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THE CASE FOR INSTRUMENTAL MUSIC EDUCATION:  
THE ACADEMIC, PHYSICAL, AND SOCIAL BENEFITS FOR STUDENTS

by

Kayla M. Peard

A Thesis Submitted in Partial Fulfillment  
of the Requirements for a Degree with Honors  
(Music Education)

The Honors College

University of Maine

May 2012

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## Abstract

Music is an integral part of our lives. There are countless examples of how learning music affects intelligence in students, but that is not music's only benefit. Music is an academic discipline available in schools in which students' simultaneously develop cognitive abilities, physical abilities, and social skills. This is particularly evident in the instrumental music classroom.

Through the studying of instrumental music and playing in ensembles, students learn countless lifelong skills that help them develop into intelligent, creative leaders. The cognitive abilities of the students grow and expand the longer they study music. Furthermore, it has been proven that their test scores improve in the math and sciences. Through reading music, students learn a new language that is significantly more complex than any other written language. They also improve their physical motor skills by honing their abilities at a piano or a variety of other instruments. Students learn leadership, organization, dedication, and teamwork, and also develop an interactive awareness of what is occurring around them through ensemble playing.

All objective evidence points to the importance of instrumental music education in the schools. The minimizing of music takes away an important tool in achieving students' success as adults. The importance of instrumental music education needs to be recognized so that programs are supported and the positive effects upon students will not be lost.

## Acknowledgments

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Thank you to all of my friends over the years who have encouraged and supported me. Whether it be by playing with you in different ensembles, working on schoolwork together, or just hanging out and relaxing, none of this could have been done without that support and encouragement.

Most of all, I would like to thank my family, especially my father and mother, William and Maureen Peard, and my sister, Shaunna, for helping me the last 22 years to discover my dreams and accomplish my goals. Without your support from the beginning and giving me the opportunity to pursue trumpet playing, my career and this thesis would have never been formed. There are no words to say how much your love and support has helped to shape me into the woman I am today and will continue to become in the future.

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## **Chapter 1: Introduction**

Instrumental music is an integral part of human life in many different ways. It is used at a number of important events in people's lives including weddings, graduations, and funerals to name a few. Whether it be because of tradition or the comfort it gives to us, music is present. It accompanies us throughout all stages of our life, and an individual should be exposed to it beginning in their childhood. There have been many studies conducted that link music and increased intelligence in students, but that is not music's only benefit. Music is an academic discipline available in schools in which students simultaneously develop academic abilities, physical abilities, and social skills. This is particularly evident in the instrumental music classroom.

Through the studying of instrumental music and playing in ensembles, students learn countless lifelong skills that can help them develop into intelligent, dedicated leaders. The cognitive abilities of the students grow and expand the longer they study music. It has been shown that test scores improve in math and English for instrumental music students when compared to those who do not participate (see chapter three). Through the learning of reading music, students learn a new language that is significantly more complex than any other written language. They also improve their fine motor control by honing their abilities at a piano or a variety of other instruments. Students learn leadership, organization, dedication, and teamwork, while they also develop an interactive awareness of what is occurring around them through ensemble playing. They learn the importance of working with a group of their peers and learn from them as much as they do from the instructor.

All objective evidence points to the importance of instrumental music education in the schools. The current trend of decreased support for music in our public schools takes away a significant tool in achieving students' success as adults. The importance of instrumental music education needs to be emphasized to both the public and to the school administration so that the positive effects upon students will not be lost. In order to compete with the world, we as a nation must look to see what they are focusing on and do so as well.

With the United States focusing heavily on the academic development of students, the students' physical and social needs must not be forgotten. Academics are very important in our society, but that is not the only purpose of our schools. The goal of a school should not be to focus on test scores, but on developing students who will continue to learn once they have graduated and moved on. Instrumental music programs can help achieve that goal.

Playing music at a high level represents a remarkable human achievement in terms of the combination of skills that it requires—physical, cognitive, interpretative, social, and emotional. In the reality of playing music, these separable components are all thoroughly intertwined.<sup>1</sup>

Instrumental music programs can enable students to grow academically while also developing their fine motor control and social abilities that will make them an active, responsible member of society. Instrumental music can also enable the students to experience the creative process. They can take a piece from sight-reading to performance and express themselves through the whole process and beyond. All of those ideas can be accomplished in one classroom.

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<sup>1</sup> Eric Clarke, et al., Music and Mind in Everyday Life, (New York, NY: Oxford University Press Inc., 2010)



Every child should be given the opportunity to pursue an instrumental music education if they so choose. Without the opportunity to participate, students are missing out on a chance to benefit themselves “morally, intellectually, and physically.”<sup>2</sup> Instrumental music is an academic discipline in which that is possible and deserves to be an integral part of American school curriculum.

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<sup>2</sup> Michael L. Mark, “Music Educations’ Cultural Imperative,” *Music Educators Journal* Dec 1987: 25.

## Chapter 2: The Development of American Instrumental Music

The idea of music education is not a new one. Humans can look at virtually every society that exists in the world and see an instance of people educating others in the art of music.<sup>3</sup> In fact, “in primitive societies music fulfills a basic function as an accessible agent of tribal tradition, aesthetic meaning, and personal expression in which all participate.”<sup>4</sup> Music means more to those societies than simply sitting in a classroom; they use music to connect with others around them, share their cultural traditions, and build community.

In the United States, however, music education is still in its early stages when compared to other societies around the world. Formal public school music education began in Boston, Massachusetts in 1838 and was pioneered by Lowell Mason.<sup>5</sup> He focused primarily on vocal instruction. While it started in 1838, music education didn’t expand until after the Civil War into the large cities. Many townspeople had been of the opinion that music was only for those talented enough to participate, and they didn’t feel that it was their duty to support every child in this endeavor.<sup>6</sup> Those opinions were slowly changed with more and more exposure to music.

Formal public school instrumental education began in the Twentieth Century. Prior to that, in 1878, a student-run, extracurricular high school orchestra was created. This took place in Aurora, Illinois, and was run by Bob Merrill.<sup>7</sup> It wasn’t until 1905-1906 that the idea of granting credits to instrumental ensembles was brought up. Prior to

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<sup>3</sup> Harold F. Abeles, et al., Foundations of Music Education, (New York, NY: Macmillan Publishing Company, 1984) 3.

<sup>4</sup> Charles Leonhard, Foundations and Principles of Music Education, (New York, NY: McGraw-Hill Publishing Company, 1959) 46.

<sup>5</sup> Abeles 13.

<sup>6</sup> Abeles 15.

<sup>7</sup> Wolfgang E. Kuhn, Instrumental Music, (Boston, MA: Allyn and Bacon, Inc., 1962) 2.

this, all instrumental activities were seen as extracurricular, like the Aurora High School Orchestra, and were not granted any academic credit. The first instance of granting students credit was in 1905 in Richmond, Indiana. The students were awarded a half a credit when they participated in their school orchestra.<sup>8</sup> In the following year, a school in Chelsea, Massachusetts, granted credit to those students who took private music lessons after school.<sup>9</sup>

In the following years, music continued to expand across the country. By 1910, there were over one hundred school orchestras in this country, but very few bands at the public school level.<sup>10</sup> New ways to study and teach music began to enter the United States from Europe. Albert F. Mitchell visited England in 1910 in order to learn more about how they taught large classes of violin students and to assess if it was effective. The idea of teaching students as large, same-instrument groupings was well received in the states, and it was thought to be an answer to how to teach the students in a setting beyond just one-on-one.<sup>11</sup> This new method allowed more students to learn instruments at the same time and to do so effectively in a school setting. Along with this method of teaching large groups of wind and string instruments, the idea of group piano classes began. In 1913, schools began to offer piano instruction to classes at the high school level and later at the elementary level.<sup>12</sup> America now not only had general music, vocal music, and early wind and string instrumental music instruction in the public schools, but also keyboard instruction.

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<sup>8</sup> Richard J. Colwell, The Teaching of Instrumental Music, (New York: NY: Meredith Corporation, 1969)

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<sup>9</sup> Colwell 8.

<sup>10</sup> Colwell 7.

<sup>11</sup> Abeles 17.

<sup>12</sup> Abeles 17.

After World War I, instrumental music began to be a larger part of music education in the public schools.<sup>13</sup> This was spurred on by nationalism and support for the country. The war had placed military bands at the forefront of the effort and used them to spread patriotism and raise money to support the war.<sup>14</sup> The public school boards would employ the returning army bandsmen to teach instrumental music in the schools.<sup>15</sup> Those bandsmen usually had very little if any formal education training besides playing an instrument. This inclusion in the schools allowed secondary school bands to flourish.

Even though the school band popularity was thriving, the public band movement was encountering problems. It was estimated that as of 1890, there were over 10,000 bands active in the United States in a variety of capacities including churches, amusement parks, and even prisons.<sup>16</sup> However, this great number of bands led to a decrease in quality ensembles. By 1920, the number of public bands not involved with schools or school-related activities, including sporting events, were steadily decreasing primarily due to competing with those school ensembles, but they also were competing against the orchestras of the country. Bands didn't have the repertoire available to them like the orchestras did unless it was transcribed.<sup>17</sup>

While the public bands were struggling, school ensembles were thriving. There were many different contests created for secondary school bands including the first National School Band Contest that began in 1923 and took place in Chicago, Illinois.<sup>18</sup> Though thirty bands came and participated, the contest itself could have been better

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<sup>13</sup> Kuhn 2.

<sup>14</sup> Mark 26.

<sup>15</sup> Abeles 17.

<sup>16</sup> Stephen L. Rhodes, The American School Band Movement, 2007, 23 Oct. 2011.

<[http://www.lipscomb.edu/windbandhistory/RhodesWindBand\\_09\\_AmericanSchoolBand.htm#n5](http://www.lipscomb.edu/windbandhistory/RhodesWindBand_09_AmericanSchoolBand.htm#n5)>

<sup>17</sup> Colwell 6.

<sup>18</sup> Rhodes.

organized due to lack of accommodations and poor performance settings. Because of those issues, another national contest was not held until 1926. Between 1924 and 1925, instrumental music standards were being developed. There was now a standard instrumentation to be present in each group along with new repertoire written specifically for band including overtures, symphonic poems, and suites.<sup>19</sup> The creation of state festivals also helped to promote school ensembles by pushing the students to develop their skills to compete against other students and bands.

By 1926, a number of states decided it was time to hold another national contest for band.<sup>20</sup> This was significantly more successful than its 1923 predecessor. This contest was held from 1926 to 1931 with each year being more successful; thirteen bands were present in 1926 compared to forty-four bands present in 1930.<sup>21</sup> These contests helped to develop better players, further pushing school bands to the forefront of instrumental education.

