligence by developing a set of commonalities among intelligence. Similar to most groupings, the characteristics of each intelligence are compared and grouped according to their similarities.

According to Gardner, all intelligence includes the potential for major impacts on a human's physical, mental, and emotional health in both positive and negative manners. Gardner requires that, to be classified as an intelligence, a domain must demonstrate the following qualities:

> "Brain isolation by brain damage, place in evolutionary history, presence of core operations, susceptibility to encoding (symbolic expression), a distinct developmental progression (evolutionary history and evolutionary plausibility), the existence of savants, prodigies and other exceptional individuals, support from experimental psychology and psychometric findings" (Gardner, 2004, p. 24).

While all of the various intelligences may not have direct impacts on the individual, students should at least be exposed to and have the opportunity to experiment with all intelligences. Most people associate intelligence with positive or advanced academic achievements but as depicted with Gardner's evaluation of the effects of intelligence, they can have a much larger impact on the human body and mind and that they are not confined to our the previous notion that intelligence is reading, writing and arithmetic. Gardner also argues that all children should be given opportunities to develop all the intelligences. He says that each intelligence offers a unique way of communicating ideas, so students need opportunities to develop their ability to communicate through

sound, movement, language, relationships, developing in different domains.

The intelligence theory established by Gardner has a unique impact on music education philosophies. In accordance to Gardner's theory of intelligence, music education allows students and teachers to engage multiple intelligence domains in various ways while still gaining abilities and intelligence levels that can be utilized and translated to other subject areas and tasks (Gardner, 1999). The various intelligence domains that Gardner identifies in his theory of intelligence can be engaged during music education courses in various manners. By engaging multiple intelligence domains while engaged in the same task, there is a more concrete and deeper understanding of the topic at hand. Under this theory, the cross-curriculum practices that are common in music education programs are actually engaging multiple intelligences which enhances the learning experience.

It is with the theories of Bronfenbrenner and Gardner that the effects of a music education program on English Language Learners and general education students enrolled in music education courses is examined in this study. Under Bronfenbrenner's theory; the relationships that students form and witness within their music education classes can greatly influence their psychological and academic growth. The social impacts of music education are almost as vital and important as the academic influences that come from music education. In accordance with Gardner's theories, music education engages multiple intelligences which enhances the educational experience.

While science has yet to fully understand what gives a person an aptitude for a specific intelligence, it can be believed that the microsystem, mesosystem, and macrosystem that formed a person might also have had the ability to influence their

intelligence. It can be theorized that a person's religion, school or family may encourage certain intelligences. Some of these connections may seem obvious. For example, being very involved in religion is likely to give you a spiritual intelligence, but it can also be seen how a family can effect different intelligences through their values.

For example, a child that grows up playing basketball every day after school with their friends may develop an aptitude for bodily-kinesthetic intelligence. Every day they are practicing not only how to throw a ball, but they are also running, blocking, and using their bodies in a multitude of different ways. Since we know that knowledge is transferable (Dearing, 1997) it can be assumed that when needing to learn other kinesthetic skills, that they will have an easier time internalizing those skills, adapting them and applying the new information in a multitude of areas.

Similarly, a child who grows up in a family that makes music together often will have developed an aptitude for musical intelligence. A family that bonds by making music together is teaching their child to sing or perform on an instrument. They are teaching them music skills. Once that student enters a school instrumental music program, they have already devoted much time to learning the discipline. Thus, whether or not the same instrument is studied, or they pick up something new, because of their microsystem there is an aptitude towards musical intelligence.

Music as a Discipline; Music for Music's Sake

While this study focuses on how music can complement other academic disciplines, there is a movement for music to be included in school curricula because it is simply a good concept for students to learn (Brown, 2012). Music has the ability to create lifelong relationships between students and their community. Music has also been

shown to equip students with the soft skills necessary to be well prepared in their future careers. Within the discipline of music education, we learn skills such as teamwork, setting and attaining goals, continual improvement, leadership, and perseverance. All of these soft skills are easily transferable to other academic disciplines and as well has real-world applications. As students learn these soft skills within their music education classes, there are numerous opportunities to apply those skills to many other areas of their lives.

Music is a discipline that has the ability to not only teach but also intermingle the skills that students need within the entire program. As students graduate from school and enter into the workforce and world, there is a huge need for the soft skills that music education is able to teach and implement into their daily lessons. Many companies and employers say that the lack of soft skills is the largest issue that is plaguing modern society (AMLE, n.d.). By learning and practicing soft skills within a music education program, students will be well equipped with skills that many other students that did not participate in a music education program may not be proficient in. As with other vocational and art programs offered in public schools, music programs are able to teach the valuable soft skills that all students need but are unable to attain within traditional, academic courses.

Music education is just as important as academic courses due to the additional skills that the program is able to offer to the students enrolled in the music education programs. Not only does music education teach a skill that is known historically around the world but it also teaches life lessons that are the foundation for basic and successful adult functions. Music has been heard and played in every corner of every country around

the world and is a common manner in which people can express emotion, individuality, and camaraderie. All types of music from all eras and genres are able to express emotions in a way that is unique to music. It communicates and translates across several nationalities, languages, and cultures. Music also teaches teamwork, cooperation, leadership and collaboration with others, as students work closely with other students. These students can produce a beautiful and meaningful collaboration known as music.

Musicians and music education students learn to anticipate what the other musicians are going to do, and learn when to draw attention to themselves and when to let another person have consideration. For many younger students, the skill of allowing the focus to shift from themselves to other students is a challenge and takes practice to have the self-control necessary for this task. For most music education courses, the main focus and end result of the hard work and effort put forth by the students throughout the year is the final performance. Students may practice for months to perfect their skills which stresses the importance of patience as they work through simple but powerful aspects of the music and diligence as students continue to practice their music for their final performance.

Through each intricate part of music and music education, students can be transformed into disciplined and patient individuals. This is a bit of a contradiction to common beliefs that students that are gifted or advanced in academic classes are naturally attracted to music education courses. In my experience as a music educator, it has been observed that the students that are in need of academic assistance or support with soft skills are those that are naturally attracted to music education classes. It is also reasonably noticed that ELL students are typically attracted to music courses as well because music

is its own form of communication. The attraction of ELL students to music programs actually helps those who struggle to communicate with their surroundings, be able to communicate in another way.

The cognitive and social skills acquired from a musical education program can be transferable to a students' life, even once they graduate and enter into the workforce (Boyes & Reid, 2005). The skills and life lessons needed to be a successful human being are reinforced through a music education and applicable to both academics within the school career of a student and also their adult career. Most modern-day employers value soft skill acquisition over applicable work experience.

This study focuses on cognitive development. Theories that influenced much of the research and information gathered from the research were those of Uri Bronfenbrenner and Howard Gardner. Bronfenbrenner (1992) states that children's environments influence various areas of their lives depending on the proximity of environmental influence. Gardner theorizes that all humans have different domains of intelligence and how we develop influences the development of those domains as well. Both of these theories strongly support the fact that when children are able to utilize information taught in one area to create an art form, like music, they are utilizing different parts of their brain and being influenced from different areas of their life.

Arts and Education

In American education, the arts are in a unique position. While many believe the arts are important, the obsession with test scores and standardized and tested disciplines has cast the arts to the side, potentially leading to budget cuts to art, music dance and other like areas. When advocates and legislators attempt to include the arts into

legislation, they are still left to be subordinate to tested subjects with the arts still being forced to prove their worth to test scores (Roppert, 2006, Zhao, 2012).

