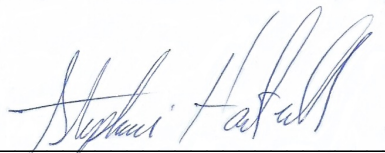
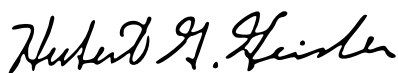


ACCEPTANCE

This dissertation, THE EFFECTS OF PARENTAL INVOLVEMENT AND COMPUTER-BASED MUSIC TECHNOLOGY ON DEVELOPING INDEPENDENT MUSICIANSHIP, was prepared under the direction of the candidate's Dissertation Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree of Doctor of Education in the School of Education, Concordia University Irvine.



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THE EFFECTS OF PARENTAL INVOLVEMENT AND COMPUTER-BASED MUSIC
TECHNOLOGY ON DEVELOPING INDEPENDENT MUSICIANSHIP

by

Elisabeth S. Summers

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ABSTRACT

Music education is often one of the first programs that are removed from school districts. With the new language in the “Every Student Succeeds Act,” it is important that school performance is measured through student engagement, parental involvement, and school culture, for a well-rounded education including music (NAfME, n.d.). The National Coalition for Core Arts Standards redeveloped the music standards in 2014 to include technology (NAfME, n.d.). The purpose of the study is to determine the impact of parental involvement and how access to technology contribute to the success of creating independent musicians in middle school, instrumental music programs.

A mixed-methods research analysis was completed to explore parental involvement and technology impacts. Interviews were conducted between public and private school music teachers, as well as parent participants. Surveys were sent to parents of both school sites to investigate what factor of parental involvement of Epstein’s (1986) framework was most present in a middle school music program. Interviews were coded for common themes. An intervention was also implemented into the study to determine if there was a significant difference in musical growth gained between technology and the traditional teaching method, but also to determine if technology facilitates Zimmerman’s (1986) framework of self-regulated learning. Paired samples T-tests were computed on Statistical Package for Social Sciences (SPSS) software to calculate the comparisons between the methods and their growth scores. There was a significant difference in the pre-test and post-test for both the traditional teaching method and the intervention method. However, there was not a significant difference between the growth rates of both methods. This indicated that either method was an effective way for students to learn a piece of music. In addition, practice logs for the traditional method were coded for evidence of

self-regulated learning. Positive communication between parents, teachers and technology in music education that facilitates self-regulated learning impacted the success of students becoming independent musicians in middle school instrumental-music programs. Interviews of two music teachers determined differences between the programs pertaining to support, enrollment, funding and technology. Positive communication between parents and teachers promoted a better understanding of a child's musical development, and that parents want to know that their teacher cares for their child. Computer-based technology in the music classroom demonstrated an effective practice session for students. Students were motivated to do well by utilizing evaluation features of the software.

Keyword: music education, middle school, parental involvement, communication, student success, self-regulated learning, technology, motivation, independent musicians.

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DEDICATION

To my grandmother, who has been my greatest cheerleader, thank you for always believing in me. Your love and support were something that I have cherished. You were with me through this entire journey and I hope that I have made you proud. To my parents, who have always encouraged me to challenge and push myself, thank you for your endless sacrifices that have made me a better person. To my husband, your love and support has helped me carry this doctoral process through the end.

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CHAPTER 1: INTRODUCTION

Extensive research has been conducted linking music and how it affects brain development (Csikszentmihalyi, 1997; Collins, 2014; Curtis & Fallin, 2014; Flohr, 2010; Goodhart, 2014). The benefits of music education show advantages in areas such as “improvements in memory, language acquisition, executive function, and brain plasticity” (Collins, 2014, p 4). Studies have shown that students who began playing an instrument at a younger age have more substantial brain changes (Collins, 2014). Students who have the advantage of a daily music education program in their schools, have shown tremendous growth in auditory processing and motor skills (Curtis & Fallin, 2014). The impact of music education on a child’s brain has a direct impact on creating life-long learners (Curtis & Fallin, 2014).

In recent studies, brain plasticity has had a significant impact on brain research (Flohr, 2010). Brain plasticity occurs when the brain changes as a result of experience, thus making the brain very adaptable (Flohr, 2010). Flohr (2010) stated that people who play a musical instrument help keep their brain more fluid. Assumptions that playing and/or listening to music will make you smarter was called the “Mozart Effect” which generated a major interest from the media (Flohr, 2010). It is important to note that music does not do this to everyone, but research showed that there are positive gains from the learning process (Flohr, 2010). Music education aids student academic achievement by preparing them to learn (Arts Education, 2011). Music education also improves fine motor skills, fosters memory and nurtures thinking skills (Arts Education, 2011).

Playing an instrument has proven to increase brain activity which corresponds to an increase in cognition (Goodhart, 2014). Since instrumental music teachers are always striving for perfection from their students, the approach emphasizes the process (Goodhart, 2014). As

Common Core implemented the new National Music Standards into the classroom, the process of learning was a major component of critical thinking for musicians (National Association for Music Education, 2015). Csikszentmihalyi (1997) believed that the brain is fully engaged when the activity is fun and enjoyable. This optimal experience, specifically, has been labeled “flow.” According to Csikszentmihalyi, flow happens when one has a set of goals when accomplishing a challenge. Subsequently, higher-level problem solving was most desirable for brain activity (Goodhart, 2014).

Schwartz (2013) released a blog article to CNN’s *Schools of Thoughts* entitled “My View: Everything I need to know, I learned in music class.” Schwartz earned a Bachelor of Arts in music from the University of Hartford but decided to transfer out of his Master of Arts in music program to a Master of Science in Business Administration for job-security reasons. However, Schwartz (2013) emphasized that the six years in music school were not a loss, but fully prepared him for life lessons and success.

Statement of the Problem

The United States Congress passed the “Every Student Succeeds Act (ESSA)” in 2015 as a revision to the No Child Left Behind Act (National Association for Music Education, 2015). It was the first-time music was specifically mentioned as a contributor to a child’s overall well-rounded education. Unfortunately, music is still not a required subject for students. The National Association for Music Education (NAfME) reviewed that ESSA provides students the opportunity of a wide range of academic subjects. Music education is often one of the first programs that are removed from school districts (National Association for Music Education, 2015).

With the new language in the ESSA, it is important that school performance is measured through student engagement, parental involvement, and school culture for a well-rounded education including music (NAfME, n.d.). Parental involvement is a key component to the success of a child's education (Bauch, 1994). The foundation of the relationship that bridges the student to the classroom and home is that of the teacher and the parent (Epstein, 1986). "Parent involvement has been associated with higher grade attainment, engagement in school, and increased on-time high school completion" (Lau, 2013, p. 11). After No Child Left Behind was implemented in 2001, parental involvement continues to be a priority for school districts in addition to the National Coalition for Parent Involvement in Education (Crowe, 2011).

For students in middle school music programs, how do parental involvement and music technology directly impact their education? Parental involvement can be viewed in several different ways, whether it is with academic support, extracurricular activities, and socio-emotional development (Lau, 2013). In both home and school activities, the investment parents put into their child's education can have different effects (Balli, 1997).

Technology is recognized as a crucial part of music education and should be explored and taught in the classroom (Core Music Standards Technology Strand, 2014). The National Coalition for Core Arts Standards redeveloped the music standards in 2014 (NAfME, n.d.). Originally created in 1994, the nine content standards transformed into three categories of "music literacy": creating, performing, and responding. With the revisions of the core standards, music technology was given its own strand.

As education is emerging and changing, it is important that music education reflects the change. As a result of the combination of changes to parental involvement from the ESSA and

the impact of technology through the new core standards, music education is changing in both public and private schools.

Purpose of the Study

The purpose of the study was to determine the impact of parental involvement and how access to technology contribute to the success of creating independent musicians in middle school, instrumental music programs of varying structure. Parental involvement and technology have a major impact on music education in the 21st century. These factors contribute to a better understanding of a child's musical development.

A private school located in an affluent city in Northern Orange County, California and a STEAM (Science, Technology, Engineering, the Arts, and Mathematics) charter school, located in a semi-urban area of Los Angeles County, were used in the study to compare parental involvement and technology. Two different environments, a public (Charter), low socio-economic status (SES) school and a private, high SES school were researched. The contrary school environments were essential to the purpose of the study.

Generally, students that come from a low-SES often have lower exposure to technology (Ritzhaupt, Dawson, Liu, & Barron, 2013). Students may not have access to a computer, let alone an internet connection (Ritzhaupt et al., 2013). Studies have shown that students who are in high-SES schools have better and more up-to-date software and programs compared to low-SES schools (Ritzhaupt et al., 2013).

The impact of parental involvement stated by ESSA and the new music technology standards will impact music education in the 21st century. The United States Congress and the National Association for Music Education has determined within the past two years that these two factors are important to a child's education. Positive parental involvement contributes to

student achievement (Long, 2007). In addition, music educators strive for students to practice at home effectively (Kim, 2008). The use of technology could contribute to effective home practice.

Research Questions

In researching the topic of parental involvement and technology in music education, the researcher focused on the following research questions:

1. What are the differences between two, middle school music programs in developing independent musicianship?
2. Is there a difference in musical gain between traditional teaching methods and the SmartMusic computer program?
3. How does the computer program, SmartMusic, facilitate self-regulated learning?
4. How does parental involvement directly impact middle school, instrumental music programs?
5. Of the six types of parental involvement of Epstein's theory, which is the most present in instrumental, middle school music programs?

Theoretical Framework

Epstein's (1986) framework established that there are six types of parental involvement between the community and the school. The six types of parental involvement in a child's education link the home environment to the school community. The framework of the six types of involvement pairs a successful partnership for students to succeed in the classroom and beyond graduation (Epstein, 1986). Epstein's (1986) six types of parental involvement are (a) parenting, (b) communicating, (c) volunteering, (d) learning at home, (e) decision making, and (f) collaborating with the community.

Epstein (1986) supported overlapping spheres of influence that connected the student, parent, and teacher. As a result, a family-like environment was established in the school where the parents become an active participant in their child's education. Externally, the family, student, and community are all factors that contribute to a child's education. In this manner, it can either improve or decrease the relationship (Epstein, 1986). Internally, the personal relationships between the three, home, school and community, play a major role i.e., school-wide events and parent-teacher conferences (Epstein, 1986).

Zimmerman and Pons (1986) fostered student success through self-regulated learning (SRL) theory. The concept of this theory is centered on a three-process cycle: (a) planning, (b) practice, and (c) evaluation (Zimmerman & Pons, 1986). Through guided instruction from teachers, students' success and approach to learning are directly impacted by their own understanding of their process of learning, also known as metacognition.