While instrumental music was developing, so was the support for music education in general. In 1907 in Keokuk, Iowa, the Music Supervisor's National Conference was developed, which is known today as the National Association for Music Education (NAfME).<sup>22</sup> The organization pushed for music education in schools. This push actually led to the creation of the terms "music education" and "music educator" which were pioneered by the United States.<sup>23</sup> This was because the United States had an organized music program from elementary to high school and beyond. That was a foreign idea in other countries at this time.

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<sup>19</sup> Rhodes.

<sup>20</sup> Rhodes.

<sup>21</sup> Rhodes.

<sup>22</sup> Abeles 29.

<sup>23</sup> Abeles 29.

In 1919, Osbourne McConathy created a significant tenet of music education. He stated, “Every child should be educated in music according to his natural capacities, at public expense, and his studies should function in the musical life of the community.”<sup>24</sup> This was in direct contradiction to the opinion held by the people of 1838 who had believed that music was only for those talented enough. Now, all children were being encouraged to participate at whatever level they could, and a new saying was developed by Karl Gehrken of “Music for every child, every child for music.”<sup>25</sup> Music education was finally finding a position of wider acceptance with the public.

However, not everything was running smoothly. Some schools had run into the issue of having too few students in order to have both band and orchestras at their school.<sup>26</sup> This caused them to pick which group to offer, and more times than not it was the band that was chosen due to its versatile nature. It was seen to be more useful in the community and at athletic events.

Another issue for music education appeared in 1929 with the beginning of the Great Depression, which caused Americans to question if they could afford culture. They viewed music and the arts as extraneous when compared to having food, a job, and a house. Many professional musicians were out of jobs due to the availability and lower cost of using sound tracks instead of live musicians.<sup>27</sup> A number of those professionals managed to find positions teaching music to secondary students due to a shortage of people qualified to do so. Having these professionals instructing students switched the focus of instrumental music education to be more on the actual performance level rather

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<sup>24</sup> Abeles 30.

<sup>25</sup> Abeles 30.

<sup>26</sup> Colwell 9.

<sup>27</sup> Abeles 18.

than just playing for fun. “These musicians held ‘rehearsals’ much as one would in a professional group, and their whole orientation was directed toward performance.”<sup>28</sup> The students were now held to a higher level of standards with the more educated instructors. These levels helped to develop our rehearsal model that we have in schools today.

In 1941, the United States entered World War II. This caused many of the male music teachers to leave schools to fight and play in the military. Because of the lack of males and music specialists available to teach in the schools, it was now up to the classroom teacher to instruct the children in music, especially at the elementary level.<sup>29</sup> This approach ended up working so well for the time period, that even after the war ended, many school districts did not feel a need to hire a professional music specialist to teach all of the classes in the elementary school. The music specialists were there mostly to oversee the classrooms a day or two each week.<sup>30</sup> While this approach worked for the school systems, it created the issue as to whether or not a trained music specialist was needed in the schools to give a complete music education to the students. That debate carried on for a few decades. In 1972, the National Association for Music Education (NAfME) pushed for music specialist teachers to be reinstated in all schools.<sup>31</sup> They believed that in order to have a complete education, you needed a trained professional.

While general music education was determining the best way to be taught, the band program in the secondary schools was thriving. With the return of the military bandsmen from WWII and the amount of patriotism present, the band was the ensemble in the center of it. The band’s ability to also participate at professional sporting events

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<sup>28</sup> Abeles 18.

<sup>29</sup> Abeles 19.

<sup>30</sup> Abeles 19.

<sup>31</sup> Abeles 20.

catapulted them into the spotlight.<sup>32</sup> The string orchestra had no way to compete with the group. The visibility that the bands were receiving helped them to gain support from the public.

With the Soviet Union's launch of their satellite in 1957, the United States' focus began to switch from the arts to the sciences.<sup>33</sup> They needed to keep their academic programs from falling behind the Russians', and if that meant spending more time on math and science, that is what was to be done. By 1970, the amount of funding for music had decreased due to the recessionary economic crisis and the Cold War belief that music education was "less secure than math, science, English, and other subjects."<sup>34</sup> Nevertheless, led by NAFME, educators worked to prove the importance of music to students and society. They managed to convince the public, which allowed music to remain in the schools, but it wasn't without the effort of those educators.<sup>35</sup>

Music education today has reached an impasse. With the current economic crisis and the focus on math, science, and job placement, the arts are being viewed as less valuable when preparing students for the workforce.<sup>36</sup> People feel that the skills in music cannot be carried over to other disciplines; in turn, schools are cutting programs and courses. In California, from 1999-2004, the enrollment of students in music classes dropped by 50% despite the fact that California public school enrollment increased by 5.8%.<sup>37</sup> The budget crisis is one of the main contributors to this along with the focus on

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<sup>32</sup> Abeles 20.

<sup>33</sup> Abeles 20.

<sup>34</sup> Mark 26.

<sup>35</sup> Mark 26.

<sup>36</sup> John Kratus, "Music Education at the Tipping Point," Music Educators Journal, Nov. 2007: 44.

<sup>37</sup> Kratus 43.



No Child Left Behind requirements. This shift in focus has decreased budgets for music education.<sup>38</sup>

With this country trying to challenge the world in academics, it should take a closer look at what the countries around the world are doing. It has been shown that “many other countries have increased their involvement by recognizing the important values and benefits of a solid music curriculum.”<sup>39</sup>

The world's top academic countries place a high value on music education. Hungary, Netherlands and Japan stand atop worldwide science achievement and have strong commitment to music education. All three countries have required music training at the elementary and middle school levels, both instrumental and vocal, for several decades. The centrality of music education to learning in the top-ranked countries seems to contradict the United States' focus on math, science, vocabulary, and technology.<sup>40</sup>

If other countries are raising their music involvement, then why is the United States cutting it? It should be understood that these countries also have different school requirements in regards to amount of time spent in school, but despite that, they are putting music central in their curriculum. In Japan, music is considered a core academic subject, the same as math.<sup>41</sup> The United States needs to embrace music education, especially instrumental music education, and recognize the skills that the students develop by participating in it. If we do not, there might be an even bigger gap developed between the United States and the countries it competes against.

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<sup>38</sup> Kratus 43.

<sup>39</sup> Stan F. Stitgen, “A Community of Support for Music Education,” Music Educators Journal, Mar. 1988: 31.

<sup>40</sup> “Research Briefs: Did You Know?” NAMM Foundation, 2010, 22 Mar. 2012  
<<http://www.nammfoundation.org/research/research-briefs-did-you-know>>

<sup>41</sup> Mark Hughes, “School Years Around the World,” InfoPlease, 2007, 3 Apr. 2012  
<<http://www.infoplease.com/world/statistics/school-years.html>>

### Chapter 3: Academic Benefits

The playing of instrumental music affects the academic and cognitive abilities of students. It has been shown in numerous studies that music helps raise test scores and student performance in school, especially in the math and sciences. When students learn to read and interact with music, it starts to benefit them in many ways.

Learning to read and play music can be compared to learning a new language. The symbols that create notes and rhythms are a new set of notation that a musician can look at and understand what is going on, and those symbols are universal. If a musician were to go to Germany to play, s/he would be able to play a German piece because the symbols and meanings are the same. “Music is a universal form of expression, and that the common bond that enables all persons to cross the barriers created by cultural differences develops through aesthetic growth and aesthetic sensitivity.”<sup>42</sup> This is especially important: there isn’t a language barrier between two violin players while they are playing. They can both play and recognize the talent and beauty of the other.

Instrumental music also affects its listeners, especially due to the lack of words. Its nature allows people to express and experience it themselves without words telling them what to feel. A musician could play a piece of music for a room full of foreign dignitaries, and the dignitaries might all create their own interpretation, but no one will have a better understanding than the other because of a language barrier. They will all be able to experience and appreciate it individually, but also collectively. They can bond as a group and share the experience of listening together.

Music is a written language. To fully appreciate and be free with the music one would play, one needs to be able to read music. If a student can read music, than he or

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<sup>42</sup> Abeles 105.

she is able to read any song placed in front of them and not have to rely on having someone play it for them.

Both music and the written language involve formal notation read from left to right; music notation consists of symbols that represent information about sound (pitch, harmony, melody) and time (rhythm, meter), and listening to both music and speech requires attention to the temporal order of rapidly changing acoustic events.”<sup>43</sup>

Music is similar to English in that it is read the same way, left to right, top to bottom. There is evidence suggesting that there are sections in the right-brain that read notes and musical passages that is parallel to the section in the left-brain that can read letters and words.<sup>44</sup> Music is, however, significantly more complex with each of the many signs and symbols impacting what is written on the page. The amount of information that is gleaned when reading a note is immense. For example, when someone reads a letter A in English, they understand it to be an article “used before nouns and noun phrases that denote a single but unspecified person or thing.”<sup>45</sup> When they read a letter A in music, they must first make sure it is actually an A that they are reading and then what type of A it is. To make this easier, there are examples included below.

Music notation begins with a set of five horizontal lines called a staff. At the beginning of each staff on a set of paper, the composer writes what is called a clef sign. Those signs illustrate to the musician what series of notes they will be playing on that line. When someone first starts reading a piece of music, they must make sure that they are playing in the correct clef; otherwise, nothing will match up. The example below is of

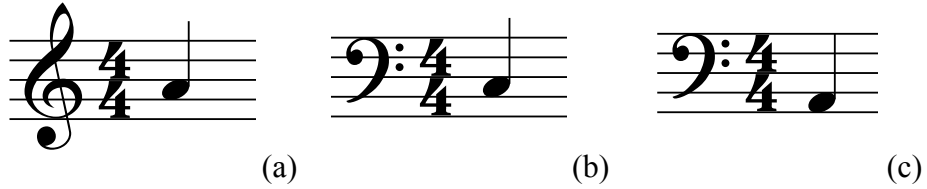
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<sup>43</sup> Marie Forgeard, et al., “Practicing a Musical Instrument in Childhood is Associated with Enhanced Verbal Ability and Nonverbal Reasoning,” *PLoS ONE*, Oct. 2008: 2.

<sup>44</sup> “The Brain and Music,” *Music Education Online*, 2006, 20 Oct. 2011 <<http://www.childrensmusicworkshop.com/advocacy/brain.html>>

<sup>45</sup> “A,” *The Free Dictionary by Farlex*, 2011, 27 Dec. 2011 <<http://www.thefreedictionary.com/A>>

two notes. The first note (a) is considered to be an A because that is where it is placed on a treble clef staff. The second example (b) is not an A because on the bass clef, the A is found in the first space (c).