If the goal of education is to learn skills and processes to help students grow into active, competent, well-balanced and contributing members of society, then an education in the arts is crucial. School officials must juggle helping students receive a well-balanced education and helping them pass a standardized test. Catterall and Waldorf (1999) conducted a study of the Chicago Arts Partnership in Education (CAPE) to identify a possible relationship between fine arts and academic achievement. They discovered that several conditions must be present for arts integration to be successful. First, like with much learning, students need to connect the objectives learned in the arts to other situations and develop deeper understandings of their learning. Second, students should be able to recognize the importance of their work. Third, the artistic principles and lessons should relate to critical areas of the academic curriculum. Like with all subjects, learning should involve but also transcend just speaking and writing. Fourth, both disciplines should be viewed as equally important. Fifth and finally, all subjects should be well planned out, well assessed and linked to state and federal standards. Catterall and Waldorf found that when all these criteria were met that student achievement was significantly higher as measured by standardized tests.

Music and Reading

Music is a unique language. Since music has been found all over the world and throughout all cultures, there is no specific language that music is exclusive to. Many ELL students are naturally drawn to music programs due to the lack of language barriers that music has. While the music does have a specific communication system that one

must understand in order to master the skill, it is does not convey specific meanings like English or Spanish. Music is a form of communication that can be spoken and understood by everyone.

Music is multimodal. It involves the combination of many different things to create expression. With the application of symbols into sounds, meaning and action, music is form of literacy. More technically speaking, many musicians in Western traditions have developed their language to be portrayed into a system of five lines and four spaces, a staff, to represent pitch and a series of symbols to represent the duration of sound and silence, also known as rhythm. Music also incorporates German, Italian, French, and other languages into the technical terms that depict the various notations and processes necessary to create music. These various languages within the art form of music are used to describe the style, volume, known as dynamics, speed or tempo, and other musical shorthand cues required to accurately replicate other musical songs. Musicians and music education students hone their abilities to read this language until it can be instantaneously interpreted at any tempo. Musicians and music education students also must learn to fluently decode multiple staves of music notation arranged atop each other.

Learning the language of music reinforces a student's skills at their primary languages and further develops literacy in their primary language. Regardless of a student's home and primary language, music can aid in the development of that language and acquisition of a new language. Although music is not teaching students a new language specifically, it is giving students the ability to learn new methods of communication, understanding via visuals, and translating what they see and read into

action. The accurate understanding and reading of music can show competency in music reading and understanding when the student is able to play musical pieces properly and according to the musical notations.

In recent studies, it has been discovered and confirmed that reading assessment scores increase in disadvantaged learners that participated in some form of an arts program, specifically a music education program (Ingram & Seashore, 2003; Matthews, 2001). Since music is able to solidify concepts learned in other content areas, students are able to become more and more successful in other content areas outside of music education.

Another recent study discovered a significant positive effect on fourth-grade students who participated in an integrated program of reading and music (Eaton, 2006). When a student is struggling with language acquisition it is a common teaching technique to take comprehension out of the language learning process. Teachers use nonsense words or symbols in place of unfamiliar words to make the constructs of the language easier to understand (Chang, 2000). Music gives a symbol and seemingly nonsense concepts to create the beautiful language of music. Through music education, students are able to master the concept and method of learning new languages by relating symbols to actions and direction. Through teaching students to learn music part by part and building on each new concept, students can translate this method of learning to other subjects like reading, math, and other academic subjects that they may be struggling in.

By giving the students ways to understand language the brain is creating more areas for information to be stored and activated (McIntire, 2007). Typically, students that are struggling in certain areas or needing to acquire new skills are able to apply musical

skills to the new concepts and learn them through practice, through understanding, and connecting concepts to prior knowledge. This is a skill that can be utilized in every subject throughout school and when the child goes on into their career and the world.

Music and Math

Music is a form of audible math (Szirony, Burgin & Pearson, 2008). When learning the language of music, musicians will reference "the beat." This can also be converted into mathematical concepts as well. The beat is a steady, continuous pulse that does not change, much like a heartbeat. From the establishment of a beat, a rhythm is established from the beat and the foundation of music is formed. The different types of notated symbols within written sheet music tell the musician how many beats to sustain pitch or silence during a certain period of time. The combination of rhythm and beats is what we know as music. The addition of dynamic and expression is what makes each musical performance unique.

All rhythm is a mathematical proportion of sounds to silences that are performed with a voice or instrument and give the performed piece its foundation and musical skeleton. As the difficulty of music increases, the duration of notes become fractions of a beat and the mathematical concepts connected to the music can become more advanced and complex. For example, a one-eighth note is equal to one-half of a quarter-note beat. The composer may pair one-eighth note with another, an eighth rest, or two sixteenth notes, which are each worth one-fourth of a beat. The performer must instantaneously apply their knowledge of fractions to determine how the rhythm fits with the beat.

The quick interpretation and translation into action of written music show true understanding and proficiency by the music education student. The ability to read,

translate, and perform music quickly and correctly is a form of formal assessment that can easily be utilized to assess learning by music education students. Internalizing the concepts of beat and rhythm reinforces concepts taught in math classes, as well as applies it to a different scenario. The most common mathematical concept that music can be translated or applied to is the concept of fractions. The more frequently a concept can be applied to more content areas, the deeper the understanding of the concept across all content areas.

Music and English Language Learners

While the accessibility and opportunities to engage in a music education program should theoretically be equal between English Language Learners (ELLs) and the general English speaking population, there are still many teachers, administrators, community members, and stakeholders that value reading and mathematics higher than music education for ELLs. Teachers may feel that if a student is not proficient in English, they should not be allowed to participate in classes outside of the traditional academic course, including music education.

The benefits of music education are even more crucial for ELL students since music has been shown to significantly enhance ELLs phonological skills (Slevc & Miyake, 2006). As students are able to hear their mistakes through music, they can begin to closely pay attention to their actions to ensure they are correct compared to what is being heard. Listening is just as important a concept as speaking when learning a new language. As ELL students learn new music skills or a new language, they must listen to ensure what they are playing or hearing is similar to what they read and hear from others that are more proficient in the specific task.

There are also numerous social benefits for ELLs while in music education. "Music can transform classrooms into pleasant and positive learning environments in which children thrive emotionally, socially, and academically" (Guion, 2017, p.1). While many educators ignore the educational value of music, it is difficult to ignore the social values associated with music education programs. For many students, especially those that are at-risk or ELL, there is a confidence-boosting aspect of music. Confidence is not a concept typically taught in classes, especially in a formal manner. Confidence cannot be formally assessed either but there is no argument that can state that students do not benefit from obtaining confidence. Students that are at-risk or ELL students are greatly benefiting from confidence-boosting techniques that are offered within a music education class.

It has also been theorized that the general attitude towards academics, especially reading, increases when academic skills can be integrated into music education for ELL students. As ELL students realize their full potential within a music education program, their confidence increases and can also translate to other academic courses that are slightly or fully integrated into their music education programs (Andrews, 1997). While a positive attitude derived from music education courses or the integration of academic concepts cannot be formally assessed, it can be monitored and documented by both music educators and academic teachers as well.