In the planning process, students can determine what needs to be accomplished. They can transition into the practicing phase to implement strategies to complete. Finally, students will then evaluate their process to determine if it worked (Zimmerman & Pons, 1986). By self-regulating their own learning, students' self-efficacy increases are reflected in higher academic achievement (Zimmerman, 1990). The theory of self-regulated learning can be linked with the goals of computer programs. Through the guided instruction provided by the computer program, students can plan, practice, and evaluate their growth as a musician through performance success. SmartMusic is the technological tool that a middle school musician will use to self-regulate.

Alongside the combined theories of Epstein's (1986) parental involvement and Zimmerman's (1986) self-regulated learning, the study may demonstrate factors that contribute

to the independent musicianship of middle school musicians. Results of the study could help music teachers to advocate the benefits of instrumental music in both private and public-school education. In addition, results could help music teachers develop more positive-parental involvement in the six areas of Epstein's (1986) theory.

Significance of the Study

As a music educator, the researcher was directly impacted by the topic of the research. At an early age, the researcher was exposed to music by the influence of both parents. Encouraged to take private lessons from age five to the present day, join music ensembles, and compete in competitions, the researcher was destined to continue with music studies in higher education. The researcher ultimately became an educator in the music field. Over the years of music education studies and directly impacting students in the classroom, the fate of music education is something of high priority to the researcher. With the history of the researcher's own parental involvement to the parent involvement in the researcher's classroom and the impact of technology continually changing education, the researcher explored the two topics to advocate music education for middle school students.

Parental involvement and technology have an impact on instrumental music programs. Parental involvement is crucial for the success of a child's education, in any academic area (Bauch, 1994). After No Child Left Behind was implemented in 2001, school districts have made parental involvement a priority (Crowe, 2011). Academic support and extracurricular activities are a few ways that parental involvement contributes to a child's education (Lau, 2013). Communication between teachers, parents, and students is essential for involvement to be effective in a child's education and success (Becker & Epstein, 1982; Cotton & Wikelund, 1989;

Hara & Burke, 1998). Technology is required to be a part of a student's education since the addition of common core music standards (Common Core State Standards Initiative, 2015).

It is important that both parental involvement and music technology are part of a child's music education. Both these contributing factors are essential in developing critical thinking skills and independent musicianship. Facilitating individual instruction and creativity aids independent musicianship that can be found in music technology (Burnard, 2008).

Research indicated that active, positive parental involvement and technology contributes to creating independent musicianship in middle school students (Crowe, 2011). As mandated by No Child Left Behind of 2001, school districts are making it a priority for parental involvement (Crowe, 2011). Currently with Common Core and the new Music Core Standards, it is important that schools are developing critical thinkers/independent musicianship. The importance of this study is to research how parental involvement and technology impact independent musicianship. The researcher believes that positive findings of the use of technology used in the instrumental classroom will impact teaching techniques and strategies that will shape music education in the 21st century. In addition, findings will encourage parents to have a positive impact on their child's education.

Definition of Terms

An explanation of terms that are directly related is needed to understand the research and study. It is necessary for the reader to know the following terms:

Booster Parent: A term for parent volunteers who work with extracurricular activities of school programs. Such programs include athletics and band.

Critical Thinking: A method of thinking that improves one's approach to thinking. Individuals benefit with a better approach to analyze, assess and recreate to thinking that is

exclusively dependent on the individual's motivation. Results from critical thinking contribute to better communication and problem-solving capabilities (Criticalthinking.org, 2013).

Common Core: Elected by 48 states to develop standards for Kindergarten through 12th grade in English and mathematics (Common Core State Standards Initiative, 2015). Forty-three states adopted the Common Core Standards, as they prepare students for college and a career. The high standards are consistent across all the participating states with clear goals for preparing the 21st century student for life after high school (Common Core State Standards Initiative, 2015).

English Language Development (ELD): Students whose primary language (or language spoken at home) is not English are evaluated for English Language Development supplemental programs for language acquisition ("The STEAM Academy," 2015).

Every Student Succeeds Act (ESSA): A revision to No Child Left Behind that was passed by Congress in 2015. Effective August 1, 2016, the Act is the first time that music is, specifically, mentioned as a component to a child's well-rounded education (NAfME, n.d.).

Independent Musicianship: With the initiative to promote critical thinking through common core, independent musicianship follows similar guidelines (National Association for Music Education, 2015). Independent musicianship is a skill that students strive for, playing and learning music independently from the instrumental music teacher. Students develop skills to address the core music standards of "creating, performing, responding, and connecting" (National Association for Music Education, 2015).

Instrumental Band Music Programs: Music programs that are instrumentally based in schools. This study focused on middle school, instrumental band programs that are composed of

woodwind (oboe, flute, clarinet, and saxophone), brass (trumpet, trombone, euphonium, and tuba) and percussion instruments in both public and private schools.

Helicopter Parent: A specific parenting style, which does not allow the child to be independent and prepare them for the future. Parents are not allowing their students to fail, which can cause major damage to psychological development (Bess-Lima, 2013). Helicopter parents do not enable children to make their own decisions and are hindering them with constant communication (Mathews, 2007).

Music Literacy: The artistic process of creating, performing and responding to music as a measurement of knowledge and understanding (NAfME, n.d.).

Music Technology: The evolution of music educators using technology, which allows students to become independent musicians by facilitating their own instruction and creativity of music (Burnard, 2008).

No Child Left Behind (NCLB): An act mandated by the United States Congress in 2001 (No Child Left Behind (NCLB), 2002). NCLB is a reform for standards-based education with high standards and goals to improve public education. Students are assessed through standardized testing to demonstrate basic skills in English Language Arts and Math in order for school districts to receive federal funding (NCLB, 2002). Accountability for both the school district and teachers requires improvement in various areas, such as parental involvement and curriculum (NCLB, 2002).

Socio-Economic Status (SES): A family's status that is based upon income, education level, occupation. High-SES family is assumed to provide a better education for their children versus a low-SES family (North Central Regional Educational Laboratory, 2015).

Limitations

This study was limited to middle school, instrumental music consisting of sixth through eighth grade musicians. As an elective in both the public and private school, the student population surveyed is limited to students who are enrolled into the instrumental music program. The students are required to have their own instrument (or rent an instrument from the school or local music store) that could have an impact on enrollment in the instrumental band music program. In addition, students are required to attend performances and rehearsals beyond the academic school day.

For musicians in this public-school instrumental music program, enrollment of electives was impacted due to an intervention English Language Development (ELD) class. Students who are not re-designated as English proficient are required by the school district to enroll in supplemental/intervention classes instead of electives. Systematic exposure to English language music appears to assist in the acquisition of the secondary language among students (Xiangming & Brand, 2009). Music education also appears to improve student performance across all subject areas including English and Mathematics (Vitale, 2011). Music courses meet English Language Development (ELD) standards (California Commission on Teacher Credentialing, 2014) and can improve their learning process by providing an alternate approach to language acquisition (Xiangming & Brand, 2009).

In this private school, instrumental program, students were required to be in instrumental music from first grade through fifth grade. When the student enters middle school in sixth grade, instrumental music becomes an elective, resulting in a significant decrease in enrollment. Parents who volunteer their time to the instrumental music program are also limited based upon availability. Both private and public-school music programs relied on parent volunteers often

referred to as booster parents. Parents' willingness to volunteer to interview and survey for this study was a limitation.

Delimitations

The researcher limited the participants by intermediate eighth grade students in both the private and public school. The private school students were required to be part of an instrumental ensemble in fourth and fifth grade in the elementary instrumental music program. As a result, many students were actively involved in the middle school instrumental program. The public school, music program in the district started at the sixth grade when they enter the charter, middle school instrumental program. As a result, the researcher decided to use the intermediate students of seventh grade as the participants of the middle school musicians. The researcher did not want to use beginning band students, as they did not have a foundation of instrumental music playing. Beginning band classes in the public school was available for sixth grade students. Restricting the amount of the music students to only the intermediate eighth graders may have decreased the number of parent participants.

Students all had access to instruments, whether owned or rented, and were required to have a computer with Internet access to complete homework assignments at the private school. It was mandatory for each student to have a music software program as SmartMusic, which aids individual-practicing sessions at home ("Music Practice Software - SmartMusic for Students," n.d.). The researcher was already familiar with the computer program and decided to use it as the tool to evaluate student-music growth. Due to limitations of the availability of music repertoire on SmartMusic, the researcher used music selections provided by the computer program only. The researcher did not have other music teachers evaluate individual-student

growth, but strictly used the results from SmartMusic, as it generated an automatic score with each submission.

Hypotheses

In this study, hypotheses were derived from the researcher's past observations and perceptions. Major differences in the two, different instrumental music departments will reflect the differences of a public and a private school. More specifically, funding from the school will be a key component to supporting the two programs.

Parental involvement is seen by most to have a direct impact on student success. Therefore, students whose parents are not involved in their education will be assumed not to improve to the same extent as musicians. Due to the large amount of support from parents in the instrumental music program, volunteering will be the most important factor of Epstein's framework. This is assumed based upon the number of parent volunteers at music concerts, field trips and fundraisers that are organized by the parent groups to help fund the music program.

The use of computer-based music technology will also have a significant difference in musical growth than the traditional method of practicing. Due to the features available to the students, the time spent practicing will be more effective. Students will have a greater musical growth with the computer-based technology. In addition, students will not know how to self-regulate their learning without the aid of the program.

Organization of the Study

In Chapter 1 of the study, an introduction on the importance of music in a child's education was summarized. Parental involvement and computer-based technology has a major impact on developing independent musicianship in middle school students. The chapter also included the statement of the problem, purpose of the study, research questions, theoretical

framework, significance of the study, definitions of terms, limitations, delimitations, and the summary. Chapter 2 presented a review of the literature, which included a historical perspective of parental involvement of communication, academic support, student outcomes and after-school activities. The literature review also included music technology in the 21st century through independent musicianship, creativity, computer software and cyber-classrooms. Chapter 3 described the methodology used for the study of the research questions. In Chapter 4, the results of the data and findings contributed to the answers of the research questions. Chapter 5 summarized the study, and provided a discussion of the findings, implications, recommendations and conclusions.

CHAPTER 2: REVIEW OF THE LITERATURE

Music educators believe that through music education, children can learn intelligence through logic (Levinowitz, 1999). In preparation of students' performances, students must obtain certain skills for success, music literacy and independent musicianship (Nowmos, 2010). In this chapter, there are descriptions of parental involvement through Epstein's (1986) six factors that are influential in a child's education. There is a further exploration of how parents are involved with a child's individual music education. In addition, an explanation of the self-regulated learning process, as well as the impact and evolution of music technology in the 21st century school systems.

Key terms within the literature review were: parental involvement, parent volunteers, parent communication, community and school, student achievement, self-regulated learning, effective practice for musicians, student evaluation, self-evaluation, student planning, music technology, SmartMusic, music education software, alternative music classes, and standards for music education.