That is just one placement of the note A on a staff. They can appear in every eighth position or octave again (d). All three of the notes below are considered to be the note A. The only difference would be the higher ones sound higher and the lower ones sound lower.



Once musicians decide what staff they are working on and which A on the staff they are playing, they must then check to see what kind of A it is. In music, every note has three different qualities. Is the note natural, sharp, or flat? Each note sounds slightly different. The natural note (e) is in the middle of the sharp and flat notes. It is usually written without any sign in front of it but can also be written with the natural sign like it is in the example below. The sharp note (f) is slightly higher than the natural note and the flat note (g) is slightly lower than the natural note.



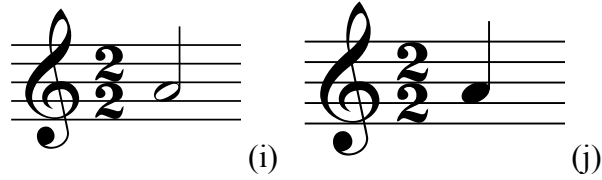
Now, not all notes have their signs written right in front of the them. Most of the time they are kept in a key signature (h), which is found at the beginning of the line on the left side of the paper and looks like this:



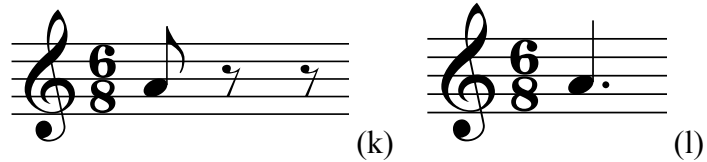
(h).

In this example, the flat sign for the A is the third one. The player must remember that all A's are flat throughout the entire piece along with the B and E flats which are also included. The above example is only two measures long, so remembering the A-flat seven notes after one starts playing is not too difficult, but as the music becomes more complicated and moves further across the page, it is harder to remember. The key signature almost always appears as the first thing on every line of music in classical notation, but that isn't always the case for other forms of music. In jazz music, for example, the key signature is found on the top of each page so looking on the left hand side of the paper might not be indicative of the true key signature.

Once it is decided what type of note is being played, musicians must think about how long they are playing that note for. There are too many combinations to run through them all, but here are a few to illustrate how complex this can become. The notes that have been listed before this are all quarter notes in the 4/4 time where they receive one beat. Sometimes, however, quarter notes are not the note receiving the beat. In 2/2 time, half notes receive one beat (i). The quarter note would be half of a beat instead of the whole beat (j).

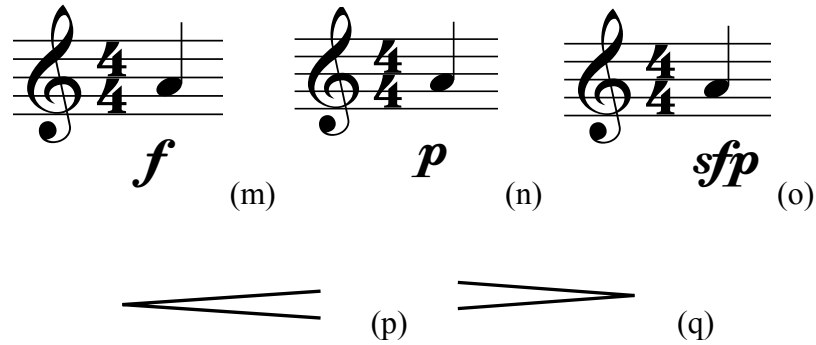


In 6/8 time, the eighth note receives a beat (k) or a dotted quarter note receives the beat (l) depending on how fast the tempo is going.



The time signature will tell the musician how fast to play the note and what the rhythm will be like. Tempo, the speed of the music, usually has an impact on what style to play in, especially in the above example. Those two measures could be set up exactly the same, but if the tempo were slow, one would be counting in 6, and if the tempo were fast, one would count it in 2. It is not as simple as it appears on the paper.

Time signature, key signature, and note placement all tell the player what kind of note to play, but it doesn't tell them the style of it. There are more symbols that are used for both dynamics (the volume of the note) and articulation (in what kind of style the note is played). A note can be played *forte* (m), which means loud, or *piano* (n), which means soft. There are also a variety of dynamics between those that help the players balance their parts. One could even play a note really loud and then become quiet in the next instant (o). There are also crescendos (p) and decrescendos (q) that help the notes grow or diminish.



There are a series of symbols that can be placed above or below the note depending on which direction it is facing that informs the player what way to play the note. There could be a *staccato* (r), which means slightly separated, *legato* (s), which means long and smooth, or accented (t), which means with force at the beginning.



All of those choices need to be comprehended and then played by the musician in a matter of seconds before moving on to the next note. When playing a wind instrument, musicians follow one line of music while doing this, but for piano, a player can follow two different lines of music both in different staves. The markings help musicians to read music and keep it uniform throughout a group. It is nearly impossible for a person to play a song while sitting in the middle of a group if they do not have the ability to read the music. That person would stand out because they were not interpreting the music in a similar manner as the rest of the group.

In the case of performing music from a musical score it is necessary to read printed music, which is different from reading letters. Thus, it is necessary to understand

particular notes and to translate these visual forms into appropriate motor commands, usually very rapidly.<sup>46</sup>

The musician must take what they read and react on their instrument. For a wind player, they must decide what note to put down with their fingers and then how fast and in what style their air should enter the instrument. A string player sets the left hand on the appropriate note and uses the bow to play it in the style they wanted. A percussionist changes the force of the hit and even possibly their mallets to make the note match the desired style. A pianist uses both hands and feet simultaneously in order to play the piano and create the effects wanted by the composer. The musician almost doesn't have enough time to think before moving onto the next series of notes. It is significantly more complex than reading a written word.

While the music itself tells the musician how to play the music, musicians do have some leeway at certain times to adjust the style. They can easily change the meaning and emotions of a piece by playing the notes in different ways. If someone takes a simple song and plays it at a medium, bouncy tempo, it conveys happiness. If they were to take the same piece and play it in a slow and disjointed way, it would sound more fearful. The different ways the notes are played affect how the listeners hear the piece.<sup>47</sup>

The player can also change which note receives the emphasis in a phrase, which is similar to how we add emphasis to certain words in a sentence to express our point. In the following example, the same sentence is written out four times with a different word being emphasized each time. As they are read out loud, one can hear how a slight difference in voice inflection can completely change the meaning of the sentence.

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<sup>46</sup> Eckart Altenmüller, et al., Music, Motor Control and the Brain, (New York, NY: Oxford University Press Inc, 2006) 26.

<sup>47</sup> Clarke 44.



*“I walked the dog.” “I **walked** the dog.” “I walked **the** dog.” “I walked the **dog**.”*

This is similar to how one would place emphasis on a different note in a musical phrase. It could be a slight *ritard*, the slowing down of the note, or an accent. Instrumental musicians do not use words to express themselves with the music, so they try to modify the style to give them the ability to express the music.

One of the great parts about music, especially instrumental, is that it enables a large number of people to gather together and communicate their thoughts in an orderly fashion.

The advantage of music over speech, in this respect, is that large groups of people can participate in music-making simultaneously, and all can make a contribution to the collective activity. For example, music’s ability to synchronize mood states in large numbers of people promotes coherent behavior, allowing coordinated collective action.<sup>48</sup>

A group of eighty people uniting to play a piece of music is more easily understood than a group of eighty people trying to talk about how they feel. Playing together helps to unite the group and have them all feel the same emotions. The music they create then can spread to the audience whose size can range from ten to ten thousand. This ability to express and spread their thoughts and emotions to others is a highlight of music, and it all comes down to the musicians’ ability to manipulate the written music to communicate the emotions that they want to.

As students continue playing their musical instrument, their ability to multi-task improves, as does the awareness of what is going on around them. It can seem daunting when the students first begin to play their instruments. They must work on holding them

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<sup>48</sup> Clarke 104.

correctly while also playing the correct notes at the correct time. They must assimilate each step of the process. As those steps become more familiar, the student can focus on other aspects in greater detail. For example, when someone is first learning how to type on a computer, they are not typing out full sentences on the first day. The programs that exist to teach typing first teach the home row (asdfjkl;) and then branch off letter by letter until the student knows them all. Students will then work on punctuation, capitalization, and numerical keys. Through repetition, the student goes from concentrating on which finger they are putting down when to focusing their thoughts on typing out ideas for an essay they are working on for their class. They would very rarely stutter on how to spell the word and would instead focus on presenting the ideas. This is the same for musical students. Once they learn the basics of what they are doing including the instrument's notes and musical rhythms, their focus expands to how well they sound while playing and what others around them sound like.

Once they begin participating in musical group activities, the students must play with a conductor and other students. This means that they now have to conform to the group instead of playing whatever they want as an individual.

Playing music in an orchestra requires continuous ongoing adaption and comparison of one's own performance with the auditory templates from the rest of the orchestra (feedback control). The musician has to play with the appropriate sound quality, register, rhythm, or tempo.<sup>49</sup>

When in an ensemble, it is a group activity where all individuals work together to create one sound. This is mostly accomplished through the development of their listening ability and awareness of the other members of the group. To develop one's listening is an active process. The students must be aware that they need to listen and improve on what they

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<sup>49</sup> Altenmüller 26.

hear and how they hear it. The need to listen for “balance, blend, intonation, and rhythmic and stylistic agreement can be daunting”<sup>50</sup> for the students at first, but becomes easier the longer they are aware and trained. As they become more secure in the playing of their instruments, they begin to listen around them more. At first it is to the person on either side of them, then to their entire section, and eventually to the entire group. They should be able to understand who has the melody at any given time and how their part affects that. The students will understand how to balance their part in the band and blend their sound so they do not stand out. As their ears continue to develop further, they will be able to hear the tuning or intonation of their instrument. This will allow them to play more confidently and help produce a good sound for the group. This takes time and must be actively sought after in order to improve. The longer the students play, the more accomplished and successful they will be when it comes to multi-tasking and being aware of what is occurring around them.

Participation in musical activities has long been associated with increases in students’ intelligence as evidenced by the number of tests and studies done trying to prove those points. In the 1990’s, there was a study done by Frances Rauscher, Gordon Shaw, and Katherine Ky that illustrated an increase in students’ IQ by 8 to 9 points following a listening of the first movement of Mozart’s *Sonata for Two Pianos in D Major*, K.448.<sup>51</sup> This increase in IQ scores lasted only for a short duration after the listening of the movement and was named the Mozart Effect.