A positive correlation between attitude towards academic concepts for ELL students and success in a music education program can not only help support music education but also struggling students that are within an ELL program. Even general education students can benefit from positive attitudes toward academic courses. When

students see concepts in academic classes that they have also implemented into their music education courses, they become more confident in those concepts with leads to more positivity towards the content area and academics.

Assessment in Music

Music educators have attempted to implement a national music assessment a number of times over the years. The aim was always to determine what the music students knew, could do and how they felt about music education. ("A National Assessment" 1971) The performance on this exercise was quite low despite the student's positive attitudes towards music. Multiple attempts over the years have been attempted but have been seen as inconclusive or inadequate because of poor funding (Coldwell, 1999, Mark 1996, and Oliver 2007).

In 1997 another attempt at assessment was administered. This assessment was based on the (then) new National Standards for Arts Education. The results indicated, like this study, that students who participate in music activates performed better than those who did not (Lehman 1999). It was also learned that a huge deficit in students' music knowledge and skills existed (Circle, 2005).

In today's data driven classroom, there is a great responsibility on the teacher to demonstrate that learning is occurring. The purpose of assessments should be to ensure the most effective instruction possible is occurring to enhance student learning. A national assessment of music would serve to gauge if a music program is keeping up to other programs in other regions. Without a national assessment, it becomes extremely difficult to ascertain the status of music education in the United States.

All of these studies had one thing in common: lack of funding. It seemed to be

consistent that more testing was always needed to attain better data or to better interpret the data. It can be believed that assessment is possible and beneficial in music but adequate funding, training and interpretation are needed to make it possible.

Music and Academic Impacts

Research shows that music education programs positively influence academic achievements in all students, especially ELL students. (Lems, 2005; Paquette & Rieg, 2008; Yoon, 2007)There is not, however, specific curriculum to further aid ELL and all students to increase the effectiveness of the music education programs. While there are more and more developments being made to give more legitimacy to music education programs, the addition of music curriculum enriched with academic concepts can exponentially add value to all music education programs. Across the nation, there are states that required nationally adopted curriculum that is also accompanied by a formal assessment to record student growth over the period of one school year. By developing a curriculum that adds legitimacy, assessment, and value to all music education courses.

Recently, an Ohio school district experimented with a new type of music curriculum that would push the academic achievements of students further within a music education program. The curriculum developed was called IMPACT and integrated music education concepts with academic related topics. The development of this curriculum influenced other school districts as well due to its success. The school district found that students who received music education lessons from the IMPACT curriculum showed better assessment scores and more improvements than those students that participated in a traditional music program that was lacking the IMPACT curriculum (Kinney & Forsythe, 2005). While IMPACT curriculum was localized to the state of Ohio, there are major

concepts to be learned from the implementation of the IMPACT curriculum.

This basic study in Ohio found that not only are students benefiting academically from music education programs but that there is also a way to further the academic achievements of students by enhancing the music education program and its curriculum. As more similar studies are conducted and enhancement curriculum created, there could easily be a more added value to current music education programs. With the addition of a curriculum that includes assessment pieces and integration of academic concepts, there is a tremendous addition of value added to music education programs across the country.

CHAPTER 3

METHODOLOGY

Research Questions and Hypothesis

After careful examination of the issues associated with music education courses, I formulated two research questions:

Research Question 1:

What are the differences in AzMerit reading and math assessment scores between the students who have committed to participate in an instrumental music program and non-instrumental music students at the varying language levels?

This first research question was developed to aid in the development and design of the research. This question specifically outlines the comparison for various assessment levels of numerous English language learners. To track the growth in test scores, students were categorized by English language level and compared against those who chose not to participate.

With evidence showing the benefits of music education for ELL students, there must be research conducted to determine if the engagement within a music program is worth the time investment for ELL students that are struggling with language acquisition. From this observation, the following research question was formed:

Research Question 2:

What is the rate of change from year to year between students of varying English Language Proficiency levels during their two years in instrumental music?

This research question helped develop the longevity of the benefits of music

education. As students continue in music education courses, there is still value and benefit for the music education student from one year to another.

After careful research into the benefits and disadvantages to music education courses and development of research questions to help guide the research, I explored two hypotheses;

Students who have been in instrumental music education will outscore those students who did not learn to play an instrument or that were not involved in a music education program. This prediction is developed from the data that supports positive relations between academics and music education. The assessment score differences between designed cohorts will grow the longer the students have participated in a music education program.

My second hypothesis is; as an instrumental music education continues, so will the academic benefits. Using the level of language acquisition the year prior to entering into a music program, participating students will be compared to understand if music had an effect on their cognitive abilities via their individual and grouped scores on the AZMerit assessment.

Research Design

A quantitative design was used in this study to assess and analyze the data gathered. Information is in numerical representation and findings were searched for a relationship that proves or disproves the hypothesis. Answers to the proposed research questions were developed based on the gathered and analyzed data. Students' language abilities were determined by the AZELLA assessment which determined if the students were eligible to be considered ELL or not. AZMerit assessment scores in math and reading were analyzed and compared accordingly for this study.

The site and area of study was within a west-Phoenix school district in the state of Arizona. Students in this school district and those that are a part of this study are 95%

Hispanic with 92% qualifying for free or reduced lunch according to the district's records. The district has twenty-one schools total within the district limits. Fifteen of these schools are elementary schools, two kindergarten through eighth-grade schools, and four middle schools are a part of the west-Phoenix school district in Arizona. While there is a wide range of students within this school district, this study will only focus on sixth and seventh-grade students during the 2015 and 2016 assessment periods.

This study tracked the assessment data from students in sixth grade according to their predetermined groupings. The four groupings were determined based on English language abilities that were determined based on their scores from the AZELLA assessment. The four groups levels are pre-emergent, emergent, intermediate, and advanced. During their sixth grade year, they were separated into two cohorts as well among their language proficiency groupings. These cohorts consisted of students who participated in music education programs and those that do not. Their scores in reading and math were tracked from their sixth to seventh-grade year. The scores were compared and analyzed as a whole as well as among their groupings and cohorts.

Despite the evidence supporting music education, many teachers and administrators argue that the statistics that support music education do not apply to their own students. Part of the purpose of this study is to show that music education is for any and all students. Regardless of their current abilities or struggles, all students are able to benefit from music education. Through this research study, the disparity between test scores of students who participate in music education courses and those who do not were evaluated and compared. It is proposed that the research results will contribute to other studies suggesting that music education is beneficial for any student at any ability level and will support the implementation and growth of music programs for the sake of student improvement.

CHAPTER 4

FINDINGS

To determine the impact of music education on assessment score levels in reading and math for students, especially ELL students, there were multiple assessments and data sets analyzed. The students whose scores were analyzed for this research were also divided into groups and cohorts based on the student's ELL level and enrollment in a music education course. The two major assessments utilized for this research are from 2015 and 2016. The AZMerit ELA and Math assessments were analyzed and compared as well as the music education enrollment data from the same years. The purpose of this data collection and analysis was to determine the influence of music education on ELA and math assessment scores over a period of two observation years for main students that are within an ELL program. The data analyzed suggested a positive relationship between students enrolled in an instrumental music education course and their subsequent assessment scores in ELA reading and math. Students categorized as ELL students also exhibited positive growth when enrolled in a music education program.

Both the 2015 and 2016 AZMerit assessments utilized in this research consisted of ELA reading and mathematics sections as well as subsequent scores for each student. Within both the AZMerit ELA reading assessment and the AZMerit math assessment, the scores can be broken down into three main categories. The three main categories of assessment scores for both assessments are "Performance Level", "SS_TOT", and "SEM_TOTSS".