Factors of Parental Involvement

After No Child Left Behind was implemented in 2001, parental involvement has and continues to be a priority for school districts in addition to the National Coalition for Parent Involvement in Education (Crowe, 2011). Epstein's (1986) six types of parental involvement are (a) parenting, (b) communicating, (c) volunteering, (d) learning at home, (e) decision making, and (f) collaborating with the community. These six types of parental involvement are key components to linking a child's education success to both the home and school.

Parenting

Parents' behaviors have a direct influence on their child's cognitive and social development (Bempechat, 1992). At a basic level of support, parents contribute to their child's education by monitoring their homework (Bauch, 1994). Epstein believed that it is the obligation of the family to provide a positive environment as part of their involvement (Bauch, 1994). Academic achievement is patterned to be higher when parents are actively involved (Bempechat, 1992). Both at school and home, the adults, both parents and teachers, are scaffolding the learning process, as the child discovers more and develops (Bempechat, 1992). Not only is student achievement attributed to parent involvement, but the quality of the teacher is directly reflective (Darling-Hammond, 2010). The preparation, experience, and certification are all factors that contribute to an educator being successful in their classroom. "The adult [parent and teacher] who guides the child's growth in the most optimal way adjusts his or her supports to levels just beyond what the child could manage alone" (Bempechat, 1992, p. 33).

Parents' attitude and behavior are directly linked to their child's academic development and behavior. Specifically, in middle school, parents' expectations for academic achievement are higher for their child. A child is more motivated to learn when the school and home have similar atmospheres. When parents have the resources, both material and social, their child's achievement is higher than those who do not have any support in the home environment (Bempechat, 1992).

When parents are involved more in the classroom, they tend to have a positive attitude towards the teacher (Bempechat, 1992). When the teacher and parent are working together and not against each other, and both have high expectations, students are more successful in the

classroom. They are motivated to complete homework and participate, which has a direct impact on the student's grade (Bempechat, 1992).

Communicating

Family involvement depends greatly on the communication between home and school in a basic obligation for parent involvement (Bauch, 1994). Parents that are in constant communication with the school are shown to produce better student achievement (Cotton & Wikelund, 1989). Communication is expressed through phone calls, written communications (letters and/or emails), and parent/teacher conferences. It is important that teachers communicate effectively to help bridge a partnership between home and school (Hara & Burke, 1998).

When teachers and parents are working together, they can determine effective goals for the child (Epstein, 1986). Researchers have found that teachers require parents to check and sign the students' homework as the basic standard communication (Becker & Epstein, 1982). Breaking the communication barrier, teachers feel that having parents engaged in student homework is the beginning process to involvement. Beyond the basic paper communication, initiating verbal communication with parents is not a traditional form (Becker & Epstein, 1982). Beyond the required parent-teacher conference, most teachers reach out to parents when needed (Becker & Epstein, 1982). A few schools permit teachers to visit the student's home (Epstein, 1986). Principals conduct communication through Parent-Teacher Association (Parent-Teacher Organization) meetings and/or parent advisory councils (Becker & Epstein, 1982). Positive parent involvement not only strengthens the school's culture, but also increases student achievement (Long, 2007).

Parent-Teacher Association (PTA) groups have been finding various ways to engage parents in such a way that is not overwhelming. When parents feel that they are encouraged to

be involved, then the actual number of positive involvement instances will increase (Robbins & Searby, 2013). A mutual respect between the school and family will directly result in a positive parental involvement (Robbins & Searby, 2013).

Volunteering

Parent volunteers are generally matched to the needs of the teachers based upon skills and availability (Brandt, 1989). Whether it is during the school day or after school, the use of effective parent volunteers contributed to the school community in a positive manner. For a more hands-on experience, parents can go into the classrooms and assist teachers with classroom projects and parties (Waltham, 2013). Parents can also attend field trips or social events with the students as chaperones. In extra-curricular activities such as music classes, they can volunteer to have a leadership role in areas that require a large time investment since the teacher does not have time to do it themselves (Waltham, 2013). The leadership roles allow the parent volunteers to introduce and teach different subject areas (Waltham, 2013). When parents are volunteering, they are developing a better relationship with the teacher of familiarity, as well as understanding the school's program (Brandt, 1989).

When parents volunteer in their child's classroom, the perception of the child indicates that their parents care about their education (Gigante, 2011). The child believes that it is very important when a parent takes the time to come to their classroom for academic support. In addition to helping their child, parent volunteers find it rewarding to work with other children in the classroom (Gigante, 2011). Helping other children provides an insight to parents about different learning strategies and methods to learning concepts. In addition, being in the classroom as a volunteer, parents can observe the teacher's approach to teaching concepts (Gigante, 2011). Parents can learn terminology and have an insight towards their child's

academic success. As a result, parents can help their own child at home simply from observing the lessons taught in the classroom (Gigante, 2011).

Learning at Home

According to Becker and Epstein (1982), parental involvement with academics at home is one approach to increase educational effectiveness. “Teachers believe parent involvement at home could be an important contributor toward achieving the goals they have set for themselves and for their students” (Becker & Epstein, 1982, p. 88). Parents often monitor their child’s homework, as they believe that modeling, reinforcing, and direct instructing help facilitate the learning process (Balli, 1997). Beside appropriate involvement, parental strategies can be beneficial and helpful, as long as they meet the teacher’s expectations (Balli, 1997). Parents need to make sure that what they are doing with their children is developmentally appropriate and positive. Research shows that parents are more actively involved with assisting with homework in the elementary years and this trend diminishes as the child gets older (Balli, 1997). This diminish in assistance seems directly related to the difficulty level of the homework, that it is easier for parents to assist their children with elementary school-level work.

However, parents need to be aware that their child may not like their parents involved with the homework process (Balli, 1997). Most children complained that when their parents help that it could leave them confused and frustrated. When a parent is too involved with their child’s education, a designation of overprotective parenting has been labeled (Bess-Lima, 2013). The term “Helicopter Parent” has been given to that style of parenting (Zhao, 2012). “These parents will be the ones who demand a parent teacher conference if their child fails a test, not to ask what is wrong with the child, but to ask what is wrong with the test or the teacher” (Bess-Lima, 2013, p. 2). This specific parenting style does not allow the child to be independent and prepare them

for the future. Parents are not allowing their students to fail, which can cause major damage to psychological development (Bess-Lima, 2013). Helicopter parents do not enable children to make their own decisions and are hindering them with constant communication (Mathews, 2007). Children of the millennial generation have constant communication with their parents via pagers, cell phones, emails, etc. As technology improves, the communication between children and their parents increases (Tyler, 2007). Talking about problems with the child, rather than the helicopter parent trying to solve it on their own is an alternative for good parental involvement (Mathews, 2007).

Decision-Making

When parents do not allow their children to do things on their own, research has shown that it actually deteriorates the child's academic growth (Zhao, 2012). Some parents want to control everything in their child's life, even when they become adults and attend college or move into the workforce (Tyler, 2007). While direct parent involvement has an effect on student homework, it does not have an effect on grade point average (GPA) (Zhao, 2012). Parental involvement includes monitoring student academics, time management and the outcomes of academic performance. Parents are consumed with the GPA that children achieve and, as a result, they try to control and intensify study habits (Zhao, 2012). As parents, they should promote and foster a passion for education and learning (Huang, 2012). In addition, children of helicopter parents will say that their parents are their best friends (Carroll, n.d.). Parents make more efforts to be with their kids, but are trying to be more their friends than their authoritarian figures (Carroll, n.d.).

Parenting styles, both authoritarian and authoritative, are methods that are used at home (Ishak, Low, & Lau, 2011). Centered on responsiveness and demandingness, these types of

parent styles have an impact on student academic achievement (Ishak et al., 2011). With high demands, authoritative parents have clear expectations since they are heavily involved in their child's education. Shown to have a positive impact, authoritative parenting helps to produce children with higher self-esteem, unlike authoritarian parenting (Ishak et al., 2011).

Collaborating with the Community

According to Hatch (1998), community involvement contributes greatly to student achievement. Hatch believed that curriculum is not the only way to improve student test scores, but that a community as a whole is involved too, that the culture of the school will change. It is when community involvement has an indirect impact that there is a positive change of school culture (Hatch, 1998). The Alliance Schools' program was a model in Fort Worth, Texas, in the 1992-1993 academic school year. Starting out with 32 schools, within five years the program grew to collaborate with over 100 communities in Texas (Hatch, 1998).

The Alliance Schools, in Fort Worth, Texas, was an organization created in 1986 as a community group that supports Morningside Middle School (Hatch, 1998). The purpose of this group was to help low-income areas with leadership support that include parents, educators and community leaders to help improve student scores. The organization had support from the Texas Education Agency and state funds (Hatch, 1998). The Alliance Schools found that it was important to provide resources for students outside the school by improving the library and offering after-school programs (Hatch, 1998). In addition to the immediate academic growth in the classrooms, the impact of the organization encouraged students to look into higher education (Hatch, 1998). In a low-income area, many students were not thinking about honors academic classes, let alone attending a four-year college.

Besides academic involvement, communities can have an impact in a physical manner. Repairing crosswalks and traffic lights, cleaning up playgrounds, and raising money to repair school buildings are just a few ways that Alliance Schools have helped improve schools in Texas (Hatch, 1998). Communities also felt that it was important to create health clinics that would not only provide social services for children but also educate parents and students about proper health (Hatch, 1998).

Summary of Epstein's Six Types of Parental Involvement

Epstein's (1986) six types of parental involvement are (a) parenting, (b) communicating, (c) volunteering, (d) learning at home, (e) decision making, and (f) collaborating with the community. Bauch (1994) asserted that techniques have a direct impact on their child's academic success. When a parent has a positive behavior and attitude, a child is more motivated to learn (Bempechat, 1992). Communication between home and the classroom is also an important factor to parent involvement (Bauch, 1994). A positive relationship between the home and school bridges the gap between the two environments (Becker & Epstein, 1982). Volunteering in the classroom is a direct way of parent involvement, whether it is hands-on support in the classroom or after-school (Brandt, 1989; Gigante, 2011; Walthan, 2013). Parents assisting their child at home can have a positive impact on their child's academic success (Becker & Epstein, 1982). By monitoring their homework, parents can help facilitate the learning process (Balli, 1997). However, parents can have a negative impact on their child's academic success when they have an authoritative approach to decision making (Ishak et al., 2011; Zhao, 2012). Lastly, when the community is involved in the school system, there is a positive change in a school's culture (Hatch, 1998). Altogether, Epstein's (1986) six types of parent involvement all have an impact on a child's academic achievements.

Parental Involvement in Individual Music Education

Gabor (2011) identified in families of classical musicians that parents are the most important factor when getting children started in music. Gabor (2011) required that at least one parent has some kind of music career, whether it was teaching, performing, or composing classical music. Many children believe that the turning point of being introduced to music was something that their parents made them do (Gabor, 2011). They felt forced to start classical training but appreciated later on in life that their parents exposed them to music. Parents justified their involvement to force music lessons was because they: (a) wanted music to be part of their children's lives, (b) want their children to be well-rounded individuals, (c) want to increase their intelligence, (d) want their children to experience music the same way they did as children (Gabor, 2011).