Word about this effect quickly spread throughout the United States and lead to an increase in parents’ encouraging their children to listen to classical music. However, there

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<sup>50</sup> James E. Latten, “Chamber Music for Every Instrumentalist,” *Music Educators Journal*, Mar. 2001: 46.

<sup>51</sup> Kenneth M. Steele, et al., “Failure to Confirm the Rauscher and Shaw Description of Recovery of the Mozart Effect,” *Perceptual and Motor Skills*, June 1999: 843.

are issues with the results of this study. Since its first finding in 1993, it has yet to be proven by individual laboratories.

The popular excitement about the Mozart effect rests on the inference that it is an easy home remedy to improve intellectual skills. Rauscher, Shaw, Levine, Ky, and Wright (1994) contributed to this excitement by linking the Mozart effect with the production of long-term cognitive enhancement through music education. The results reviewed here suggest that such a linkage is premature and that the basis of the Mozart effect is still unclear.<sup>52</sup>

The results that have been reported illustrate no long-term effects due to the listening of Mozart's music. That is not to say, however, that music doesn't help enhance a student's intelligence, just not in this particular way. In fact, "music participation was the only activity shown to correlate significantly with academic progress."<sup>53</sup> The listening of music is not what helps to raise peoples' IQ's; it is the actual doing that enhances their intelligence. In general, "when students are given a more active role in the learning process, understanding may become more personal and meaningful,"<sup>54</sup> but that is especially true in music classrooms. People learn more when they have an active, hands-on part in the process. When learning music, one doesn't learn by just sitting and listening, but by actually picking up an instrument and making music. That is why the study of instrumental music has been shown to correlate to the increase of students' grades and test scores when compared to students who just listened to music.

Moreover, "students taking music and arts averaged scores that were higher than non music students by 60 points on the verbal section and 43 points on the math

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<sup>52</sup> Steele 847.

<sup>53</sup> Christopher M. Johnson and Jenney E. Memmott, "Examination of Relationships between Participation in School Music Programs of Differing Quality and Standardized Test Results," Journal of Research in Music Education, Winter 2006: 295.

<sup>54</sup> Donald M. Taylor, "Orff Ensembles: Benefits, Challenges, and Solutions," General Music Today, July 2011: 4.

section”<sup>55</sup> on the SAT. On average, every year that a student participated actively in music, their scores improved more than those who didn’t.<sup>56</sup> This connection to extended musical instruction has been illustrated by many different studies and for different Social Economic Statuses (SES). For example, a study involving 260 instrumental students and 7,052 non-music students followed these students from 8<sup>th</sup> grade to 12<sup>th</sup> grade. The students were tested in both 8<sup>th</sup> grade and again in 12<sup>th</sup> grade and the results were as follows.<sup>57</sup>

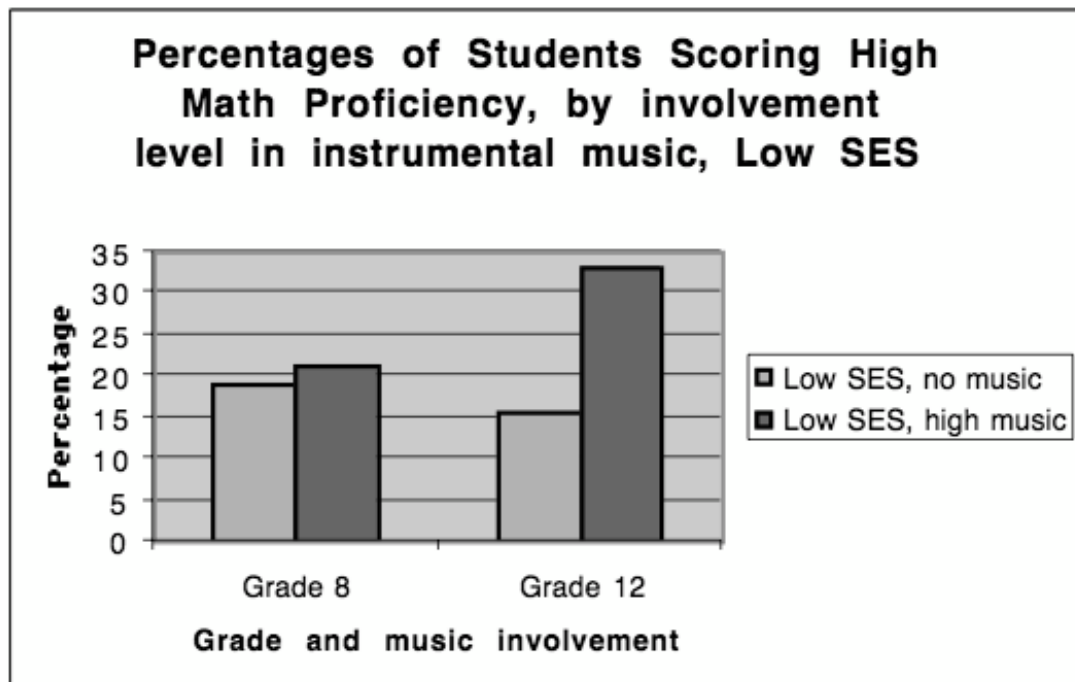


Figure 1: Catterall 15.

As can be seen from Figure 1, the Low SES, high music students were slightly above the Low SES, no music students in regards to math proficiency. After four more years of

<sup>55</sup> “Music’s Contribution to Academic Success,” Music Education Online, 2006, 20 Oct. 2011 <<http://www.childrensmusicworkshop.com/advocacy/academicsuccess.html>>

<sup>56</sup> “Music’s Contribution to Academic Success.”

<sup>57</sup> James S. Catterall, et al., “Involvement in the Arts and Human Development: General Involvement and Intensive Involvement In Music and Theatre Arts,” Graduate School of Education & Information Studies University of California at Los Angeles, July 1999.

intensive instrumental training, those same 260 students were now almost twice as proficient as the Low SES, no music students. This fact illustrated that the longer active participation is occurring in instrumental music, the greater the impact it has on the students.

Another study was done that looked at Grade 12 students' involvement in Band or Orchestra vs. no involvement by SES grouping. The results are seen in Figure 2.

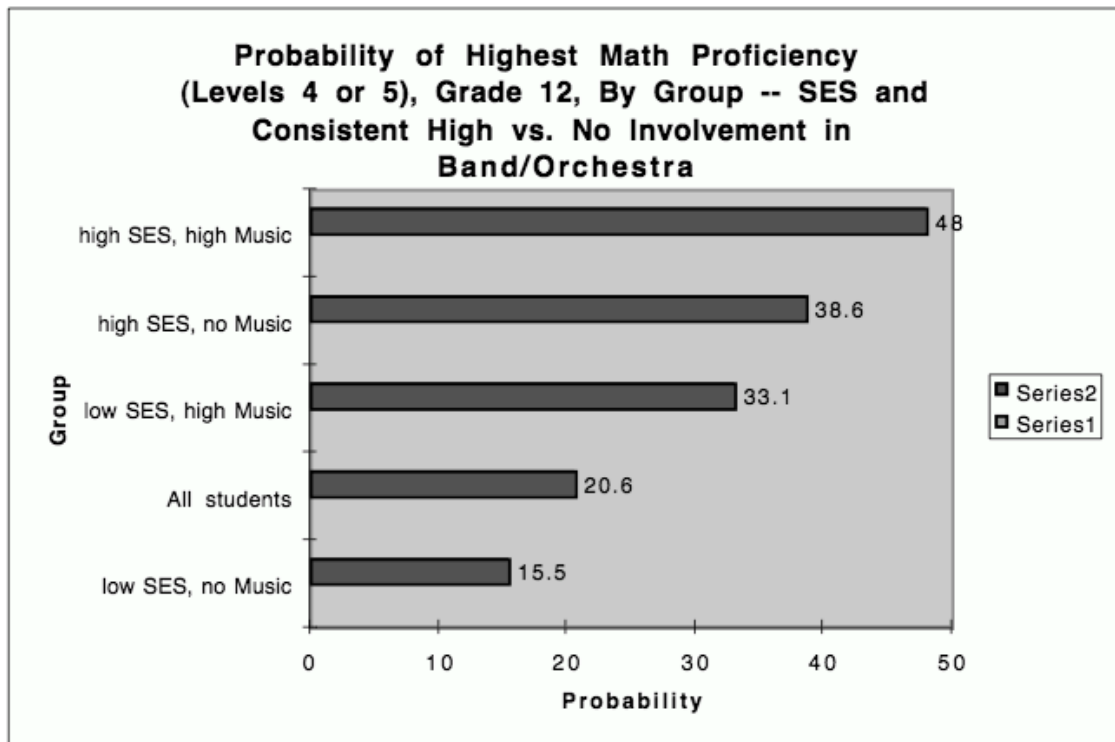


Figure 2: Catterall 12.

All High SES students scored above the average of all of the students. The interesting part of the study is that the Low SES students who participated in music scored above the average by 12.5% while the Low SES students who had no music involvement scored 5.1% below the average. They were the only group below the average. This study, along with the one noted before, illustrates how the SES status isn't the only determining factor.

In both cases, when looking in one section of SES status, the instrumental students scored higher than their peers with no music involvement.

There is also a difference in academic development between the different disciplines of music. There is a measurable difference between grade average, IQ, and Music Aptitude between vocal students and instrumental students as shown by the Figure 3 below. This study compared students who were vocal or instrumental in concentration. It then separated the students who also took piano. The study showed that “instrumental students were superior to vocal students, yet vocal students with piano training were superior to instrumentalists without piano training, and students with piano and instrumental training were even higher.”<sup>58</sup>

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<sup>58</sup> Richard Colwell, “An Investigation of Musical Achievement among Vocal Students, Vocal-Instrumental Students, and Instrumental Students,” Journal of Research in Music Education, Autumn 1963: 127.