The performance level is ranked between one and four and is based on the overall performance of the specific student when the other two factors or score categories are

considered and factored into the overall score. The “SS_TOT” and “SEM_TOTSS” are both total scale scores that are gathered from the semester and the entire assessment. The “SS_TOT” can range from 2400 to 2650 for ELA reading assessments and 3600 to 3750 for math assessments (ranges based on scores achieved in this data set). “SEM_TOTSS” scores range from nine to eighteen for both ELA reading and math assessments (ranges based on scores achieved in this data set).

Typically, there is a correlating range for “SS_TOT” and “SEM_TOTSS” that corresponds to a related performance level. For some of the performance levels, there is not a correlation between “SS_TOT” or “SEM_TOTSS” scores. For most performance levels within both assessments, there can be and is a correlation established between performance level scores and other assessment scores that supports the theory of music education enhancing assessment scores and academic achievements for students, especially ELL students in reading and math. As the assessment data is evaluated and grouped according to performance level, student grouping, and music education involvement, there is a clear pattern established that shows students in music education programs benefit academically.

The results from this study are closely aligned with the hypothesis formed and other results from similar studies. It is so important to share the results and how the results were formed because it gives evidence that supports music education programs. By showing the AZMerit ELA reading assessment scores can be increased through the implementation and enrollment in a music education class, students and stakeholders can easily see the academic benefits of these courses. Within the west-Phoenix school district specifically, this data will be utilized to increase the number of music education courses

within schools and also promote enrollment within those programs. Stakeholders and decision makers within the school district will also be given these findings so that they are fully aware of the academic benefits of music education programs.

Data Results Analysis

The 2015 AZMerit assessment being analyzed for this research consisted of 2,069 sixth grade students within the school district, west of Phoenix, Arizona. Of the 2,069, 7% (160) were enrolled in a music education course during this school year. The students enrolled in music education courses were almost all first-year music education students, but a small percentage were enrolled in their second or greater music education course. Of the 160 music education students during the 2015 school year, 74% (119) were ELL students. Most of the ELL students fell into the ELL category of three or four. The data compiled tracked the individual students throughout their time in the program and they were compared against their own test scores; as apposed to comparing students to other students who were in their same grade during a different year.

The AZMerit assessment for ELA reading revealed that 62% (1285) of students fell into the performance level one for this assessment, which is the lowest achievement level. For the ELA reading component of the assessment, 24% (492) were ranked in the performance level two, 14% (284) in performance level three, and 0.2% (5) in performance level four. Results from the 2015 AZMerit ELA assessment show that there is a large portion of the student population within the school district that are not proficient or on a level for reading.

The assessment data from the AZMerit math assessment yield similar results as the ELA reading assessment. The percent of students in the lowest performance level,

one, was 52% (1,068). The higher achieving performance levels were as follows: performance level two had 28% (576) of the student body, performance level three had 16% (337) of students, and performance level four had 4% (86) reaching this level. Again, this data shows that a large majority of students within this school district are not meeting the standards set for them within the mathematics content area.

Since the students taking this assessment in the 2015 school year were almost all first year formal music education students, this gave a strong baseline for academic growth due to enrollment in a music education course or lacking music education. Due to the large portion of students being examined in this study not meeting proficiency levels in ELA reading or mathematics, there is also a large increase in growth that can occur due to the implementation of music education courses for the struggling students and the entire student body. The baselines formed by the student body greatly benefit the study as there is virtually a bottom line set in which students can only improve. The growth of students as whole can be assessed based on the baseline data formed during the 2015 school year. As the students grow and move on to the 2016 assessment year, there is growth from the baseline formed in 2015.

The 2016 AZMerit Assessment being analyzed for this research consisted of 1,950 students being tested within the ELA reading assessment and 1,969 students being tested within the math assessment. This variance in the number of students being tested is a result of a large number of incomplete assessments for the ELA reading assessment. Of the total student body, there was 13% (252) enrolled in a music education course, most for the second or more year, the remaining students were first-year music education students during the 2016 assessment school year. Of the 252 music education students

during the 2016 school year, 66% (167) were ELL students. The assessment data in 2016 showed that the percent of students in the performance level one decreased and the other, higher achieving, performance levels, had more students reaching the standards of those higher performance levels for the 2016 AZMerit ELA reading assessment.

The AZMerit assessment for ELA reading revealed that 54% (1,055) of students fell into the performance level one for this assessment, which is the lowest achievement level. For the ELA reading component of the assessment, 22% (429) were ranked in the performance level two, 22% (437) in performance level three, and 1% (27) in performance level four. Despite there still being a large portion of students in performance level one, there is a smaller percentage of the entire student body within that category, compared to 2015. More and more students are achieving higher scores on the AZMerit ELA reading assessment and those students are mainly those enrolled and participating in music education courses.

While the ELA reading assessments reflected positive growth for all students, especially those enrolled in music education courses, the assessment data from the 2016 AZMerit math assessment did not reflect the same positive influence on assessment score for most students. Of the 1,969 students assessed using the AZMerit math assessment, the percent of students scoring in the bottom performance level one grew to 61% (1,200) from the 52% (1,068) in 2015. The percent of students scoring in performance level two decreased to 22% (432) along with performance level three at 14% (280) and performance level four at 3% (54).

The fall in math assessment scores from the year 2015 to 2016 can be attributed to an increase in students, drastic change in mathematics curriculum, or a change in

music education practices. Those students enrolled in music education courses may have increased their individual assessment scores, the study body as a whole for the year 2016 did not improve their AZMerit mathematics assessment scores. This drop in evaluation scores must be greatly investigated to prevent a further drop in mathematics levels. Mathematics is a vital component of any child's education and should not be reduced due to lack of evaluation of the program. Mathematics is a subject that builds on other subjects so it is necessary to ensure all students have a strong foundation throughout the schooling, especially in primary school, to ensure that they are well prepared for their future mathematics courses.

Overall the data gathered from both the 2015 and 2016 AZMerit ELA reading and math assessments offers a clear view of the impact that music education has on student academic success. Although the shifts in math assessments between the 2015 and 2016 assessment school years are not reflective of the proposed hypothesis and theory, there is still significant data from the AZMerit ELA reading assessments to show the positive impact music education can have on reading achievements over the course of only one school year. The students involved and enrolled in music education courses greatly improved their reading and mathematics assessment scores which strongly proves that music education is beneficial for students academically.

Response to Research Questions and Hypothesis

From the data gathered from the AZMerit ELA reading and mathematics assessments from the 2015 and 2016 school years, the research questions were answered. The hypothesis that guided this study was also supported due to the academic achievements in reading and math by those students enrolled in music education courses.

While there is still more data and research required to fully answer the research questions and to more strongly support the hypothesis, the assessment data and analysis of the data can conclusively answer the research questions and support the hypothesis.

Research Question 1:

What are the differences in AzMerit reading and math assessment scores between the students who have committed to participate in an instrumental music program and non-instrumental music students at the varying language levels?

There is an improved AZMerit ELA Reading score of an average of almost 5% (4.7%) over the course of the two years in which the assessments were analyzed. This slight improvement in reading scores among ELL students is substantial considering it was only over the course of one school year. As the ELL students continue their music education career and possibly implement more academic concepts into their music education curriculum, the assessment score will continue to improve. Even for those students that are not a part of the ELL program, there is a great improvement in their ELA reading scores and will be continued improvements as they continue in the music education program.