Often, when a student demonstrates excitement in music classes, parents begin to explore the option of private lessons for their child (Zander, 2010). The solid foundation from a music education class in school will ensure that the child is fully prepared for private-lesson instruction. Most parents opt not to start lessons until their child has developed better fine motor skills (Zander, 2010). Exposing children to listening activities, rather than memorizing musical terms, are more beneficial for students when beginning private lessons (Zander, 2010). It is also important that parents understand what the objectives of the music class are besides the obvious performances, but rather the skills and activities throughout the entire school year (Nowmos, 2010). Parent observations of music classes are a great way for parents to see exactly what is taking place in the classroom and also foster the process of learning, as it is continued at home (Nowmos, 2010).

Kamin, Richards, and Collins (2007) researched factors that influence non-classical

musical development. Interviews were conducted to determine how external and internal influences were affecting musicians and the effect they had on them. Specifically, the psychological, social and environmental influences were present when observing development (Kamin et al., 2007). When looking at social influences, it was important to note that teachers and parents were a contribution, as well as peers. Parental influences included emotional support and financial support, which few could report in their interviews was a positive experience (Kamin et al., 2007). Musicians who reported that their parent influence was negative felt that there was a huge lack of support and that they wanted their children to focus on academic subjects rather than a performing art (Kamin et al., 2007). Non-classical musicians developed mostly in motivation, commitment, and goal setting, which is something that could benefit them outside the music environment (Kamin et al., 2007).

Parents that are heavily involved with private lessons resulted in children with a strong talent for music (Davidson, Howe, Moore, & Sloboda, n.d.). Not only the financial aspect, but also the positive emotional support is important for young musicians' success. In addition, the role of siblings also contributes to the parents' influence on their child's musical development (Davidson et al., n.d.). Despite a "sibling competition," older music siblings can be viewed as "effective instructors" with their younger siblings (Davidson et al., n.d., p. 4). Motivated by parents through weekly lesson and practice sessions increase performance achievement.

Self-Regulated Learning Process

Self-regulated learning is when students are motivated to be active participants in the learning process (Zimmerman, 1989). Students take on the role and direct their own learning and, as a result, do not rely on adults such as parents or teachers to learn. This process, according to Zimmerman (1989) of self-regulated learning, improves student achievements. A

higher perception of achievement, also known as self-efficacy, directly impacts a positive motivation to acquire learning strategies (Zimmerman, 1989). The three-step process of self-regulated learning of planning, practice, and evaluation is necessary for student success (Zumbrunn, Tadlock, & Roberts, 2011). The cycle of this three-step theory will help increase academic achievement and self-efficacy of students (Zumbrunn et al., 2011). Additionally, it is important that self-regulated learners are active participants in their own learning process. Motivation and self-confidence are important components to being a successful self-regulated learner (Spruce & Bol, 2014). The opinion of one's approach to accomplishing a task is reflected in their self-efficacy (Puustinen & Pulkkinen, 2001).

The teachers of students affect self-regulated learners, as they are the models who set examples to construct one's own learning (Spruce & Bol, 2014). Specifically, beliefs and knowledge of the teacher have direct impact on the learner. Combined together, teacher beliefs and knowledge are linked to classroom pedagogy.

Planning

The first step to self-regulated learning is setting goals (Zumbrunn et al., 2011). In this stage, goals can be short-term and simple that contribute to a long-term goal. By setting short-term goals, it is easier for a student's progress to be tracked (Zumbrunn et al., 2011). Through the process of planning, the student can strategize self-regulated goals. Beside the strategies, the student can consider how long something will take to accomplish. It is important that students are taught this planning process so that it will set them up for success later on (Zumbrunn et al., 2011). The goals that the self-regulated learner creates reflects their personal goal orientation (Spruce & Bol, 2014). A goal orientation is individual and should not be a comparison to other learners. Setting a goal should be centered on what the student wants to learn and the process of

what needs to be done in order to accomplish it (Spruce & Bol, 2014).

In addition, students need to be self-motivated. When students can determine their own learning strategies, they understand their capabilities. In doing so, the student can motivate themselves to set goals and plans that will contribute to life-long learning skills (Zumbrunn et al., 2011). Students should also consider strategies and motivations that keep them on task. Educators can suggest ways to remove distractions that will contribute to the student's successful planning process (Zumbrunn et al., 2011). Self-regulated learners who are highly motivated and have high self-confidence are more likely to accomplish their set goals. Students who have low self-esteem, on the other hand, will have a more difficult path of accomplishing their goals (Spruce & Bol, 2014).

These planning strategies are very important for educators to teach in lower grades (Zumbrunn et al., 2011). Establishing a strong foundation of the planning process improves self-regulated learning and academic success (Zumbrunn et al., 2011). During the planning phase, teachers would like students to set goals (Spruce & Bol, 2014). Students should manage to identify their objectives through steps. They should research and discuss the best possible approach to accomplish a task through self-regulated learning (Spruce & Bol, 2014). It is better for the student to take a larger goal and break it into smaller portions.

Practice

The practice stage of Zimmerman's (1989) self-regulated learning can also be known as the performance and monitoring stage (Zumbrunn et al., 2011). It is important that students monitor their own progress to determine what changes need to happen to their plan of action (Zumbrunn et al., 2011). Established in the planning stage, the student now must follow his or her plan to achieve their goal. Zumbrunn et al. (2011) suggested that a student should also track

the timeframe of tasks so that appropriate changes can be implemented in the future.

Control and observation are very important during this stage of planning (Spruce & Bol, 2014). A self-regulated learner must be able to control their own strategies to accomplish the goal, as well as controlling their motivation (Spruce & Bol, 2014). While monitoring the learning process, a learner should be focused and not be distracted to get off task (Spruce & Bol, 2014). The learner should be encouraged to explore different strategies.

It is also important that self-regulated learners seek support and help when needed (Zumbrunn et al., 2011). While the purpose of self-regulated learning is to establish independence, seeking advice from teachers and adults helps students receive feedback, which is another step to academic success (Zumbrunn et al., 2011).

Evaluation

Lastly, students need to self-reflect and evaluate their learning process (Zumbrunn et al., 2011). This process allows students to make changes and adjustments for future goals. Educators promote self-evaluation in their classrooms through the development of monitoring. When the student is appropriately monitoring their progress, they can use different learning strategies for different objectives (Zumbrunn et al., 2011). Results of the self-regulated learner can be satisfying or frustrating (Spruce & Bol, 2014). Students should reflect on the progress of their learning and look at the growth, rather than just meeting their goal (Spruce & Bol, 2014).

Motivation is a key component to the final evaluation stage of self-regulated learning (Puustinen & Pulkkinen, 2001). Evaluating the drive behind a goal through strategies and beliefs contributes to the intrinsic motivation of a student (Puustinen & Pulkkinen, 2001).

Self-Regulated Learning with Music

Music educators strive for students to practice at home effectively (Kim, 2008). The process of practicing reflects Zimmerman's self-regulated learning process (Kim, 2008; Zimmerman, 1989). As educators, it is important that students can transfer skills taught in the classroom and practice individually at home. Alongside the three-step process of planning, practice and evaluation, a practice session of music can be observed in practice journals, logs and/or diaries (Kim, 2008; Zimmerman, 1989).

In the planning process of a practice session for a musician, Kim (2008) suggested that a student must answer a few questions. The first task of planning is to determine what warm-ups, exercises called etudes and fundamental skills such as scales, and what piece of music the student wants to accomplish. The student should also determine how much time should be spent on each item. Kim (2008) suggested that students create checklists in the planning process to ensure that each item is achieved in the practice session. In the planning process, the student must also determine short and long-term goals of learning a piece of music. Determining different practice strategies will benefit the session (Kim, 2008). Practice strategies include finger patterns of exercises to improve fine motor muscles that support muscle memory and analyzing and dividing sections of the piece to master over time.

In the practice step, musicians must be able to analyze and evaluate instantaneously their performance (Kim, 2008). In the moment, musicians must articulate troublesome areas and apply practice strategies to overcome them. Techniques to do this should be scaffolded by the teacher during lessons (Kim, 2008). It is important that students analyze the entire piece of music, called the score, to have a better understanding. Looking for patterns and identifying sections that resemble fundamental skills, contribute to a better analytical study of the music

(Kim 2008). The student should also use various electronic tools to assist in the practice session, such as metronomes and audio/video-recorders. Immediate feedback contributes to the self-monitoring of a musician (Kim, 2008).

In the final step, observation and evaluation is very important for music growth. The student must know how they can improve in their own practice sessions (Kim, 2008). In the evaluation phase, the student must reflect on overall sound quality but also making sure that they accomplished their set goals that were set at the beginning of the session. When the student encounters a difficult passage, noting what techniques and strategies they used to learn the passage is crucial for self-regulated learning. This contributes to a better skill of critical thinking and independent practicing (Kim, 2008). In addition to all the technical aspects, a student must evaluate their artistry and musicality. It is essential that emotions be expressed through the music. While the short-term practicing goals can be accomplished with the checklist, the long-term goals are imperative for independent musicianship of self-regulated learning.

Music Technology in the 21st Century Classroom

Technology in the music classroom is a popular means of instruction in the 21st century. As children are exposed to more technology at a younger age, it is important that music teachers keep up with the advancements and can guide a child to successful learning and the ever-changing world in which they live. Crawford (2013) believed that strategies for teaching need to reflect the change for the 21st century learner to meet the transformations and demands of society. Due to technology constantly evolving, it is important that children are exposed to the benefits of music technology (Souza, 2011).

Between iPods, tablets, TVs and computers, children have more access to music through media. These sources of music are a small introduction to how technology has influenced music

education in the 21st century (Souza, 2011). Music pedagogy has shifted in a way that technology is used to aid and extend musical learning outside of the physical classroom (Burnard, 2008). The evolution of music educators using technology allow students to become independent musicians by facilitating their own instruction and creativity of music (Burnard, 2008).

Podcasts were used for a 6th grade music class in a case study (Coutinho & Mota, 2011). Through Web 2.0, podcasts were determined to be the most effective and popular way to teach music through technology. Students had access to the podcast through computers and portable devices. While the podcasts were interesting, students were not engaged in the lessons that required a formal written assessment. After the case study, it was concluded that students found the podcasts motivating and that it was easy to learn the concepts.

The podcast is a new tool for the ME [music education] classroom, and can and should be explored by the teacher, and especially by the student, and may even serve as a tool to involve the whole classroom in innovative curricular projects, since classes are increasingly diverse and complex. (Coutinho & Mota, 2011, p. 72)

Podcasts allow teachers to include audio and visual to their virtual lessons. Students can create their own podcast as a medium for assessment (Bolden, 2013).