**MEAN SCORES ON SEVERAL MEASURES FOR FIFTH AND SIXTH GRADE STUDENTS  
GROUPED ACCORDING TO MUSICAL EXPERIENCES**

<i>5th Grade Students</i>				
	$\bar{x}$ <i>Vocal</i>	$\bar{x}$ <i>Vocal-Piano</i>	$\bar{x}$ <i>Instrumental</i>	$\bar{x}$ <i>Piano- Instrumental</i>
	(N = 612)	(N = 137)	(N = 92)	(N = 38)
Grade Average* (all subjects)	3.3	3.8	3.7	4.2
IQ	102.3	108.9	105.8	112.6
Music Aptitude**	72.4	82.2	76.7	87.1
Knuth A	6.2	14.1	10.2	18.5
Knuth B	7.5	19.5	13.2	25.0
Pre-Band Instrument*	4.3	3.4	3.7	3.0
Attitude†	50.2	59.7	50.2	71.0
Chorus Grade*	3.4	4.1	3.7	4.2

<i>6th Grade Students</i>				
	(N = 599)	(N = 135)	(N = 98)	(N = 43)
Grade Average* (all subjects)	3.2	3.9	3.8	4.4
IQ	105.5	111.8	110.2	117.3
Music Aptitude**	60.9	74.3	73.8	82.8
Knuth A	7.3	16.8	12.7	24.7
Knuth B	9.1	22.5	17.1	30.6
Attitude†	45.1	52.5	47.7	49.7
Chorus Grade*	3.4	4.1	3.8	4.4

\* Grade Average—5 = A, 4 = B

\*\* Music Aptitude—100 = Perfect score

† Attitude—Student ranked subjects; 95 is favorite subject

Figure 3: Colwell 127.

The results are illustrated in Figure 3. The major difference between the chorus and the band could be attributed to the different amount of rote or ear learning that takes place between the two groups. In a band, if a student does not know their part, it is quite difficult to pick it up just by listening to their neighbor. The added presence of the instrument creates a difficulty that is not there in a chorus. The instrument is a physical object that has finger combinations for the notes that must be exact; otherwise, no note will be played. A chorus does not have that added challenge of an instrument. Students can learn by ear if they have to. That in part contributed to the vast differences between



chorus and instrumental music. The added aspect of the piano helps to motivate the brain with the sheer amount of items it is processing at once.

A study was performed that compared instrumental and choral programs against each other and against students who had no music training. This study broke the country into regions and compared choral and instrumental programs that were categorized as exemplary and deficient. Those titles were decided by outside professors from neighboring Universities. The results are as follows (Figures 4 & 5) for both mathematics and English. Using standardized tests and then standardizing the scores achieved these results. “The scores represents the magnitude of a score’s deviation from the mean.”<sup>59</sup>

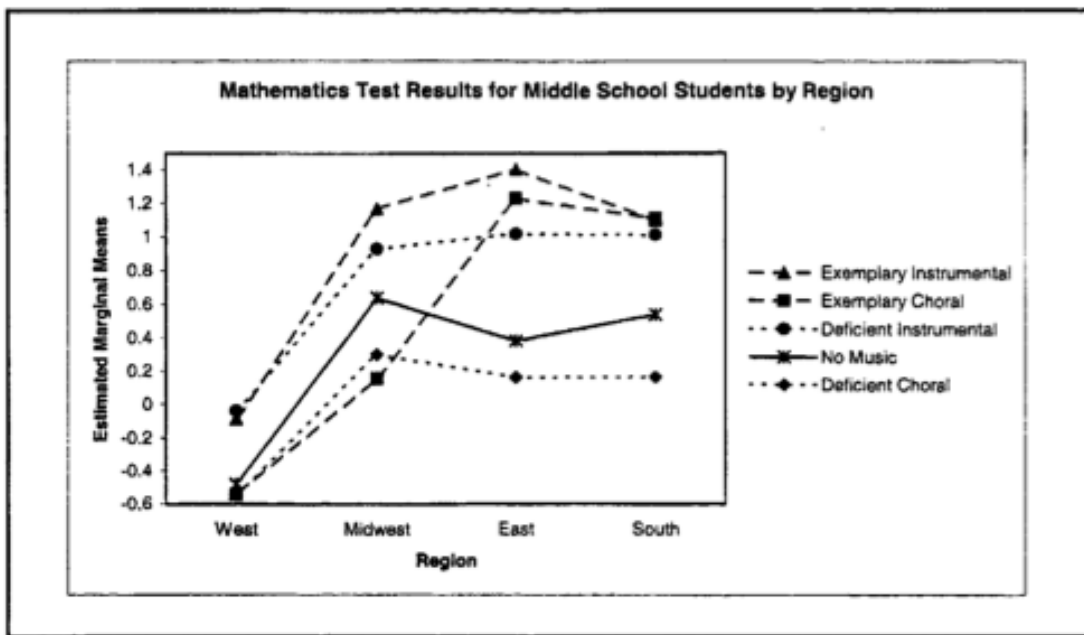


Figure 4: Johnson 301.

<sup>59</sup> Johnson 305.

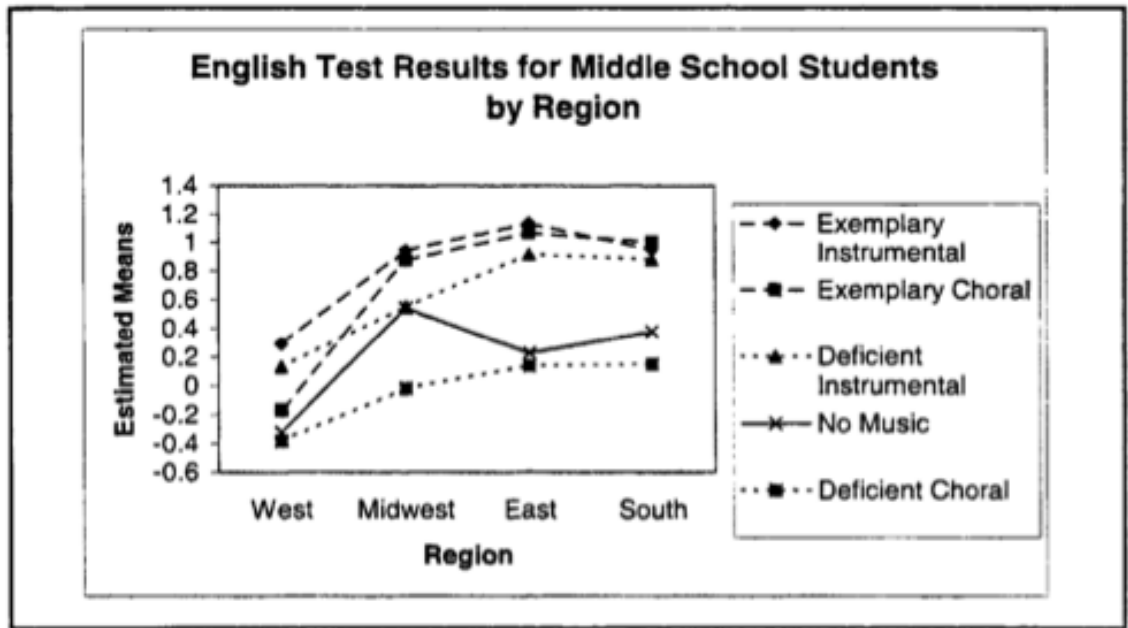


Figure 5: Johnson 301.

As can be seen from Figures 4 and 5, the exemplary instrumental programs had the highest scores out of all groups and were well above the mean or average in all cases except the West's mathematics. Deficient instrumental programs were very high in the math tests. Both levels of instrumental instruction had higher test results than the students who had no participation in music. Exemplary choral was also above the average in six of the eight areas, but instrumental was higher still than the choral. This helps to strengthen the point that students who participate in music do better on tests, along with the instrumental students scoring higher than choral students in most cases.

The assessment that occurs in instrumental ensembles is different than in a standard classroom. In an English class, students are graded based upon papers and tests. The same tests and papers can be assigned to an instrumental ensemble, but that is not the only way these students are graded. Music students often have to be graded on their playing ability and their ability to perform in front of others. When a concert happens, it

is in front of their peers and family who will judge them on how well they perform. The groups have plenty of time to practice but practice is different than performance.

During games, a team is in performance mode. Games are a do-or-die setting, where the team must flawlessly execute well-trained plays. During practice, a team is in learning mode. Practice is an opportunity for experimentation and innovation, when a team can develop and test new plays, making mistakes along the way.<sup>60</sup>

This sports analogy is directly related to the musical rehearsal and performance process. A performance is similar to a sports game. There is only one chance to perform those pieces for that audience. Any mistake that is made cannot be taken back and changed. The audience may not care how many musical terms a student can list or different aspects of history they can talk about. The audience is there to listen to music, and they judge the group based off of what they hear. Not many other subjects are judged in this way. The practice situation is similar to a musical rehearsal. This time is when the true learning takes place. It allows the group to learn how to work together and to make the music be more than just notes on the page. They test how certain dynamics work in sections and what instruments to bring out for a better effect. That is the time to play around and see what works with the group and music to make it come alive. The performances are important for musical ensembles, but they should not be the only aspect being judged and focused upon. Music is as academic as any subject.

All of this evidence helps to strengthen the point that while the Mozart Effect has yet to be proven, there is correlation between academic or cognitive development and participation in music, especially instrumental. The complexity of the written notation helps the students develop abilities to understand large quantities of information at once

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<sup>60</sup> Nancy Katz and George Koenig, "Sports Teams as a Model for Workplace Teams: Lessons and Liabilities," The Academy of Management Executive, Aug. 2001: 60.

and to react to it. To develop the ability to play music, one must practice, but it is shown that the practice will impact them positively in the future. These results not only show that music is indeed helpful and more than entertainment in students' lives, but those are not the only ways that music affect students. While cognitive development is one of the most positively affected areas, physical and social abilities are also developed through music study.

## Chapter 4: Physical Benefits

The study of instrumental music does not offer solely academic benefits, but also physical ones. “Playing music is an intensely physical activity, and it is inevitable that the physicality both of the performers’ bodies and of the instruments that they play will be manifest in the sound patterns that are produced.”<sup>61</sup> The physical benefits from playing instruments cannot be ignored. By playing, students are not only training their body to do a specific set of movements at specific times, they are honing their fine motor skills. Studying instruments helps to increase motor control, even if in task-specific movements.

Music has been used in the past to encourage large groups of people to work together.

The creation of pulse in music (a repeating, periodic accent), and the regular organization of the pulse into characteristic patterns of twos and threes, facilitates accurate motor coordination, allowing people to anticipate and place in time the physical movements needed to perform a task with precision and efficiency.<sup>62</sup>

Listening to music while performing a task can cause it to be accomplished in a timely fashion if one uses the pulse to help synchronize their movements. This facilitating of motor coordination cannot only occur in individuals, but also in larger groups. That is evident in slave work songs, chain gang songs, and even in the sea shanties used on ships. These songs allowed the workers to move together as one unit instead of as multiple units. With their combined interests, it made it easier to do the task at hand. For slaves, they sang about their everyday lives. These songs helped them to pass the time while also keeping the work going.<sup>63</sup> They allowed the slaves to keep their mind off of the task at

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<sup>61</sup> Clarke 42.