Another aspect that influenced the increase in assessment score is the confidence of success for those students involved in a music education program. Although it cannot be formally assessed, the success and confidence gained through music education programs can be easily transferred to other academic courses and stimulates success in those courses as well. As ELL students, specifically, begin to become more involved and proficient in music education courses and programs, the individual and interpersonal skills will also improve which leads to more and more ELL students forming success

outside of their music education classrooms. For students that are shy, at-risk, or have trouble with self-confidence, the enrollment and involvement within a music education program are also beneficial for them. All students regardless of abilities or academic levels may benefit from the confidence gained within a music education program.

Research Question 2:

What is the rate of change from year to year between students of varying English Language Proficiency levels during two years in instrumental music?

While there were only two consecutive years studied in this research, it can be predicted that the average assessment score growth on the AZMerit ELA assessment will continue to be an average of 5% every year. This particular set of students will eventually cap-out at a certain score but that will statistically occur after four years of continued involvement in a music education program and assessment scoring. For ELL students specifically, there may be greater improvements in their assessment scores as their academic abilities increase as well. For those students that are pre-emergent or emergent ELL students, there still may be slow progress as they learn the basics of English and music programs but as they begin to build their knowledge base, the growth on assessment scores will quickly grow.

For those students that are intermediate or advanced ELL students, their technical skills may aid in the growth of their AZMerit assessment scores. These more advanced ELL students will benefit greatly from the more technical and advanced music concepts that are related to just as technical or advanced academic concepts. As the music concepts and objectives advance, the academic relation to those musical concepts should also be advancing. In order to maximize the growth potential for ELL students as they strengthen

their music education abilities, music educators should ensure that their academic correlations to music content is equally as challenging but still applicable to the student's academic courses.

Assessment Data

2015 AZMerit ELA Assessment

Performance Level	SS_TOT Range	SEM_TOTSS Range	Total Students	Percent of Students
1	2459-2530	9-15	1285	62
2	2533-2551	9	492	24
3	2554-2595	9-12	284	14
4	2599-2617	12-15	5	0.2

- Incomplete/ Not Assessed Students- 6

2015 AZMerit Math Assessment

Performance Level	SS_TOT Range	SEM_TOTSS Range	Total Students	Percent of Students
1	n/a	n/a	1068	52
2	n/a	n/a	576	28
3	n/a	n/a	337	16
4	n/a	n/a	86	4

- Incomplete/ Not Assessed Students- 6
- n/a- no range or assessment score relation to performance level

2016 AZMerit ELA Reading Assessment

Performance Level	SS_TOT Range	SEM_TOTSS Range	Total Students	Percent of Students
1	n/a	9-13	1055	54
2	2540-2560	9	429	22
3	2560-2590	9-10	437	22
4	2600-2610	11-14	27	1

- Incomplete/ Not Assessed Students- 49
- n/a- no range or assessment score relation to performance level

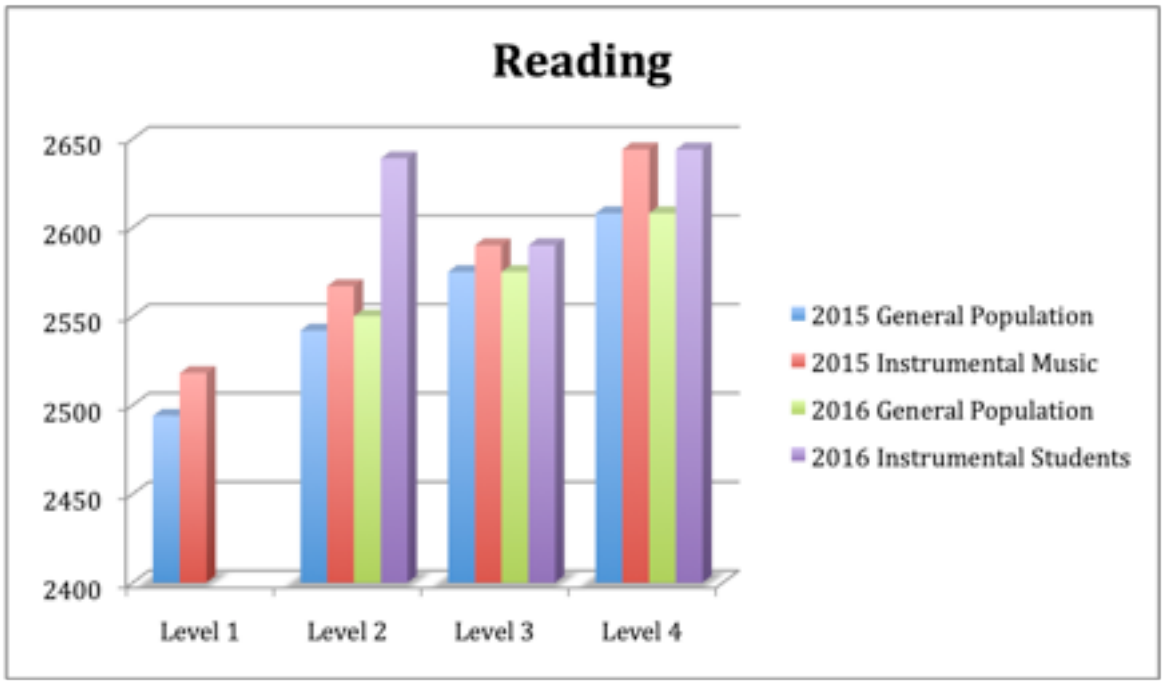
2016 AZMerit Math Assessment

Performance Level	SS_TOT Range	SEM_TOTSS Range	Total Students	Percent of Students
1	n/a	n/a	1200	61
2	3600-3549	10	432	22
3	3650-3679	10-11	280	14
4	3680-3740	12-18	54	3

- Incomplete/ Not Assessed Students- 49
- n/a- no range or assessment score relation to performance level

2015 and 2016 Music Education Enrollment

Year	Total Music Education Students	Percent of ELA	Percent of Entire Student Body
2015	160	74	7
2016	253	66	13



This chart here shows the test scores of the different students at the different language levels from 2015 and 2016. Generally the students who were the most fluent had the highest test scores. We can see that generally the instrumental music students did outscore their counterparts. There can also be seen a greater increase in test scores, as compared to the non-music cohort, from one year to the next, supporting other research that suggests that the longer students participate in a music program the greater the increases in test scores. (Dearing, 1997)

In level 2 the students' scores jumped very high from one year to the next. Students who are at this level of communication are finally able to begin to understand the language, speak in simple sentences and finally understand the test they are taking

and are able to better participate in taking the test. This jump in ability can be explained by their language advancement. When students are illiterate in a language and then asked to take the test, they will predictably not be able to perform on the test. But students who are at a level two are starting to understand simple sentences and are beginning to deduce meaning in what they reading. While still not fluent in the language, the increased understanding will lead to increased scores on a test. Because of this ability increased ability to read and understand the assessments given, it can be predicted that when tested with their improved language skills that they will outscore themselves.

The challenge with this data is that the test scores at the different levels of language acquisition were given as a range. To be able to graph it, the middle of the range was calculated and graphed. Additionally, because the math data was incomplete the results could not be graphed. This information also compares levels against each other but may not involve the same students from one year to the next.