Instrumental lessons taught through Skype have also been an area of interest for students. The Internet has opened up many opportunities for students to explore music (Savage, 2011). With Skype, students can have private lessons, via distant learning. If a famous musician/teacher across the country is available to teach, students are capable of having a lesson without having to be physically present in a room (Kruse, Harlos, Callahan, & Herring, 2013). Through a case study at the University of North Texas of a graduate piano student, Kruse et al. noted that while

Skype lessons were an innovative way to learn, the impact of the lesson was diminished because of the lack of face-to-face interaction. However, the student felt the piano skills and techniques increased through the on-line lessons. It was noted that the technical complications were a major component to frustration, such as audio and video quality (Kruse et al., 2013).

Cyber classrooms are also effective as a supplement to face-to-face learning. Podcasts can be used for a blended classroom approach, with both synchronous and asynchronous sessions. Skype lessons can also be beneficial, but technical issues may be a larger concern. A majority of music mastery is centered on tone and if there are audio complications, then lessons could only be useful for the visual aspects (Kruse et al., 2013).

Technology in Music Composition

Since they are exposed to a larger quantity of music through the Internet, children are indeed heavily influenced by music technology and production (Burnard, 2008). As a result, music educators had to re-think their curriculum, which would allow children the opportunity to facilitate their own learning and creativity of composition at home. One specific application that has introduced children to music technology composition is Garage Band (Gouzouasis, 2005). While the application is teaching children a simple way to “compose” music, educators are having a difficult time accepting a “click” and “drag” of “Apple loops”, as a composition. Instead, they have determined that it is an arrangement (Gouzouasis, 2005). Regardless of composing or arranging, the application of Garage Band is a fun introduction to music technology. Garage Band is a free program provided to all Apple computer owners. A brief introduction of technologic arranging and composing can initiate and open the gateways to a gigantic booming industry for 21st century learners. Students can experience immediate success through Garage Band with electronic music composition (Nielsen, 2013). The basic

understanding of music arranging excites and motivates children to investigate other outlooks in this area of interest.

Music educators believe that technology can be incorporated into general music or music appreciation classes, which are typically required for all students to take if they are not enrolled into band, orchestra or choir (Demski, 2011). Digital-music labs are equipped with computers, MIDI (musical instrument digital interface) equipment and software. While the MIDI keyboard looks similar to a piano, students can create and record their own electronic music compositions. Barbara Freedman, a music teacher at Greenwich High School in Connecticut, designed her curriculum for her music technology class around the computer programs Garage Band, Logic Pro and Pro Tools (Demski, 2011). Freedman has had so much success in her classroom that 65% of her graduating seniors have enrolled in a music technology program in college.

Creating music videos in classrooms is a new phenomenon for music pedagogy. Students can create music videos to express themselves through a developed skill of technology. Middle and high school students are sharing their videos with teachers and classmates through websites such as YouTube. Choral and general-music classrooms have utilized this application to promote lifelong music making skills (Cayari, 2014). Students can integrate music learning through social media. Students can arrange and compose music elements that impact the production of their videos in performance and general-music classrooms. Using technology to arrange and compose music is a unique way to address the National Standards for Music Education (NAfME, n.d.).

Gifted children also explore technology through a music class and benefit from the use of composition programs (Schroth, Helfer, & Dammers, 2009). Many parents of gifted children have no musical background and are often intimidated to incorporate this type of instruction into

the students' lives. Technology is used as an introduction for music composition for gifted students. Individually or in small groups, gifted students can create, compose, listen and perform music. These factors allow teachers flexibility in the design of their lessons to meet the needs of the students through multiple-learning objectives.

One teaching technique through technology for music composition is to use software for music notation (Schroth et al., 2009). Students can use software programs at home, which allowed them to facilitate their own learning. Through standard-music notation or graphic notation, student compositions are an assessment for music teachers. Exploration through music allows gifted children to demonstrate a wide range of musical understanding. For children who are extremely gifted in instrumental performance, composition is a learning outcome, which aids in the development of well-rounded musicians.

Computer Software in the 21st Century

Through different applications, students are engaged through fun, interactive and visual tools that simultaneously teach them music. If it is used successfully, technology for young children, early learners, is dependent on physical, mental and social capabilities of the specific child (Kersten, 2006). Software programs guide children through age-appropriate lessons that are taught through games. However, a majority of these programs stress that parental involvement is needed when using them.

Music Ace. One computer program used in music classrooms is called Music Ace (Baker, 2000). The computer program is an introduction to reading music notation, as well as identifying pitches. Baker (2000) conducted a study in Knox County, Tennessee, to identify the differences of the traditional music classroom and one that utilized Music Ace. The study was conducted at an inner city, Title 1 School with at-risk second grade students.

Traditional music classrooms often are a blend of different teaching methods. These methods include Kodály, Orff, and Dalcroze methods (Baker, 2000). Through her research, Baker (2000) compared the traditional methods with the teaching from the computer software, Music Ace. Following the conclusion of the research with a second-grade class, Baker found little to no difference in the outcomes of the traditional setting versus the computer program. The only main outcome of significant difference was the behavior of the children. The children that were using Music Ace were more engaged and less distracted during their lesson (Baker, 2000). Based upon Baker's findings (2000), music technology can be used to develop a more efficient use of time. It is noted in the conclusion of the research that a larger-test group, over a longer period of time, could result in a larger difference in musical outcomes. Regardless, behavior is critical for classroom success and any resource that enhances better behavior is of value. Orff and Kodály methods have been found to be beneficial for motor and literacy skills for young children (Baker, 2000; Beckstead, 2001).

Groovy Music. Sibelius created a series of music software that is a series of age-appropriate products called Groovy Music. It is grouped into three specific programs: Groovy Shapes, Groovy Jungle, and Groovy City (Peters, 2009). Shapes and pictures represent elements of music that teach basic concepts. The age-appropriate images are eventually transferred into music notation, as the students make progress through the series. Teachers can facilitate the learning that takes place on the programs with student log-ins that control what lessons the children can complete. Similar to Garage Band, Groovy allows students to create their own music after completing lessons (Gouzouasis, 2005).

SmartMusic. Computer programs have been developed to provide students with instant feedback for music classrooms. SmartMusic is a program that students use at home to facilitate

their practice sessions that was created by the MakeMusic, Inc. (“Music Practice Software - SmartMusic for Students,” n.d.). Often compared to video games like Guitar Hero, accompaniment and notes are on the computer screen for students. The interactive program assists students with practicing their instrument at home. Fingering charts, tuners, and metronomes are also available as resources for the students to utilize (“Music Practice Software - SmartMusic for Students,” n.d.).

Teachers can assign specific selections of a piece of music, in addition to assigning the whole piece of music. By this assigning, teachers can facilitate students practicing music at home by scaffolding appropriate practice techniques. Rather than learning the piece of music in its entirety, students are taught section by section over a period of time. The assignments should reflect what are going on in the teachers’ weekly lesson plans. (R. Mendez, personal communication, May 1, 2016).

In addition to specific music assignments, teachers can send digital practice records, sometimes also known as practice logs (“Music Practice Software - SmartMusic For Students,” n.d.). In traditional classrooms, teachers would assign students a certain amount of minimum minutes that they are to practice each week. Parents would sign off on the logs assuring that the student practiced the time that was listed on the log (R. Mendez, personal communication, 2016). With the practice record feature on SmartMusic, the teacher can eliminate the sign-off logs and monitor the minutes practiced through the software program (“Music Practice Software - SmartMusic For Students,” n.d.). Through the practice records function, teachers can see what selections students practiced and for how long they practiced. The feature will accumulate the time and show the student after each recording-practice session how much time they spent and how much time they have to fulfill the requirement.

The main feature of the program is when students are given an immediate percentage score that determine which notes were played correctly or incorrectly when playing along with an accompaniment track. Along with the accompaniment track, the individual student's sheet music is displayed on the electronic device, such as a computer or iPad ("Music Practice Software - SmartMusic For Students," n.d.). After each attempt of the specific music assignment, the computer program generates an automatic percentage, out of 100 percent. Students can see which notes they played correctly, as they are highlighted in green, incorrect notes are highlighted red and missed notes are unmarked. This feature allows unlimited attempts until the student is satisfied and can submit a screenshot of the music as well as an audio recording on the assignments ("Music Practice Software - SmartMusic For Students," n.d.).

Teachers listen to each submitted recording and can provide feedback to the student. Teachers can override the automatic score given by SmartMusic if they feel it was an inaccurate grade. Through the grade book feature, teachers and students can see what scores they received throughout the academic grading period ("Music Practice Software - SmartMusic For Students," n.d.).

Summary

Chapter 2 included previous research on parental involvement, self-regulated learning, and music technology. Each of the six factors of Epstein's (1986) framework were explained to have a better understanding of each factor. In addition, Zimmerman's (1989) self-regulated theory was also clarified through the three different phases. An understanding of self-regulated learning in music education connected the relationship to the study. Lastly, an overview of music technology in the 21st century classroom was also explained for an understanding of

various different approaches to implementing technology. Chapter 3 described the methodology used for the study of the research questions.

CHAPTER 3: METHODOLOGY

The purpose of this mixed-method study was to determine how parental involvement and technology directly impact a middle school musician. It can be asserted that parental involvement and computer-based technology make a significant impact on music education in the 21st century. A private school in Northern Orange County, California and a public charter school in Los Angeles County, California were used to compare parental involvement and technology. These schools represent two different environments, a public (Charter), low SES school and a private, high SES school. The contrary school environments are essential to the purpose of the study.

Research Questions

In researching the topic of parental involvement and technology in music education, the researcher focused on the following research questions that would be addressed:

1. What are the differences between two, middle school music programs in developing independent musicianship?
2. Is there a difference in musical gain between traditional teaching methods and the implementation of a computer program such as SmartMusic?
3. How does the computer program, SmartMusic, facilitate self-regulated learning?
4. How does parental involvement directly impact middle school, instrumental music programs?
5. Of the six types of parental involvement of Epstein's theory, which is the most present in instrumental, middle school music programs?

Setting and Sample

Two school settings were examined for this study. The focus was on the cultural group of middle school, instrumental musicians. As an employee at one of the schools, the researcher was familiar with the environment and music program at a high-SES school in Northern Orange County, California. A former classmate of the researcher taught the music program at a low-SES school in Los Angeles County, California.