<sup>62</sup> Clarke 102.

<sup>63</sup> “History,” [Negrospirituals.com](http://www.negrospirituals.com), 13 Nov. 2011 <<http://www.negrospirituals.com/history.htm>>.

hand. By singing those songs, the workers were encouraging uniform movements from the group. Rowers on ships would sing in order for them to keep the same pacing with their oars. When students listen to music today while participating in a task, it can help unite them in the moment and in their movements. Music can facilitate uniform group work today just as it has in the past.

Physical reactions to music are not just present in response to work songs. They are actually important to musicians in order to practice and experience music.

When musicians practice the motor movements for performance in the absence of their physical instrument, they often make other overt movements such as drumming fingers on a tabletop or tapping feet under the table, suggesting that the motor features of performance are important for practice.<sup>64</sup>

Externalizing the music is an activity that must occur outside of the body when working on music rhythmically. Whether it is by keeping a steady beat with a hand or foot or tapping out the rhythms in a piece of music, a musician innately uses some form of externalization to help with practicing. It makes it easier to vocalize or externalize at least the rhythmic practice.

People who do not even consider themselves to be musicians make motor movements when listening to music. They will tap along to the song on the radio or clap to the beat of a song at a sporting event. It is a way to externally express what one is feeling at that point in time.

Physically playing music requires execution. When one sits down to play a wind instrument, there is a process of movements and actions that occur in order to do so properly. “Playing a musical instrument makes it necessary to program, execute, and

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<sup>64</sup> Altenmüller 43.

sequence various movements.”<sup>65</sup> First, the player must sit up straight and hold the instrument in the proper position. Then, if they are a wind instrument player, they take a deep breath and release it in a controlled manner through the instrument in order to make a sound. This requires them to be aware of what is going on as they release the air. If the player sends the air out too slowly, the air entering the mouthpiece will not be able to vibrate either the reed or move through the horn to make a sound. If too much air is released, a bad sound will occur and the player will be out of air. The musician needs to be aware of the air requirements of the instrument and what they themselves are actually doing once they release the air.

As that is happening, the player must move their fingers or arm in the exact combination to create the correct pitch or note. For brass players, one must also adjust their embouchure to make sure the correct partial is played. If they play the incorrect one, the note sounding will be either too high or too low. As the note is being produced, they must make sure that the note they are playing is in the correct style. Is the note long or short, accented or unaccented, loud or soft? The air entering the instrument affects all of these stylistic concerns. Once the player runs out of air, they must then breathe again and repeat the process. As that is occurring, they have to constantly be listening and adjusting to the sound they hear and making sure it is desired.

The focus on air is found in wind instrument players more so than in string and percussion players. Those other players have more extended arm movements to make sounds. String players will draw their bows across the strings with the amount of pressure adjusting the dynamics and articulation. Percussion players use the force of their strike to change dynamics, and they strike different parts of the drums or cymbals in order to

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<sup>65</sup> Altenmüller 25-26.

create different sounds. These players do not ignore the importance of air, however; it just has a different purpose than actually creating a pitch. These players use air along with the wind players to breathe as a group so that everyone can come in at the same time when a piece is starting.

Musicians need to practice music like athletes practice their sport in order to develop stamina for playing. All that has been discussed in the previous section has to deal with playing inside, sitting in a chair. If a student were to participate in marching band, they would do all of the items that deal with creating a good sound, while also moving around a field creating drill patterns. They would be expected to make themselves sound just like they do while sitting stationary inside. The activity of marching band allows these students to work on multi-tasking while also receiving more exercise than they would if they were sitting in a classroom. Marching band can be so physically demanding that some states even allow high school students to take marching band for Physical Education credit. There are currently fifteen states that have adopted this policy.

Is marching band a rigorous ‘sport’? “Absolutely!” says MENC band mentor Ron Meers. In addition to the warm-up calisthenics, endurance training, and marching for miles, some of these students carry an instrument that weighs over 20 pounds. Push-ups and laps are frequently used to supplement the marching band experience.<sup>66</sup>

They are doing as much physical activity as an active sports player while still having to play musically with good tone, notes, rhythms, and articulations. Music is intensely physical, especially when marching band is a part of the program.

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<sup>66</sup> Becky Spray, “Does Marching Band = Physical Education?” National Association for Music Education, 3 Apr. 2008, 21 Jan. 2012 <<http://www.menc.org/v/band/does-marching-band-physical-education/>>



As easy as it might seem when watching a marching band, walking and playing at the same time are not a natural set of movements, especially since playing an instrument is not natural in itself. When playing certain instruments, all fingers must move independently. The only activity that this is similar would be typing on a keyboard where all fingers move on their own and in certain combinations to create words. Instruments take this a step further by making those fingers react at the same time. For example, when playing a piano, the players can have two hands working independently playing a series of individual notes, but they can also have their hands playing blocked chords. The hands would each play two or three notes per hand and must move to the next chord all at the same time. That is slightly different when playing a woodwind instrument. Those players can go from having all fingers on the instrument to no fingers and then to half of their fingers on the instrument. There are certain combinations that will create the correct note, but they must be trained on how to move between them properly.

With any instrument, the movements that need to be performed will be odd at first. What is natural for an experienced player is only natural because of repetition of that motor movement over the course of several years. For example, a trumpet player uses three fingers, index (1), middle (2), and ring (3) fingers, of their right hand in order to make all of their notes. Taking those fingers and resting them on the back of the opposite hand can simulate their playing position and by moving them, it simulates their motions. Two of the first notes that a beginning trumpet player learns are D (1 & 3) and E (1 & 2). If one were to alternate between the combinations of 1 & 3 and 1 & 2, it would simulate the changing between D and E that trumpet players do. When doing this, there should only be two fingers on the back of the hand at one time. Now try speeding these

motions up as fast as possible. After years of study, the trumpet player doesn't have to think about those motions; they just do it. Trumpet players might only use those three fingers, but woodwind players, flutes or clarinets for example, use all fingers in some fashion, and they form those odd combinations. By learning to do these independent motions, they are challenging their motor skill control in ways that they are not normally challenged.

While it is awkward to begin with, the longer one does a specific action, the easier it becomes.

In relation to musicians one might speculate that as the level of musical skill increases the degrees of freedom are reduced to the control of particular music-related movements. Thus, musicians can control more complex movements with less control effort.<sup>67</sup>

Musicians have grown accustomed to those specific movements, so it is no longer odd to do. That can be related to any action that is learned including typing or writing. When students begin using a pencil, they hardly know what to do with it, but after being trained, they know how to write each letter in the alphabet. They then work on connecting them together to form short words and then eventually sentences. At that point, the students hardly have to think about what they are doing because it seems natural. That is exactly the same when students are learning a new instrument. They start off learning a note at a time and slowly work them together to create a musical phrase or sentence. Eventually, they do not need to focus on each note as they play it because they automatically finger the correct note. The students can then focus on other aspects of playing including tone

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<sup>67</sup> Altenmüller 31.

quality or intonation. This takes time to happen though. Once it does, their “fluency, speed, rhythmic precision, and hand coordination” will increase.<sup>68</sup>

There have been a number of studies conducted that show that motor control in instrumental students hands is greater than in those who did not participate in music. Marie Forgeard, Ellen Winner, Andrea Norton, and Gottfried Schlaug did a study to see how much instrumental training affected children’s’ motor control. They found that “children who had received instrumental music training for three years or more outperformed their control counterparts in areas closely related to music: fine motor skills (both hands) and discrimination between melodies.”<sup>69</sup> The students who were tested in this study played piano, a string instrument (violin or cello), or both. These instruments are particularly dependent upon the motor control of hands. All of the children, including the control group, were exposed to general music, but only the instrumental group physically played instruments.<sup>70</sup> This helps to illustrate the point that the actual playing of the instrument develops the student’s hand control more than not having any instrumental experience.

When students are in elementary school, many often are introduced to Orff instruments. One aspect of the Orff approach is to express rhythm through movement. Students can start by clapping or patting a rhythm, and that rhythm is then transferred to a pitched mallet instrument.<sup>71</sup> The actual ability to hit the correct bar on the instrument helps the students develop control and hand-eye coordination. The teachers have the capability of removing bars, thus making it easier for the students to strike the correct

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<sup>68</sup> Altenmüller 39.

<sup>69</sup> Forgeard 5.

<sup>70</sup> Forgeard 3.

<sup>71</sup> Joanne Erwin, et al., Prelude to Music Education, (Upper Saddle River, NJ: Pearson Education, Inc., 2003) 49.

note.<sup>72</sup> This allows younger students the opportunity to develop control and coordination without having extra bars to hit. Once they become accustomed to striking the correct bar, the teacher can add more bars back, making the student use greater control while playing. The actual playing of these instruments “require(s) motor skill development that may be unique compared with other activities encountered in students’ daily lives.”<sup>73</sup> While these motions might be unique to the instrument, the theory can carry over into other aspects and activities in students’ lives, some that might even be years in the future.

The act of hitting the bar is similar to hitting a nail with a hammer. A construction worker does not use their whole arm to move the hammer to the nail; they use their wrist. They focus on the nail and the path that the hammer must take to the nail. They then need to judge the amount of force they need to use in order to accomplish their task. Winding up and slamming the hammer into the nail would be counterproductive because you would probably miss the nail. That is similar to playing an Orff instrument. All that a student needs to move is their wrists in order to play; otherwise, their chance of missing the bar greatly increases. Also, with Orff instruments, not a lot of force is needed to produce the desired sound. The students learn not only how to control the movement, but also how to apply the force that is required for the desired action.

With today’s society being so technologically driven, students are not having the chance to develop fine motor control to the extent they did in the past. Certain acts that helped develop those fine motor control skills in young children are not as large of parts of the school curricula as they once were. Cursive used to be taught to students starting in

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<sup>72</sup> Taylor 1.

<sup>73</sup> Taylor 2.

third grade and progressing all the way until sixth grade.<sup>74</sup> Now it is primarily taught only in the third grade and not used beyond just learning the skill. It isn't a skill that is needed today for communication purposes, especially with the overabundance of computers used for typing, but while cursive isn't commonly used, the lack of teaching it can impact students' motor control abilities.