CHAPTER 5

DISCUSSION

Discussing the Findings

The AZMerit assessment in both ELA reading and math clearly shows a correlation between being enrolled in music education courses and assessment scores in ELA reading and math. This assessment data, although only taken over a two year period, supports the hypothesis of this research study. It has been shown through the AZMerit ELA reading and mathematics assessment data that being enrolled and participating in a music education program aids in the success of ELA reading and mathematical skills when assessed using the AZMerit assessment. Those students enrolled in music education classes, especially ELL students, were shown to greatly improve in ELA reading concepts as shown through the growth of the 2015 to 2016 assessment periods.

While the specific skills that translate from music education to ELA reading and mathematics cannot be definitively determined, it can be speculated that the skills necessary to be successful in music are those same soft and technical skills needed to be successful in reading and mathematics. The ability to understand the musical symbols and instantaneously translate them into an action also enhances the ability to read words and instantaneously translate them into meaning. For many ELL students specifically, this is a vital skill while learning a new language. The musical skill of quickly counting and interpreting fractions associated with musical notations is directly related to common math concepts that many students struggle with. By giving students an opportunity to utilize their mathematical knowledge and apply it to a concept with an outcome they can

hear, it solidifies the concept both in math and music.

The reading scores specifically for those students enrolled in music education courses increased between the 2015 and 2016 assessment years. This suggests that music education is especially important for reading and comprehension skills. As mentioned previously, the ability to read, interpret and translate musical notations is very similar to reading scripted words. This ability to quickly read and interpret musical notes is the exact concept needed to quickly read and interpret words while reading or listening. Since the percent of ELL students in music education courses for the year 2015 was 74% and 66% in 2016, it can be concluded that the majority of students in music education classes are not only ELL students but also greatly benefit from the enrichment practices of music education.

All students, especially younger students, can benefit from the implementation of reading practice, strategies, and tangible outcomes of their reading interpretations. This belief in the benefits of music education programs aiding in academic success is backed by the research by Susan Hallam, in which she found that students participating in an enriching music program can translate their successes in the program to other areas and begin to have similar successes (Hallam, 2010). With the data gathered from this specific research and other similar research studies, it is undeniable that many students, both ELL students, and general education students, greatly benefit from the enrichment practices of music education courses. There have been numerous studies to support the benefits of music education, and this study supports those findings, that students, specifically ELL and low performing students, benefit academically from their involvement in music education programs.

Along with academic successes and achievements of those students enrolled in music education courses, there is also an increase in creative thinking skills associated with assessment scores and music education for all students involved. When students are able to have the confidence, skill set, and ability to creatively solve problems, academic achievements can take place, especially within assessments (Palos-Tuley, 2003). As mentioned previously, the intrapersonal development and soft skills acquired in music education courses are vital and extremely valuable to all students. As shown earlier, the importance of soft skills translates into every aspect of a student's life and their future successes.

There was a study conducted that showed ELL students gain academic correlations when in music education programs but they also gain the ability to critically think about how to figure out and learn new concepts, which is possible with the skills and confidence gained through music education (Palos- Tuley, 2003). For many ELL students and general education students, there is a need to learn how to think critically. Critical thinking skills are not only needed in educational courses throughout a student's life, but they are also needed once the student graduates and enters the workforce. The ability to think critically is an ability that not all students are equipped with and it is a difficult concept to teach to adults within a career setting. Students in music education courses are able to obtain and practice the skill of critical thinking prior to leaving public schools. By having this ability at a young age, these students will be able to critically think and solve problems with second nature ability. It can be argued that as technology advances and teachers no longer need to be the "gate keeper of knowledge" that education will and should be about how to think critically in all subjects rather than

knowing trivia about that subject.

Much of the success on the AZMerit assessments in both 2015 and 2016 can be attributed to the large ELL population (74% in 2015 and 66% in 2016) being enrolled in a music education program. Since ELL students seem to benefit most from the enrichment practices of music education programs, they can be attributed with creating improvements in overall assessment scores for the 2015 to 2016 school year. Since this district has a high percentage of ELL students, it would be beneficial to enroll more of those students who are still struggling to master English and understand the American education system. The small number of level one and two ELL students may be a result of teachers not allowing those students to leave the classroom to learn another subject from another teacher. It may also be due to the fact that struggling students may be hesitant to enroll in additional classes when they are working hard to learn English and pass tests.

Despite the improvements in the ELA reading assessment over the two focus years, there was a decrease in achievement for the mathematics assessment following the 2015 assessment year. The implementation of remedial mathematics courses can aid in the decline of math assessment scores. There are also other practices to implement into the overall education program to help increase math assessment scores but it is vital to pinpoint and identify the issue causing the decline in scores before moving on. While there are many factors that can attribute to the decrease in student success in the mathematics category of the AZMerit assessment, it is still disappointing to see students not as successful as predicted.

One suggested reason for the decline in assessment score is a faulty evaluation

system or data analysis program (Kromrey, 1993). Commonly within educational data assessments and analysis programs, there are ethical or data issues that arise that show incorrect results when analyzing the data. These ethical or data issues can result from incomplete data submissions, deleted student information for safety reasons, or basic evaluation software glitches. If there was not an analysis issue, there could potentially be issues within the mathematics curriculum and learning structure. With constant changes in academic curriculum, it is common for curriculum platforms to be released and implemented without proper evaluations. This urgency to release curriculum prior to proper evaluation can lead to faulty lessons or curriculum standards that cause students to suffer academically.

There is a great need for evaluation of the entire program before moving forward with math-focused curriculum or integration into music courses. Students are at risk of suffering in current and future mathematics classes if the cause of assessment score decline is not determined and corrected. Whether the issue is from faulty evaluation systems or not properly evaluated curriculum, there must be a reform that takes place before students become more and more behind in their mathematical skills. Regardless of the success of programs, there should always be evaluations of curriculums and programs to determine potential improvement areas.

Conceptual Framework and Data

While my own experiences have found that musical intelligence does not always indicate academic achievement, we can see through this and previous studies they can compliment each other. A struggling student may be very successful in a music or theater class but still struggle in other areas. This study indicates that participating in an

instrumental music course can lead to academic gains in other areas. From Howard Gardner we know that there are many different ways a person can be intelligent. We also know that no person is any one thing. So it can be safe to say that increasing one intelligence, can have an impact on the different modes of education.

It can also be questioned; if participating in an instrumental music program can disrupt a student's microsystem, exosystem, macrosystem, exosystem or chornosystem? Making music with people is very bonding and students make life-long friends in these programs. This new community and social structure can set a student up for a different trajectory in their education and in their lives. If an underserved student was making poor choices because of lack of community support, becoming a part of a community that is healthier for them can encourage them to make healthier decisions. These new friends can create new networks of opportunities for them and help them find better opportunities in their lives.

Research Limitations

Similar to most research programs, this study faced certain limitations some of which were insurmountable. One of the limitations of this particular study was the change in standardized testing from 2015 to 2016. By having more data on specific students for a longer period of time, there could be more accurate predictions about the general population in a more broad aspect and could be more applicable to a larger population. There could also be more definitive conclusions made about the impact of music education on ELL and general education students. By being able to follow the students taking the same test with the same expectations for a longer period, a more definitive conclusion can be made about the effects of music education on both ELL and general

education students when assessing their various assessment scores.