The private school, in the academic year of 2017-2018, had 742 students enrolled through an Early Learners Program, ages two and one-half, through eighth grade. Roughly 60% of the student population is Caucasian and Asian. The private school is known for its instrumental music department that begins in the first grade. Over half of the students enrolled in the private school play an instrument. First through third grade students are required to learn violin through a general-music program. Students in fourth and fifth grade have the option to be in an instrumental ensemble of either orchestra or band. Middle school students have the option to be in band and orchestra as an elective in grades six through eight. It is mandatory for each student to have a music software program called SmartMusic, which aids individual practicing sessions at home (“Music Practice Software - SmartMusic For Students,” n.d.). Band students have class three times a week for 50 minutes. In addition to the instrumental classes, private piano lessons are available for students. In this program, students participate in the Piano Certificate of Merit and the Music Teachers Association Theme Festival Competition. Each year, the students of the high-SES private school compete in a national music competition. Consistently, the ensembles receive scores in the 80s and 90s out of a possible 100, often placing first or second in rank for the competition.

The private school created a parent volunteer group (Booster Parent) that supports only the instrumental music department. This volunteer group is composed of over 50 parents. The volunteers are regularly on the school campus helping with instrumental performances, assemblies, fundraisers, etc.

As a magnet charter school, the public charter school students have a variety of electives to choose from, such as band (“The STEAM Academy”, 2015). The public charter school administration believes that the cross-curriculum initiative skills of STEAM will help prepare students for success in the future (“The STEAM Academy”, 2015). The cross-curriculum initiative is called STEAM-science, technology, engineering, arts and mathematics (“The STEAM Academy”, 2015). Students are required to apply to the magnet school by filling out a three-page application that includes short responses and a teacher recommendation.

The public charter school in the academic year of 2017-2018 had 624 students enrolled in the magnet school. This school only has grades six through eight. A majority of the student population is Hispanic (97.4%). Over 11% of the students are identified as English Language Learners, and 28.2% are Fluent-English-Proficient students in the school.

As for the music program, the public charter school’s teacher taught advanced band, beginning band and also choir, mariachi, and two digital music classes of iMovie and Garage Band. There were 47 students in the advanced band and 37 in the beginning band class. Due to financial restrictions, the public-charter school, instrumental ensembles only participated in music festivals without adjudication, meaning that no comments, scoring, or ranking is given to the ensemble after performances. However, the public-charter school, instrumental groups do compete, but in a parade setting. In the parade competition, the ensemble scores in the high 70s and low 80s.

The music teacher at the public charter school and the researcher attended the same graduate program and received the same education for a Master of Arts in Teaching in a cohort arrangement. With a focus in music education, the teachers attended the same classes in both education and music education. Simultaneously with the master's program, the educators also received a single-subject credential for the state of California in music. In the Master of Arts in Teaching program, both instructors were educated on music technology, specifically, the computer program that was used, SmartMusic.

Prior to the research study, the researcher gained approval from the Institutional Review Board to proceed with any data collection (see Appendix A). Once approved, the music instructor of the public school was interviewed for an understanding of the music program, as well as information pertaining to the research questions. The researcher, also the music instructor of the private school, answered the same questions for a comparison.

The high-SES private school ensemble was composed of 50 students in the middle school program, 16 students in the eighth grade participated in the research. There were no additional requirements from the students during the research period; it was projected that all students would participate in the research. The majority of the students have been in the band program since fourth grade, with the exception of five students who joined in either sixth grade or seventh grade.

The public charter school had 25 students in the advanced band and four students that participated in the research study. Students in the advanced band were required to have been in beginning band or evaluated by the instructor to be placed in the higher-level ensemble. Similar to the private school, besides the addition of the SmartMusic computer program, there was no impact on the academic expectations of the music students. The instructor of the public charter

school was already exploring the implementation of the computer program into the music program. Parents were given a letter of consent that will determine which student will participate in the study and which data was calculated into the analysis. The consent form was provided in both English and Spanish, with the option for students to decline participation in the research. Both participating students and non-participating students completed the same assignments through SmartMusic, as it was still a requirement for their weekly grades. However, the data of students who opted out of the research were not included or calculated.

Due to the large support of parents in the music program at the private school, a majority of parents of each student were expected to participate in the research. The instructor of the public-charter school did not have a parent volunteer group; however, the instructor had a strong presence of parents at performances. There were no criteria on selection of parent volunteers, as it was hopeful that as many as possible would participate in the research. All parents in both the public charter school and the private school were given an opportunity to participate in the research. Upon the return of the survey, mail or electronic online through email, a consent statement was included at the conclusion of the survey to determine which data was used in the research. For this research study, there were 10 parents from the private school and two parents from the public school that participated in the survey. In addition, there were four parents from the private school that participated in a follow up interview.

Table 3.1

Demographics of Participants in Parental Involvement Survey

Question	Response to Survey		
	Mother	Father	
Relationship to Child	11	1	
Child Gender	Boy	Girl	
	8	4	
Parent Formal Schooling	Some College	College Degree	Graduate Degree or Credits
	1	5	6
Ethnicity	Asian-American	Hispanic or Latino(a)	Other
	8	3	1
Marital Status	Married	Divorced or Separated	
	11	1	
Employment	Part-Time	Full-Time	Not Employed
	2	6	4
School Site	Public School	Private School	
	2	10	

Table 3.2

Demographics of Participants in Student Intervention

Gender and School Site (n=20)		
	Boy	Girl
Gender	10	6
School Site	Public School	Private School
	0	4

Limitations

The researcher had been teaching the music program at the private school for eight years. At that point, the researcher had already developed a strong relationship with many of the parents of the middle school, instrumental students. A majority of the participants have had the researcher as a music teacher since they were in second grade. In addition, the parent-volunteers have been active in the music program the same amount of time. Over the course of time, many of the students also took private lessons with the researcher during after-school hours. Some of the participants may respond to the survey or interviews differently because of the relationship the researcher has with them.

On the contrary, interviewees of the public charter school may not respond as well to the researcher since they do not know the researcher. The music instructor from the public charter school worked with the researcher to ensure that participants are responding to the research material. The public-charter school, music instructor was also knowledgeable of the computer program, SmartMusic, in order to aid the students when the researcher was not available.

Building trust with the participants on the study and understanding the different school music programs were essential for appropriate validation strategies. Since the researcher taught the culture group of the study, the researcher had great trust with the participants in the private-school setting. It was important that the researcher engaged with the public-school setting through persistent communication with the instrumental teacher.

The grade-level system of the music selections could also impact the results of the study. On a six-point grading system, the researcher selected two pieces of music of similar concepts. Even though the grading system of the selections were the same, different musical concepts may cause difficulties in the research data-collection process. The selections of the two pieces of

music were at an intermediate level of Grade 2. Both selections were in a traditional march genre for concert-band ensembles.

Researching during the spring semester, the intervention of SmartMusic was used in preparation for spring concerts and competitions. However, due to the school calendars, spring break and other after-school activities impacted the results of the data collection. Participants had classes canceled during the week due to field trips and testing. In addition, some participants did not have access to SmartMusic during spring break recess due to travel. During the spring break recess, SmartMusic assignments were combined for two weeks to allow students to complete their work.

Data Collection

The same procedures to interview, survey and analyze were used for both school settings to ensure an accurate comparison. The focus was on the cultural group of middle school, instrumental musicians. As an employee at one of the schools, the researcher was already familiar with the environment and music program at a high-SES school. A former classmate of the researcher taught the music program at a public-charter school and was able to give additional “insider” information about this school’s environment. Specifically, the researcher primarily focused on technology impact and parental involvement on these groups.

Interviews of the different schools occurred at the beginning of the research to establish the classroom culture. For the public-charter school, the researcher interviewed the music instructor to understand the classroom and school culture. The researcher asked questions pertaining to the school’s position with the music department, as well as the interactions with parents. Student access to instruments and technology was an important topic as well for the research study. For the private school where the researcher teaches, the researcher answered the

same questions prior to interviewing the public-school teacher to avoid any impact on the responses. In both school settings, the researcher noticed similarities and differences in the instrumental-music classroom. This interview only occurred at the beginning of the research. The researcher documented, organized and coded the responses for further analysis.

After the interviews, surveys were sent and collected from all parents in the music programs at both schools. Letters of consent were sent to the parent participants (see Appendix B). The survey was distributed to participants that returned the letters of consent and available both electronically and printed. The electronic version was distributed through email and the printed version was mailed to the household. The electronic-version results were collected through SurveyMonkey.com, and the music instructors at both locations collected the printed version. The public-charter schoolteacher returned their surveys to the researcher. Both instructors sent email reminders to parents for completion of the survey. Due to the large population of Spanish speaking students at the public-charter school, the survey was also available in Spanish. A consent statement was at the introduction of the survey that allowed the information to be used in the research.

The researcher used two instruments for the quantitative research. For parent involvement, a survey was given to all parents of band students at both schools. The survey was from the Johns Hopkins University's National Network of Partnership Schools and was called "School and Family Partnership Surveys and Summaries Questionnaire for Teachers and Parents in the Elementary and Middle Grade Modified Questionnaire" (Sheldon & Epstein, 2007; Epstein & Salinas, 1993). According to Blair, Czaja, and Blair (2014), surveys collect information regarding a defined population. For the purpose of this research, the defined population was the parents of the band program. The objective of the survey was to determine

the difference in quality and quantity of parent involvement between the public-charter school and the private school according to Epstein's six types of parental involvement. The survey was altered to reflect the instrumental-music teachers, students and parents.

Specifically, the researcher used the survey titled "Survey of Parents in Elementary and Middle Grades" (Epstein & Salinas, 1993) (see Appendix C). The beginning of the survey was to determine demographics of the instrumental-music classroom. With permission, the survey was altered to reflect the music classroom (see Appendix D). The first section contained 17 statements that reflected how the parent felt about the school's music program that used a Likert scale of four (agrees strongly, agrees a little, disagrees a little, and disagrees strongly). For example, one statement was "the music teachers care about my child." The second section focused on how families were involved with their child at home and at school. Similarly, to the first section, a Likert scale of four (never, 1-2 times, a few times, and many times) was used in 18 statements. For example, one statement was "Help my child with practice/homework." The third section focused on how the school communicated with families. Using a Likert scale of three (does not do, could do better, and does well) 15 statements were used. For example, one statement was "tells me how my child is doing in music." The last section pertained to programs for the child's needs. Questions in this section included information about the practice sessions, specifically, how many times a week and if it is done on weekends. Areas of improvement were inquired and the parent's perception of their child's success in the music classroom.

The survey that was used in the research reflects the family's attitude of the school's music program. Along with the survey, Epstein, Salinas and Horsey (1994), provided a "How to Summarize Your School's Survey Data" to aid the researcher. The reliability of the scale was calculated through Statistical Package for the Social Sciences (SPSS) to reflect the correlation of

the responses to the survey. The researcher inputted the survey results into SPSS to parallel the reliability of Epstein's (1986) research that has been deemed effective and useful.

The second instrument that was used in this research was the intervention of a computer program, SmartMusic, in the middle school, band programs. Student participants were sent a letter of consent (see Appendix E). Only the returned letters and permission from parents to use the data of students were used for the intervention-data collection. Computer programs have been developed to provide students with instant feedback for music classrooms.