Sandy Schefkind, a pediatric occupational therapist in Bethesda, Md., and pediatric coordinator for the American Occupational Therapy Association, said that learning cursive helped students hone their fine motor skills. 'It's the dexterity, the fluidity, the right amount of pressure to put with pen and pencil on paper.'<sup>75</sup>

Playing an instrument, while not honing the abilities exactly the same way cursive did, is still helping students to develop their fine motor control. There are many professions that exist that require fine motor control in the hands and fingers of their employees, including surgeons and technology workers. There are some similarities between typing and playing instruments; most specifically the amount of individual finger movements, but typing cannot hone the fluidity of the hand or the pressure of a pencil writing on paper as well as cursive or penmanship. The playing of musical instruments is one of the last places that remain in our students' education, except for the lessons that foster acuity with technology, which helps them to develop those skills. It is an aspect of their education that cannot be left out.

By playing a musical instrument, students can develop a number of physical skills including breath support and motor control. Learning how to play an instrument is similar to how one learns anything in life. It is sometimes odd and awkward at first, but once the

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<sup>74</sup> Katie Zezima, "The Case for Cursive," The New York Times, 27 Apr. 2011, 21 Jan. 2012  
<[http://www.nytimes.com/2011/04/28/us/28cursive.html?\\_r=1](http://www.nytimes.com/2011/04/28/us/28cursive.html?_r=1)>

<sup>75</sup> Zezima.

movements become more familiar, it seems natural. The skills learned help to fill the void in the lack of motor control learning in schools and can be transferred to other activities in everyday life.

## Chapter 5: Social Benefits

While both academic and physical abilities learned through instrumental music participation are important, social skills—including leadership, dedication, and organization—affect students significantly. The social skills obtained by participating in these programs can easily extend into everyday life and help to develop good work habits for the future. “Music can enhance awareness of others (through musical performance, and group composition), self-confidence (through the ability to perform in front of others), physical coordination and self-discipline (through instrumental practice).”<sup>76</sup> The development of these skills will help to propel students into the real world and workplace.

Leadership is learned through many different methods in music, including the participation in the ensemble and the creation of the music. Physical leadership can be taught through a variety of ensembles that students may participate in. For example, a marching band is run as a tiered system similar to the military with each position having someone else to report to. There is a set chain of command that must be followed and with each step having a certain level of responsibility and authority. If assigning positions, the director of the group can be related to a colonel, the drum majors are captains, the section leaders are sergeants, and the section members are privates. The drum majors, section leaders, and section member are all students who are a part of the ensemble while the director is an actual teacher responsible for all members. The biggest section of the band would be considered privates in this analogy due to their not having any leadership responsibilities. They come to rehearsal, listen, and follow the given instructions for the day. They report to their section leaders. Like sergeants, section

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<sup>76</sup> Clarke 95.

leaders are in charge of their instrument section of the band, which can vary in number depending on the size of the ensemble. They help to organize and instruct their sections in what they are doing for the day. Section leaders will help the group rehearse music and drill. Their section members come to them if there is an issue, and the section leaders report to the drum majors. The drum majors run the rehearsal by conducting the group through the music. They are the ones who communicate to the group what the director wants. During a performance, the director is on the sideline while the drum majors direct the group. The director, colonel, is the head of the operation. Each level of leadership is usually attained by appointment by the director and sometimes the input of the group.

Students in the positions of section leaders and drum majors gain experience on how to lead others in a controlled setting. While the director is the head figure of the group, they would rely on the drum majors and section leaders to insure that the group is following through with what the director decided and that they know what is wanted. The director would not have to look at the third clarinet player and tell her to watch her movements on the field because she is ending up in the wrong spot because the clarinet section leader would have done so already. The drum major might have told the section leader, but the section leader is the person to communicate with their section. If they follow the chain of command established by their positions, it allows smooth communication between all members in the group. The leading students have the opportunity to improve their skills and gain experience in a setting that is regulated and observed.

While the leadership positions are sought after, the students who are a part of the section should not be overlooked. They are learning just as much as the students who are



leading. The section members are learning how to follow orders and fit into a group. They are, however, also learning how to lead. People learn through observation, so while the section leaders and drum majors are learning through doing, the section members are learning through watching. They can see what works and does not work. They also have the unique opportunity to experience the effects of the leadership. This allows the students to shape how they would lead and what they would and would not do.

Leadership isn't only found in a hierarchical fashion when dealing with musical ensembles. There is also the idea of musical leadership or learning through the music. When learning a piece of music, a student must know what importance their part has at any given time. Is the student playing the solo, melody, harmony, or bass line at any given time? The most prominent line isn't always the melody or solo, but the bass. That bass line sets the group up for success. They are the group the entire band or orchestra will tune to, and they are also the leader when it comes to dynamic or volume changes. They are the foundation that the rest of the group plays on top of. Those students must be leaders as they play.

The next important group would be the solo or melody lines. When playing a solo, that student must play out over the whole group. They are a leader in that moment in time. If a student is shy, they must work on developing their confidence to lead the group through that section. While intimidating at first, the more they do so, the easier it becomes.

There are also musical followers; those who support the other lines. They blend together to create a foundation of support for the melody and bass. They are the group that adds the harmony and color to the music. In a group of eighty people, those roles of

leader and follower switch in any given section of music. At one time a clarinet player could be playing the melody line, but twelve measures later, they could be the harmony line. Due to this switching of parts, the majority of the band learns how both to lead and follow according to the music line. The conductor helps guide the group, but if the students used their ears, they would be able to guide themselves without the conductor.

Large instrumental groups like the marching band or concert bands are not the only way for leadership to develop in students. The inclusion of small ensemble groups in a program also helps students to hone their skills. In a small ensemble, there is generally one student for each part, and the band director is more of a mentor to the group. They do not conduct the small groups as they would a large ensemble. Since there is only one student on each part, each student must be confident in what they are playing. The lack of a singular director forces the students to work together to create a song taking what each other has to say and developing the music for performance. If the group is working correctly, it should be a self-sustained unit. In this setting every student is important to the final product. Without their leading and working together, the group would never accomplish anything. In order to be ready to perform, they have to step up and take charge of the group. This is helping them be more confident as musicians and people.

Instrumental students learn self-discipline, dedication, accountability, and the value of hard work while studying an instrument. The task of learning a new instrument cannot be done overnight, and their friend cannot do it for them. In order to play an instrument, the student must take the physical time and practice all of the skills that the instrument requires. For a string instrument, they must practice their many bowing techniques; for piano, they must practice finger movements and learn spatial placement

of the keys; and for brass and woodwind students, they must learn how to control their air to give them an ideal sound for their instrument. Their classroom teacher can give them all the necessary information including how to hold it, how to form the embouchure, and what the actual notes are, but in order to play, the students must pick up the instrument and blow the air themselves. In order to improve, the students must recognize what areas of their playing are weak and take the steps to make them better. This process takes years to develop fully. “Through music study, students learn the value of sustained effort to achieve excellence and the concrete rewards of hard work.”<sup>77</sup> The more effort they put into this activity, the more they improve, and this type of improvement can be heard. In today’s world, if someone has a question, they can go on their computer or Smartphone and find the answer. If they want to play better, a computer will not help them. They need to physically do the activity themselves in order to improve and gain any positive skill from the process. The students are held accountable if they do not improve because they are the only ones who can make that change. They need to understand that and embrace it. Their hard work and self-discipline are the only ways they can improve.

Learning musical instruments can be a large time commitment. If a student starts a wind instrument in fifth grade and wishes to play until they graduate high school that is an eight-year commitment. They will start off barely able to play three notes, but by the end of high school, if they have put in the effort, they could be a professional player. Age will not decide who is the best player; effort will. The more effort they put in, the better their playing will be. The students will understand that in learning an instrument, the journey and the process are the real goals, and there isn’t an end. There will always be

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<sup>77</sup> Carolyn Phillips, “Twelve Benefits of Music Education,” Music Education Online, 2006, 20 Oct. 2011 <<http://www.childrensmusicworkshop.com/advocacy/12benefits.html>>

something to improve in their playing, but they will have to self assess to figure out what that is.

The skills that they are learning are not just for the music classroom. “Skills learned through the discipline of music transfer to study skills, communication skills, and cognitive skills useful in every part of the curriculum.”<sup>78</sup> Having students learn self-discipline and dedication not only help them with their other subjects, but it will also benefit them in their later careers. They will understand that the more focused they are and the harder they work, the more they will accomplish. They had a long-term dedication to their instruments. Eight years doing anything is a long time. To instill that skill in students while they are young can only show them what is possible and how they can grow and improve if they try.

While the studying of an instrument is individual and relies solely on that individual in order to improve, musicians rarely play only by themselves because music is such a social activity. When one plays in a group, they are learning from others just as much as the other members are learning from them. There are certain aspects of music that are focused upon in a group setting as opposed to individual playing like pianists do. In a group, everything has to be exactly right. That means every rhythm, every note, and even every dynamic must be perfect; otherwise it will be heard. If one player decides to play a rhythm one way and a different person interprets it another way, it is noticeable. If someone misses a note, the audience can hear it. For pianists, they play by themselves so that at any time they can slightly change how fast they are going or how slowly. The only

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<sup>78</sup> “Benefits of Music Education,” Music Education Online, 2002, 20 Oct. 2011  
<<http://www.childrensmusicworkshop.com/advocacy/benefits.html>>

people they are relying on are themselves. While everything must be perfect in ensembles, the added socialization is worth the efforts.

Many students join instrument groups like band or orchestra to socialize with their friends and peers. “Music is one way for young people to connect with themselves, but it is also a bridge for connecting with others.”<sup>79</sup> While that is a good reason for them to join to begin with, they also will have the opportunity to experience group collaboration at a large level. In the general classrooms, the students usually have the opportunity to work in small groups or even as a full class on an assignment. This usually only has about twenty students working together at the most. In a band, for example, there could be eighty or more students working together to create a musical piece, and each person is an integral part to this creation whether it is the tuba player with the bass line, the flute with the melody, or the fourth horn with the harmonized countermelody. Each person has a part that would be missed if it were not being played.

Another aspect of these groups is that the students must all be present in order to create the music. With the over-abundance of electronics available to students these days, they need not necessarily communicate with those who are in the room. If they become bored with the person they are talking to, they can start texting their friend. If they are working on a class project, it can virtually be completed just through email with no face-to-face contact. Music is one of the few disciplines where that is not true. In order to complete a piece of music, you need all players and all instruments to be physically sitting together in the same room working toward the same goal. There is something powerful about seeing a room of eighty plus people striving to bring a piece of music alive for the audience. There is nothing else like it. The students can feel the joy and

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<sup>79</sup> “Benefit of Music Education.”

pride from their peers, teacher, and audience after the performance concludes. Sometimes the experience is beyond words; it is esthetic. That is what musicians are striving to achieve. The experience of watching students play can move some to tears and be remembered for years, but it cannot truly be explained. Those emotions cannot be received in an email. These students who experience this and see how their work is being treasured will value the face-to-face communication that was needed to bring the music to life.