Another limitation of this study was the lack of continuity among the specific students. This means there was a lack of consistency among the student population specifically. Due to a large amount of the population not remaining at the same school year after year, there were several cases were data were only collected on a specific student for one school year. As students move to other schools, move out of the state, or other circumstances, there are reasons why students were not enrolled for two consecutive school years. While it is ideal to have the same, exact student base for a study of this nature, it is impossible as there are circumstances that are not preventable and unforeseen. In further studies, especially national studies, the same student could be tracked and specific assessments traced and analyzed in a continuous pattern.

There was even a large variance in the number of students enrolled between 2015 and 2016. Because of the differences in student enrollment for those two years, it was difficult to determine true growth for specific students. Due to the large increase of the student body, there were also challenges when evaluating the decline in math assessment scores. With a larger student population, there could have been issues with the student to teacher ratios which impacted assessment scores. The data given does not account for the external factors that could have impacted assessment scores, those influences can only be speculated. In most studies, there are external variables that cannot be controlled but through proper research, development can be diminished to cause limited effects on the results.

Other limitations that impact this type of public school study is the lack of opportunity for some students. By lack of opportunity, I am referring to the availability of

music education classes for all students. Despite common belief, there is not an equal opportunity for all students to be enrolled in music education classes of their choice. Since there are issues concerning scheduling, supplemental classes, block academic courses, and so on, there are some students that are interested in being a music education program but are unable to due to conflicts with another course (Williams, 2011). Taking into account this issue that impacts the full potential of music programs and success of students, students are not able to feel all the positive effects of a music education.

With the strong and forceful push to have high achieving standards for all students, more and more students are being forced to take additional academic courses in order to enhance their academic assessment scores. This pressure is especially true for ELL students since many teachers and administrators feel that ELL students should not be granted access to 'elective' or unnecessary classes until they reach a specific English language acquisition level. Despite findings that show that ELL students benefit from music education classes, there are still teachers and administrators that do not see the benefit, and this ultimately hurts the overall success of the student. While many administrators believe they are helping students by forcing them into more academic classes in fact they are actually restricting the academic and social improvements that that student is able to make while engaged in a music education course.

As students get older and advance into higher grades, this conflict of scheduling expands to conflicts outside of school as well. More and more students gain academic priorities and begin valuing academic performances over music education. This belief is spawned from the highly competitive nature of college and university admissions. As students become older, they also become involved with sports or obtain a job and their

availability for a hands-on and involved course, like a music program, becomes very slim and typically results in the student removing themselves from the program, despite the interest or benefits. By publicly acknowledging the importance of music education and gaining unified support of the music education program from administrators and other school stakeholders, there can be an image reform and change for public school music programs. By improving the image of music education programs, more students will see music education as a vital part of their education in conjunction with academic courses.

CHAPTER 6

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In our modern society, music holds a value that cannot be replaced by any other art form. There are vivid expression and emotion written into every form of music. While the music in our modern society holds a cultural value, it also holds an academic value in most public schools. As the push for academic standards and achievements becomes more of a focal point in the modern educational system, programs like music education, become dwindling educational practices. Students of all ages and academic abilities greatly benefit from having an outlet that allows them to express themselves freely. Music is the course within most public school systems that give students the time and resources to express themselves without judgment from others. The ability to express feelings, emotions, and beliefs through music is vital and necessary for students to be successful in other areas of their education as well.

I conducted this study to explore the hypothesis that music has a positive impact on English Language Learners' scores on standardized tests. By conducting research to show that music education classes benefit students academically as well, there is value added to the programs that are not typically recognized or accepted by educational stakeholders. Through this study, it was found that both general education students and ELL students benefited from being enrolled and involved in a music education program. These results were found by analyzing the AZMerit ELA reading and mathematics assessments from 2015 to 2016. Through careful analysis of the acquired data, it was concluded that music education programs are beneficial for students of all demographics.

Within the two school year assessment period, there was an increase in ELA

reading assessment scores but a decrease in mathematics assessment scores. While reading assessment scores increased for the entire population, there was a greater increase among ELL students that were enrolled in a music education course. This study was able to show that music education is beneficial at the academic level.

This study confirms what musicians and researchers have known for a long time, music belongs in education. These beliefs began with Aristotle recognizing that music education is required for a student to have a well-rounded educational program and career and continue on today. Along with reading, writing, math, and physical education, music is needed for students to be successful. As time has gone on, there have been various and numerous shifts in education. Most notably, there has been more and more emphasis placed on academic courses and less on the benefits of music education. Despite the fact that music education was specifically supported by philosophers like Aristotle and other great thinkers throughout history, people still openly disagree with this need for music education.

As history moved on, there became a decline in the importance of music education. As the race to space was quickly taken over by the Russians' successful launch of Sputnik in 1957, Americans felt that the educational system in our country was lacking in a strong academic focus. Music programs were able to be maintained in some schools, but in others are still struggling to polish their image of importance. This tainted image of music education courses has yet to be fully corrected and made positive in the eyes of the general population. Thanks to hard work and strenuous efforts by many supporters of music education programs, the music education view is slowly becoming more popular and recognized as a beneficial aspect of a student's education.

Music programs across the nation in public schools and secondary education programs began to make a turn for the positive when they became publicly backed by President Kennedy. JFK established that music programs were vital to society and pushed for research to determine the best course of action to improve music programs in the country. Researchers quickly provided the research for this matter and found a strong correlation between music education and academic success. As more well known individuals and public figures began backing music education programs, the acceptance of programs began to also grow. While there were public outbursts of support for music education programs, there were still people and educational stakeholders that did not support music education. Those programs with academic roots and focuses were able to become the main concern for these educational systems.

Most recently, there has been a shift in educational focus that has once again hurt music education programs. With the comparison of all types among students, school districts, states, and countries, there is a large push for standardized assessments that are able to determine the level of understanding for each standard or objective that a student is taught within a specific subject. This push to obtain quantitative data about student learning has caused every course taught throughout the country to develop formative assessments. For courses like music education, it is nearly impossible to formally assess all objectives and standards that students learn within a music education classroom. The implementation and development of a national-wide curriculum could aid in this process. The various associations formed to collectively represent music education have been working towards common curriculum strategies as well as common assessments that would help increase acceptance of music education programs across the nation.

Since many of the topics and concepts learned within music education are subjective and are difficult to objectively assess, it is challenging to peroperly assess the capabilities obtained from a music education program. The NAEP music assessments that were conducted were valid, standardized measures, but they were too expensive to administer, because many items had to be individually scored. Despite challenges with properly assessing students learning, Arizona school districts are requiring music education programs to create a proper assessment strategy. The lack of proper, formal, and traditional assessments is also why educators do not value music education. While this is an issue in assessing the whole student's development within a music education program, there are certain aspects that can be formally assessed to determine a student's knowledge within the music education program. Like outlined previously, there are aspects such as music history, theory, and notation reading, that can be formally assessed within the music education program. Aspects of musical performances and added dynamics cannot be easily and inexpensively assessed within a music education program that has contributed to devaluing of music education. As more and programs are able to incorporate assessments into their music education programs, there is added legitimacy to the music programs themselves.

Other aspects of a complete music education program that cannot be easily assessed are the soft skills and academic influences that music programs offer students enrolled in the programs. Soft skills within any setting are difficult to formally assess. For employers, their employees either have required soft skills or they do not. The level of soft skill achievement is simply not measurable by most common standards. While the level of influence that music education has on specific academic concepts would be a

valuable piece of information to have, it is simply not attainable through today's assessment strategies or budgets. Although the data gathered in this research is valuable to the overall image and impact of music education programs, there are other benefits that simply cannot be accurately measured in any form.