SmartMusic was a program that students used at home to facilitate their practice sessions ("Music Practice Software - SmartMusic For Students", n.d.). Often compared to video games like Guitar Hero, accompaniment and notes are on the computer screen for students. The interactive program assists students with practicing their instrument at home. Fingering charts, tuners, and metronomes are also available as resources for the students to utilize ("Music Practice Software - SmartMusic For Students", n.d.). Playing along with the accompaniment, students are given an immediate percentage score that determine which notes were played correctly or incorrectly. Teachers can track the students' practice sessions by assigning practice records. Through the practice-records function, teachers can see what selections students practiced and for how long they practiced it. Teachers listen to each submitted recording and can provide feedback to the student. Recently, a sight-reading portion was added as a feature that truly tests the musical capabilities of the student. ("Music Practice Software - SmartMusic For Students", n.d.).

Data Collection of SmartMusic

SmartMusic automatically generated the score based upon accuracy with note pitches and rhythms. Students have the control to submit their best recording with the highest score. In

addition, SmartMusic tracked the amount of time a student spent practicing assignments before final submission. Through the Gradebook feature of the program, the researcher had portfolio of each student's individual-performance scores. Students were required to fulfill weekly SmartMusic practice records (minutes) and assignments. It also gave the researcher a screenshot of the computer screen of the submitted assignment. The screenshot showed the highlighted notes in green, red and/or black. In addition to the screenshot, an audio recording was attached to the assignment. Students submitted assignments that are graded on a 100-point system to show growth in musical capabilities. Scores were recorded and tracked in the Gradebook feature. The Gradebook feature allowed the researcher to track the amount of time spent on each assignment. Each week, students were expected to complete 100 minutes for weekly practice records. With the intervention of SmartMusic, students completed a split-time of practicing with and without the computer program. During the intervention, students completed 60 minutes on the computer program and the remaining 40 minutes were tracked on a log-sheet. On the log sheet, students wrote down how long they practiced daily, what they practiced and provided a parent-signature at the end of each week to confirm the practice log (see Appendix F). The public school, music instructor agreed to these changes to the minutes to match the changes of the private school, student requirements.

Data Collection of Traditional Teaching Method

During the intervention, students completed 60 minutes on the computer program and the remaining 40 minutes were tracked on a log-sheet. On the log-sheet, students wrote down how long they practiced daily, what they practiced and provided a parent-signature at the end of each week to confirm the practice log (see Appendix F). The public-school music instructor agreed to these changes to the minutes to match the changes of the private school student requirements.

Intervention

To start the intervention of SmartMusic, the researcher had each student read both selections for a pre-test score. This determined the baseline of prior knowledge to properly examine the growth of musical gain throughout the five-week study. The pre-test was done with SmartMusic, but the students did not have access to the program. Students read the two selections of music from sheet music, and the researcher used the program to record the score.

Both schools already used the computer program, so both set of participants were familiar with the functions of the program. A classroom computer was available for students to complete assignments if they do not have the technology capabilities at home to access the program. Each student had a personal account that was tracked by the band teacher at the public-charter school and the researcher tracked the private school. The researcher identified how effectively the intervention group was using the program as well as tracking the percentage submissions of assignments.

The students within the private school and public-charter school learned two selections of music, one with the aid of SmartMusic as an instructional tool, and one with traditional classroom instruction. As eighth graders in both music programs, students would have previous exposure to instrumental music and basic knowledge of their instrument. Private-school students have an advantage as they have been exposed to SmartMusic years prior, however, the baseline measurement was used to statistically equalize the samples. It was important that clear directions were given to all students to minimize any confusion of using the computer program.

Students of the high-SES private school were already informed about the use of the computer program. As it is a requirement to use SmartMusic in the music program at the high-SES private school, tutorials were given in the introduction classes in the elementary grade

levels. However, supplemental resources were available on the SmartMusic website that offered tutorials on using the computer program. The charter-public school implemented the use of the computer program into the instrumental-music program at the beginning of the academic school year. The public-school instructor served as the on-site help for the public-school students. The public-school teacher and the researcher communicated daily regarding assignments and tracked the progress of both student populations. At the conclusion of the five-week research study, the researcher administered a post-test session to record final scores of the two selections.

Data Analysis

Description, analysis, and interpretation of the middle-school musicians were essential to analyzing the data collected (Creswell, 2012). The researcher presented non-biased descriptions of the setting and events, or simply the facts. The researcher compiled all the data from surveys and interviewed the music instructor for analysis of “the culture-sharing group [of] themes that emerge from the group and an overall interpretation” (Creswell, 2012, p. 96). Creswell (2012) recommended that the data be sorted into tables, charts, diagrams and figures so that it could be analyzed. Through analysis, patterns emerged from the data. Through the interviews of the public-school and private-school, music instructors, the researcher analyzed different approaches to developing independent musicianship. Through the interview of the public-music instructor, the researcher determined what differences were present between the two music programs, specifically, to parental involvement and technology. Common themes were coded from the responses of the music instructors.

Through the use of the SmartMusic intervention, the researcher used a descriptive analysis to compare the musical gains between traditional-teaching methods and the implementation of the computer program. For the descriptive analysis, the mean scores of the

pre-test, post-test and growth scores of the intervention and the scores through traditional teaching methods were used to determine if there was a significant difference. A paired samples *T*-test was used to calculate the comparisons between the methods and their growth scores. Simultaneously while students were using SmartMusic, the practice-log tracked the personal methods used in a traditional-teaching method classroom. Students tracked what they practiced daily in their weekly logs. The researcher conducted a basic analysis of the weekly logs to identify attributes of self-regulated learning. The weekly logs were coded to find common themes, as well as common themes that occurred in the intervention-practice records.

The researcher used the responses from the Epstein and Salinas' (1993) survey to determine the impacts of parental involvement in an instrumental-music program. The survey was divided into statements that represented the six types of parental involvement. Mean scores and standard deviations for each factor were computed to determine which factor was reflected the most in the instrumental-music program. In addition, the responses from the parent interviews were coded for common themes. This contributed to determining the most important factor of parental involvement.

Timeline

Prior to the intervention, the researcher and the music instructor of the low-SES public charter school decided on two appropriate selections of music. Based upon a six-level grading system, .5 for beginner students and level six for professional ensembles, the instructor and researcher both agreed on level 1.5 to 2.0. SmartMusic evaluated each student through the administration of the researcher, but they did not view their initial-automatic score. Once the pre-test had been administered, daily classroom instruction occurred, as both the researcher and the music instructor prepared the ensembles for upcoming performances and/or competitions.

Simultaneously, both pieces were taught in the classroom with traditional-teaching methods. One song was taught with traditional- music methods and then assigned for homework throughout the week. The students did not utilize any additional resources beyond what was provided in the class. For the intervention, the other song utilized SmartMusic through weekly assignments. The weekly assignments included specific sections of the song, in addition to a tracked amount of time the students needed to spend. The intervention occurred for a five-week period. After the intervention, a post-test was administered. The post-test was given through SmartMusic to evaluate both the traditional method and intervention song.

The researcher administered a parental-involvement survey to both schools. Inspired by Nolan (2008) “School and Family Partnership Surveys and Summaries Questionnaire for Teachers and Parents in the Elementary and Middle Grade Modified Questionnaire,” the researcher tracked the returned and completed surveys through a web-free Internet program in addition to paper-returned copies. From there, the researcher analyzed the data to determine which six types of parental-involvement of Epstein’s theory was present in both the low and high-SES school settings.

Task	Duration	Start	Finish
Proposal	1d	09/26/17	09/26/17
IRB Application Process	116d	09/27/17	03/07/18
Interview of Teachers	6d	03/08/18	03/15/18
Pre-Test for Intervention-Private School	2d	03/15/18	03/16/18
Data Collection- Private School	25d	03/19/18	04/20/18
School Break- Private School	5d	04/02/18	04/06/18
Pre-Test for Interventiom- Public School	2d	04/11/18	04/12/18
Data Collection- Public School	27d	04/10/18	05/16/18
Post-Test for Intervention- Private School	2d	04/23/18	04/24/18
Post-Test for Intervention- Public School	2d	05/17/18	05/18/18
Survey Collection- Both Schools	44d	05/01/18	06/29/18
Interview of Parents	6d	07/01/18	07/06/18

Figure 3. 1. Timeline of dissertation

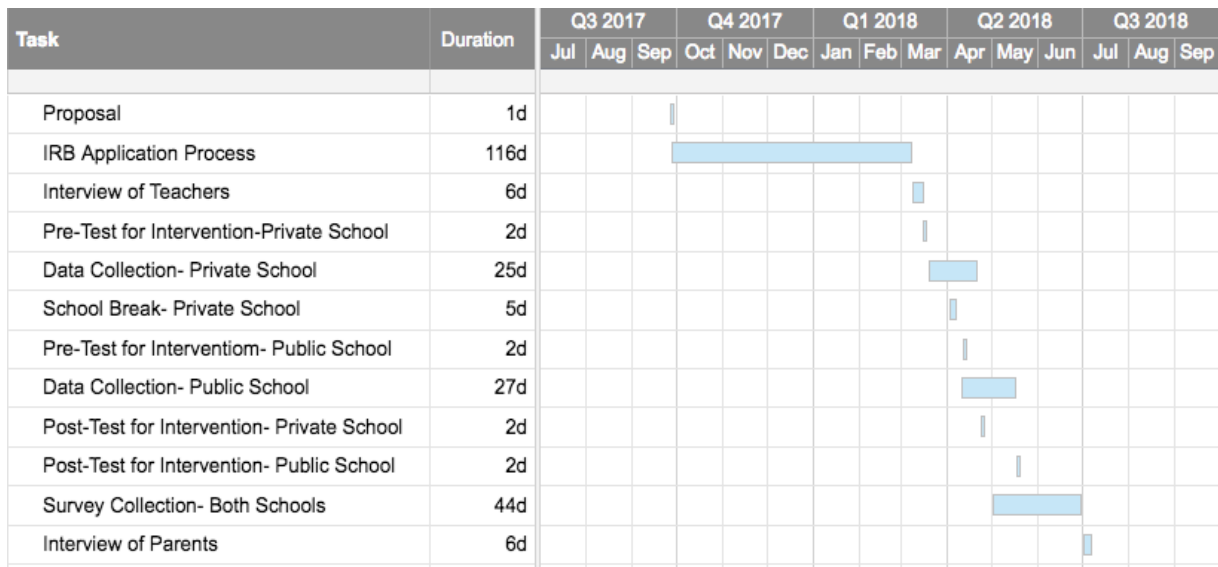


Figure 3. 2. Timeline graph of dissertation

CHAPTER 4: FINDINGS

The purpose of this study was to determine the impact of parental involvement and how access to technology contributes to the success of creating independent musicians in middle school, instrumental-music programs of varying structure. Through a mixed methods study, this was achieved through interviews with two, middle school music instructors (one being the researcher), surveys and interviews with parents, as well as an intervention using a computer program for music learning. The purpose of the intervention was to compare traditional methods of practicing with a student log to a technology-based method of practicing to determine self-regulated learning. The data results are documented in this chapter.