Some of the first non-musical concepts that a student learns once they join an instrumental ensemble would be the importance of organization and attendance. In order to play an instrument, they must be organized and know what they need to bring each day for them to succeed. They must remember their instrument, music, and a pencil because a teacher rarely has a spare flute or saxophone available for the student. A student showing up to class without their instrument or music would be unable to take part in the lesson the way their classmates are. When they are unable to take part, they are negatively impacting the learning of their peers. Students learn from each other as much as they learn from the teacher, if not more so. The experience for all would not be as complete as it would be if all students remembered their required materials.

Attendance is a big factor for rehearsals. Tardiness is a quality that is often frowned upon by not just teachers but by bosses in the real world. If you arrive late to your job or a meeting, you are not running the risk of receiving a point off of your grade; you might be fired. Having a sense of punctuality instilled in one when young is beneficial. Musicians have a saying, “If you arrive early, you are on time. If you arrive on time, you are late.” If rehearsal for the day started at 1:30 and you showed up at 1:30, you

are late because you have not put your instrument together or had time to warm up. You must be early in order to be ready to play at 1:30. It is harder to sneak in undetected mostly due to the set-up of the room being in a half circle around the conductor. In order not to be a distraction, the students must feel the need to show up on time, and then follow through by doing so. They will feel less stressed not having to be singled out for being late. They will learn the benefits of arriving on time and feeling ready to begin the day's lesson.

Being late is not the only way to negatively affect the group. If a student is absent for a rehearsal, they are not only missing out on their learning, but they are then denying the group their presence, and with that an opportunity to interact and learn together. Ensembles are units that require attendance in order to be successful. In an English or math class, the students are only greatly impacting their own work if they are absent; whereas in an instrumental ensemble rehearsal, the other class members are relying on all parts being played. If the tuba player is not there one day, the band will not hear that part. When a musician misses a rehearsal, everyone misses that student and their contribution for the day. By learning how important each student is to the group, it helps to teach them to be responsible and reliable. They should want to be there to help their ensemble reach their goal. These students not only have the enjoyment for doing well and possibly receiving a good grade, they understand the success and that what they do helps others around them.

This group reliability helps to build a sense of community in any instrumental ensemble. That connection is established by working and relying on others and allows the students to feel involved with not only the group, but also the school community. These

groups go beyond what just occurs in the classroom. They help to build relationships across grade divides and with a number of students they might not have interacted with otherwise. These students bond as a group as they create musical works that they then perform for an audience. “Through their participation, they bond with other students and with the school. Plus they get a chance to feel good about themselves.”<sup>80</sup> Participating in these ensembles and interacting with a variety of students helps students to increase their self-esteem and gives them a larger set of supports to rely on. While a band or orchestra might have sixty plus members from all grades, a science class will still only have twenty or so students, generally from only one grade. The more connections a student has to a school, the greater their likelihood to remain there. These students in the ensembles are also learning to interact with even more people that they might otherwise, which give them a skill that they can take with them throughout their life.

Through studying an instrument, musicians learn more about themselves and gain confidence. When starting out, it can be scary for the student. They are doing something brand new to them, and it might not be the best sounding. They can feel self-conscious, but if nurtured by the teacher, they will soon grow out of the self-consciousness. They will be able to see what they have accomplished, and that will give them confidence in their abilities. If the program is set-up correctly, students will be able to play for their peers. Doing so is generally very frightening because no one judges a person more than their peers, but the more they do so, the easier it is. The idea of playing in front of others is easily relatable to giving a presentation in another class. They must stand up and present what they have studied. Playing an instrument is just another way to do that.

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<sup>80</sup> “Activities Can Help Keep At-Risk Students in School,” [School Family.com](http://www.schoolfamily.com/school-family-articles/article/10301-activities-can-help-keep-at-risk-students-in-school), 2012, 10 Jan. 2012 <<http://www.schoolfamily.com/school-family-articles/article/10301-activities-can-help-keep-at-risk-students-in-school>>



These students might likewise have to do presentations in their chosen career. The fact that they have had a number of different opportunities to help build their confidence will only help them in that pursuit.

One of the most important skills that music helps students develop is the ability to express themselves in a safe, healthy way. The ability to play music allows students to express their feelings when words might not be enough. They can go and play their instrument either in a group or by themselves and feel the music. This expression is safe to do and will be there whenever they wish it to be. Sometimes picking up an instrument can help a student forget what they do not want to remember. They can also go out and play for others, having them join in on the experience.

Musical ensembles can offer a healthy amount of both cooperation and competition. While competition can exist between bands at marching or concert band competitions, it is more common to find it between members of the same group. Competition between group members generally happens at the beginning of any band season when members audition for seating placements, and this can become very heated. There is only one top seat in each section, so there could be nine players vying for that spot and eight will not receive it. This can lead to fights and disagreements between band members unless the teacher addresses it. A school ensemble is first and foremost a classroom, so learning must occur with all receiving an education. Though it can become heated, it does push students to improve. If they want to play a first part, they need to practice in order to outscore the other players. When used properly in the classroom, it can be a method of individual motivation.

Once the audition results are announced, cooperation really begins. These students who were competing now must form a complete group and work together to bring music to life. That is not to say that there is no more competition around. Students can still challenge the top players to be their best because if they fall, there is someone to fill that coveted spot. This process can occur in a high school or college-level group with players who know each other, but this can also be found when students audition for Honor's festivals. Those festivals gather players from all over a selected area to audition to create an Honor's band or orchestra. Once they name the students who have made it, they form a group and perform for an audience. They barely know these other people that they are playing with, but they can still create music. That is one of the great parts about music and ensembles. These groups might start with competition, but in order to succeed, the students must be taught to cooperate with others. Those skills will carry over and help them in their future work pursuits, even if they are not related to music.

There are very few classes that can offer organization, leadership, and personal expression, while also giving students experience they will remember. The students can take the skills they learned while being a member of an instrumental ensemble and relate them to any area of their future pursuits. They will understand how hard work and communication can help them to succeed in their chosen career. These skills will not only insure that they are good workers, but that they are also influential members of our society.

## Chapter 6: Concluding Thoughts

As evidenced by the preceding chapters, instrumental music education serves many purposes. It allows students to grow academically, physically, and socially in a safe learning environment with student success hinging upon the effort they put in. Active participation is essential in order to reap the rewards that instrumental music can bring.

It should not, however, be required that every student participate in a musical ensemble because for some students, they have no interest in doing so. If they are lacking interest, they will not put in the required amount of effort and dedication, hurting not just themselves by not learning, but they might also be impeding the learning of their classmates. While it should not be required, instrumental ensembles must be offered to every student. There are students for whom music is of significant benefit. In some school districts, instrumental ensembles are not seen as graded classes or are even placed during the designated school day. By doing so, schools are saying that they value the ensemble and what it offers less than a class that is during the school day. The amount of work and effort that both the conductor and that students place into an ensemble and in preparing for a concert qualifies it as a real academic class.

Music can change students' lives in many ways. "Whether the results are a reflection of a direct cognitive connection or other factors, such as higher self-esteem, and involvement in school, the outcome is no less important. Music does influence and impact student learning and success."<sup>81</sup> The involvement in these groups can build relationships that will cross grade lines and unite students around a common pursuit. This ensemble might be the reason that a child will stay in school.

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<sup>81</sup> "Music's Contribution to Academic Success."

Furthermore, instrumental music is an academic subject, and it should be treated as such. The students can do homework, take tests, or write papers depending on the teacher's curriculum. They can go beyond just learning the notes on the page, but learn about the history of the piece or the composer and what inspired them to write it.

Studying instrumental music can be whatever one makes of it. However, it should never be treated as a means to an end. While there are academic benefits for studying instrumental music, that should not be the sole reason to study it, especially given the amount of time committed and level of dedication required.

It must not be forgotten that the purpose of a fine music education is not to improve English test scores, and one should no more study music to improve English scores than one should study English to improve music scores. The reason to study music is to enhance the quality of one's life through the myriad opportunities and experiences that music study provides.<sup>82</sup>

Schools without music programs deny their students an opportunity to become a well-rounded, cultured person. "An education confined to the "three R's" is analogous to buying an automobile with only an engine, frame, seats, and wheels. It is only the bare minimum, whether it be a car or an education. More is needed if life is to be enriched."<sup>83</sup> In the real world, a future employer might look at the education of a prospective worker, but that isn't the only factor. The employer will look at how they work with others, are they able to show up on time, are they a hard worker, and other key characteristics that create a good employee. If schools only focus on academics, the students can lose the opportunity to develop those skills. By offering music to the students, they have the

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<sup>82</sup> Johnson 304.

<sup>83</sup> Abeles 101.

chance to take it and start developing skills that will help them in life while also learning about the arts. It helps to create a well-rounded person.

The benefits of having an instrumental music program illustrate how a program can influence and help students. The academic, physical, and social benefits of a music program are inarguable. Instrumental music can help increase academic development, fine motor control, and the development of important social skills, which is very rarely found all together in any other academic discipline. Music has the ability to unite people from all over the world together in the same pursuit regardless of language or ethnicity. “Music has a great power for bringing people together. With so many forces in this world acting to drive wedges between people, it’s important to preserve those things that help us experience our common humanity.”<sup>84</sup>

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<sup>84</sup> “Benefits of Music Education.”

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## Author's Biography

Kayla M. Peard was born in York, Maine, on April 8, 1990. She was raised there and graduated Valedictorian of York High School in 2008. Majoring in Music Education, Kayla has participated and held leadership positions in numerous instrumental ensembles on campus. Those ensembles include the UMaine Symphonic Band, UMaine Jazz Ensemble, UMaine Brass Ensemble, and the UMaine Trumpet Ensemble. Kayla was the UMaine Class of 2012 Salutatorian and is a member of Phi Beta Kappa, Pi Kappa Lambda, and Phi Kappa Phi Honor Societies. She is also the recipient of the Virginia Gibson Book Award.

Upon graduation, Kayla plans to teach instrumental music to secondary students. She wishes to share her love and promote the importance of instrumental music ensembles in students' lives. In the future, she plans to obtain a Master's degree in Instrumental Conducting to further her education and improve her ability to help students.