Many academic teachers look at courses without formal or state-developed assessments as unnecessary since they cannot be meaningfully assessed like traditional academic classes are. Since music classes have many aspects of their curriculum that cannot be formally assessed; such as emotion, interpretation, nuance or audience reaction, this causes academic teachers to see music classes specifically as unimportant when compared to academic classes that do have standardized assessments. As part of the music education support process, music educators must educate other teachers and stakeholders on the importance and value of their program. This can be done through adequate and effective advocating methods that share the vital importance of music education courses in a child's education.

By implementing and integrating an assessment component into a music education program, there is legitimacy added to the program in the eyes of most stakeholders. Following guidance from other programs such as IMPACT that was implemented in Ohio, school districts can develop music education classes that offer well-rounded music education concepts with assessments and cross-curricular content. Assessments could be embedded in music education curriculum. The development of music education curriculum that is adopted at the national level could offer an even larger impact on the positive image of music education. More and more content areas are pushing for a national curriculum set and assessment, music education should be no

different in this movement towards a national standard.

The Housewright Declaration (1999) made movements toward a nationally accepted and publicly known standard that applies to all music educators. This type of declaration, in various forms, goes all the way back to at least 1907, with the founding of what is now NAfME, and before that to the music education section of the National Education Association. Housewright wasn't the first, and there have been more since, for example the recent Common Core Standards in the Arts. The twelve agreements of the Housewright Declaration set the standard for what successful music educators do and what adequate music education programs facilitate. Moving forward with progress for the music education movement, there should be extensions of the Housewright Declaration that aid in the development of music programs that fit this model. By having a national agreement from a governing agency, there is more value added to the music education programs throughout the United States of America. In addition to the numerous national music education associations and groups, there is a growing collection of common voices that are in support of music education programs and their benefits.

Many social aspects of music education have also been evaluated. In the personal opinions of many educators, the social and soft skills gained through music education are more beneficial than the academic or traditional musical benefits. Students that are enrolled and active in music education programs grow as individuals and also gain self-confidence that can only be obtained through programs like music education. As students develop their self-confidence and see personal success within the music education system, they also become more confident in other areas of their education. For ELL students, confidence in academic areas is a common issue that is difficult to overcome in

an academic setting. When ELL students are able to be engaged in a music education program, they can not only gain self-confidence that is also used in other academic areas but can also enhance their English acquisition skills.

The main goal of this research study was to determine that music education programs are beneficial for students in respect to their academic achievements. More specifically, ELL students benefit more academically, than general education students when enrolled and participating in music education courses. This research study was able to show that students enrolled and active in music education programs in one Arizona school district do in fact benefit, academically, from music education courses. The achievements that were deemed to be beneficial were gathered from the AZMerit assessments for ELA reading and mathematics. In both of these assessment pieces, there was growth found among the students that were enrolled in a music education program and those students that were categorized as an ELL student. The data collected from this study was unable to conclusively prove other benefits of music education courses, but the secondary benefits can be concluded from various other research studies and theories.

The secondary benefits of music education programs that cannot easily/meaningfully be assessed and analyzed include soft skills like discipline, dedication, patience, and teamwork. All of these skills are necessary to be successful as music education students as well as general human beings. For many students, a music education course is the one of the only places where they can receive the soft skills that are so necessary to the modern world. A further study could investigate the career success due to the implementation of soft skill among students that were enrolled in a music education program when in public school and those that were not enrolled in a music

education program. Theoretically, such a study could indicate that students who were enrolled in a music education program are more successful in their careers than those that were not enrolled in a music education program.

From this study, it can be concluded that music education courses are beneficial for students of all levels, especially those struggling with English language acquisition in one Arizona school district. While many school districts are looking to reduce or eliminate music programs, this data shows that music programs are vital components of a balanced education program. If those students that are struggling in certain subjects, specifically reading and math, can benefit from courses like music education, there should be uninhibited access to those courses for all students. As public school stakeholders recognize that music programs are vital to the well-rounded and balanced educational program for students and there are actually substantial academic benefits, the support for music programs will greatly improve. As support for music education programs increases, stakeholders and school districts will begin to fully support the development and implementation of music education programs. Along with the support and implementation of music education programs will come more students participating in those music education programs. With more students involved in music education, there are more students benefiting from the academic and social aspects of music education. Each educator, school, and stakeholder should be focused only on what will help students be most successful in life and music education is the main course that will allow students to be most successful.

While it can be argued that music education is not the only method to influencing a child's academic achievements, it does have substantial evidence showing that is it one

of the best methods to support academic classes. All students, of every demographic, are able to become involved in a music education program and be successful. By enhancing secondary music education programs and implementing strong music educator standards, the programs in public schools are becoming more and more successful. With a successful and effective music education teacher, students are also able to be successful within the music program. As students gain confidence due to their success within a music program, they often use their success in other classes as well. The secondary benefit of music education is confidence and the other life skills taught within the music education programs.

Other life skills include dedication, patience, and teamwork among others. Every student in every music education program gains the skills necessary to be a productive and successful student during the school career and after graduation. Many current employers are striving to find employees with soft skills that are difficult to learn once work ethics and personal attributes have already been established. When students can learn and practice soft skills at an early age, those skills can be quickly instilled into the student's personality and work ethic. By creating soft skills and strong values early, music education programs are enabling students to be more prepared employees and students.

Academically, students that are in music education programs benefit tremendously. As shown by this study, academics can be easily taught and reinforced both in academic classes and music education classes. Students in music education classes may have a larger skill set with more concrete concept understanding that students than are not participating in music education courses. While some educators do

not see the value in music education, the statistics and data from this study suggest that music education is beneficial for all students, especially those in struggling areas, even more specifically, language acquisition.

Overall, students that are involved in a music education program are much more successful than those that are not involved in a music education program. The factors contributing to the overwhelming success of music education students varies from the integration of multiple content areas into a hands-on application to social interactions and skills only obtainable through the opportunities in music education programs. With the combination of the various benefits of music programs showing great academic success by analyzing assessment data, is it clear that music education programs are to be valued? Regardless of the personal beliefs of educators, administrators, school districts, and other stakeholders, the data clearly indicates that music education programs are beneficial for students of all abilities and demographics.

To further the knowledge gathered in the dissertation, it is recommended that students be studied for a longer period of time. Do test scores continue to improve over time or do they normalize? Is there an increase in math scores if there are more years of data? It is also the hope of this dissertation that more English Language Learners participate in instrumental music programs.

America's education system is constantly under reform but one aspect that can not be eliminated due to shifts in values is music education. The importance and value that music education has and adds to a student's entire educational experience are cannot be replaced by any other subject area. While many educators argue that the skills and applicability of music education can be integrated into another program, it is not possible.

The value added from music programs is too great and too specialized to be replicated within any other program. For the next generation to be successful both in school and in their careers, the education system must allow them to reap the benefits of music education. The life skills, soft skills, and academic lessons that are all a part of music education are some of the most valuable lessons that a student can learn. When not all students are able to experience the benefits of music education, there becomes a break in students that have the skills that come from music education. As the education policies throughout the country change with the times, we must all ensure that the benefits of music education are well known and considered when making decisions regarding music education.

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