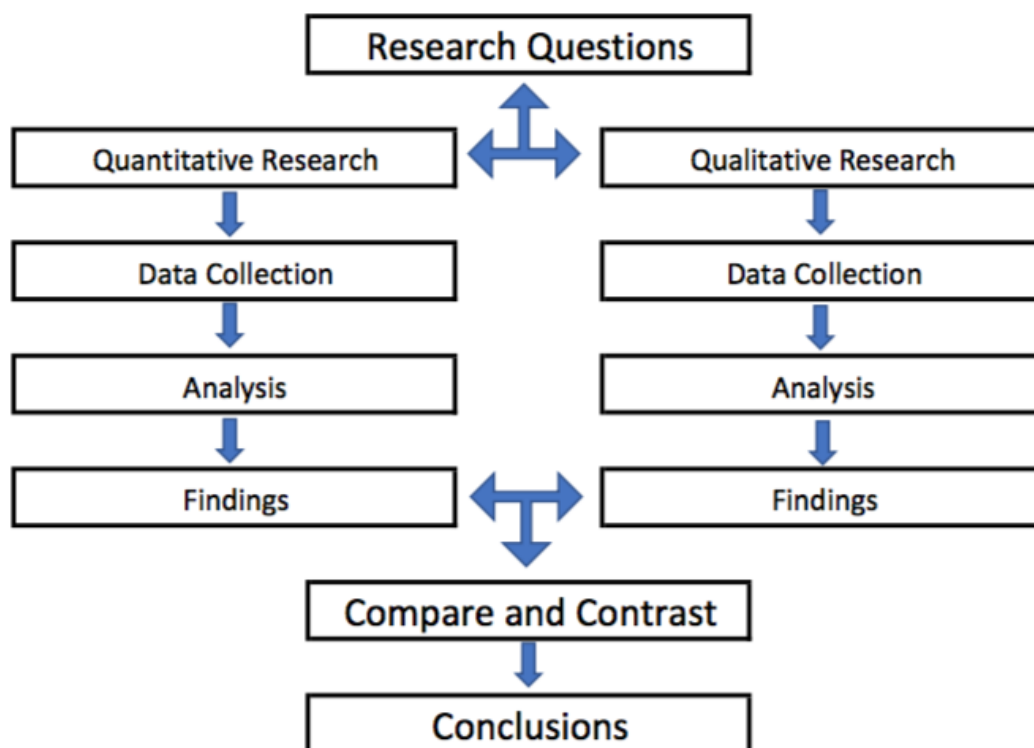


Figure 4. 1. Research Design. Adapted from Qualitative Inquiry and Research Design: Choosing Among Five Approaches. By J.W. Creswell, 2013, Thousand Oaks, CA: Sage. Copyright 2013 by Sage Publications Inc.

Differences between Middle School Music Programs

An interview was conducted between two, instrumental-music teachers for analysis of differences between music programs. The researcher, the instrumental music teacher for the private school (labeled T1 or Teacher One), answered the same questions that were asked of the public school, music teacher (labeled T2 or Teacher Two). Common themes were coded and noted for their similarities and differences. Instructors were asked six questions (see Appendix G). Themes were coded based upon responses from both teachers. These codes were “Support,” “Enrollment,” “Funding,” and “Technology.”

- TQ1 How do you feel about the administrative and school support towards your program?
- TQ2 How has enrollment in your program changed over the years?
- TQ3 What do you think impacts students’ decisions to take band as an elective? Are any students restricted from signing up?
- TQ4 Financially, how is your program supported? By school budget, fundraisers, etc?
- TQ5 Are instrumentals accessible to all students in your program? Where does the funding for instruments come from?
- TQ6 Do you feel that the implementation of SmartMusic improved your music program? If so, how? How many students have access to SmartMusic and internet at home?

The first theme was coded based on teacher responses that shared the same belief of support. Teacher One and Teacher Two both felt that their programs were supported by the administration. Teacher One expressed that they were “very lucky to have an administration that supports music education.” As the music program continued to grow, more instructors were

hired to support. In addition to the administration, teacher one also shared that “some teachers even play with the band at performances.” The school community, as a whole, supported the music program of Teacher One. Teacher Two said that “new courses such as mariachi and digital music production classes” were added to the school that helped improve the enrollment of the music program. Both instructors also said that the administration funded the music program as much as they could. Teacher One said that funding from the administration included “new instruments, hiring more music teachers, new curriculum, and sending students to competitions and field trips.” Teacher Two also reported that the administration, when it can, “fund as many instruments and equipment.”

The second theme that was coded was based on teacher responses that shared the same belief of enrollment. Both teachers were hired at the same time after completion of their music-education graduate programs. Since finding employment at the various school sites, the instructors were both able to greatly improve the number of children in the music program. Teacher One reported that “over the past eight years, the program nearly quadrupled in numbers.” The enrollment increased in the band program as well since it is required in the elementary grades and then became an elective in the middle school grades. Band classes for Teacher One were divided by grade level instead of ability. New students that enrolled into the school did not have a beginner level and were faced with the challenge of learning an instrument with their classmates who had been playing for many years prior. Teacher Two reported that the band program “nearly doubled in size” since his employment at the school. Band classes at the school of Teacher Two were separated by ability, which allowed older students to join a beginning band level. While the band programs both increased in enrollment, there were contributing factors that influenced student decisions on joining the band program. Academics

from the parent perspective impacted enrollment in both school sites. Teacher One stated that parents wanted their child to “take an easier course so that it does not impact their GPA, or their parents want them to take the debate elective since they believe it will help their grades more than band.” In addition, Teacher One shared that time commitment played a huge factor in enrollment because of the workload required of the band program. Students were either too busy with extracurricular activities or they did not want to do the extra work and wanted an easier grade. Teacher Two stated that parents placed their child in accelerated math and English Language Arts (ELA) classes because parents and even school personnel believed that “visual and performing art classes are sometimes not regarded as being a potential career pathway.” Students of Teacher Two were faced with making decisions on which course to take, band or accelerated math or ELA, since “those courses take place during the same class period.”

The third theme that was coded was based on teacher responses that shared the same belief of funding. Both instructors shared that most of their funding came from the school when asked about support. Since funding was a crucial factor of music programs, a separated theme emerged for it. Teacher One noted that supplemental money for the music program was funded directly by the music instructor. Teaching private lessons was the primary funding for the music program, even though it was coming directly from school funding. Teacher one said, “the money collected by the private lessons goes into the general-school funding, not a separate music account.” As a result, Teacher One had to obtain approval by the administration to purchase anything with the money collected in the general school fund. The general school fund was a combination of tuition and other activities that produced revenue for the school. Anything that was not approved by administration was supplemented by fundraising “by the parent support group and students.” For Teacher Two, the biggest contributor to the music program was

fundraising. There was a portion of funding that was supplied by the school site and district, but the “largest part of our budget, comes from fundraisers.”

Instruments for students were not provided in the school for the students of Teacher One. Instead, parents were required to rent or purchase an instrument on their own. There were some instruments available for students to rent through the school, but availability was limited.

Teacher Two stated that instruments were provided to the students, but they did have the option of renting one from a music store if they did not get their “first-choice” of instrument. If the student was unable to rent an instrument, they “will end up playing their second or third choice.”

The last theme that was coded based on teacher responses was technology. Both teachers shared that technology, specifically SmartMusic, played a huge role in their music program. The instant feedback and scoring eliminated a lot of the time spent by the instructor on daily grading. Teacher One stated that it saved “time from having to do individual assessments” since the program indicated to students “right away what they are doing right and what they are doing wrong.” Teacher Two stated that it helped students because “they are able to listen to how their part is played in relation to the whole ensemble.” Since laptops were required in the middle school program of Teacher One, accessibility to the internet and the software were not a problem. Parents were also required to buy their own subscriptions. Teacher Two noted that subscriptions were provided to the students. Students who did not have access to the internet or the subscription at home, utilized the equipment in the music classroom by Teacher Two during “music tutoring in order to submit their assignments in person.” Teacher Two also allowed students to use their mobile device to record their practice sessions and then email it to the instructor. The overall common themes of the music programs were similar. Ultimately, both

instructors faced similar obstacles and challenges in their programs but differed in areas that were unique to their private or public-school setting.

Support	Enrollment	Funding	Technology
<ul style="list-style-type: none"> •Administration Support •School Community •Funding 	<ul style="list-style-type: none"> •Student enrollment •Elective Option •Schedule Conflicts •Academic Push 	<ul style="list-style-type: none"> •School Budget •Fundraising •Supplemental Money •Equipment 	<ul style="list-style-type: none"> •Computer Access •Internet Access •Music Software •Alternatives

Figure 4. 2. Music Teacher Interview Themes and Codes Part A

Traditional Study Methods versus Computer Program Study Methods

In order to measure whether the computer-program study methods were superior to the traditional-study methods, in terms of performance-technique, before and after measurements were taken for each method. Prior to the start of the intervention, the researcher recorded each student individually on both selections of music, for a pre-test score. The selections of music were labeled: No SmartMusic (traditional) and SmartMusic (intervention).

Scores for both the traditional and intervention selections were automatically generated by SmartMusic and recorded by the researcher. The students were not told what their pre-test score was upon completion of the recording session. After the pre-test scores were recorded, students spent the next five weeks learning both pieces of music, in addition to any other curriculum that was required by the music instructors. After the five-week intervention, post-test scores were recorded the same way for both pieces.

In total, there were 20 participants in both the private ($n = 16$) and the public school ($n = 4$). Table 4.1 gives the descriptive statistics for the tests from each method. For the traditional method of learning music, the pre-test score mean of $\bar{X} = 44.5$, $SD = 33.28$ seems to be less than the intervention pre-test score mean of $\bar{X} = 55.2$, $SD = 30.02$. The post-test means scores of the

traditional method of $\bar{X} = 76.75$, $SD = 16.16$ also seems to be less than the intervention post-test score mean of $\bar{X} = 91.55$, $SD = 8.52$. Figures 4.1 and 4.2 show the mean scores of the traditional (regular class) and the intervention scores by school site.

Table 4. 1

Average values of the pre- and post-tests and growth scores

Pair		Mean	N	Std. Deviation
Pair 1	Pre: No Smart Music (traditional)	44.50	20	33.28
	Post: No Smart Music (traditional)	76.75	20	16.16
Pair 2	Pre: Smart Music (intervention)	52.20	20	30.02
	Post: Smart Music (intervention)	91.55	20	8.53
Pair 3	Smart Music Intervention Growth	39.35	20	24.86
	No Smart Music Traditional Method Growth	32.25	20	26.82

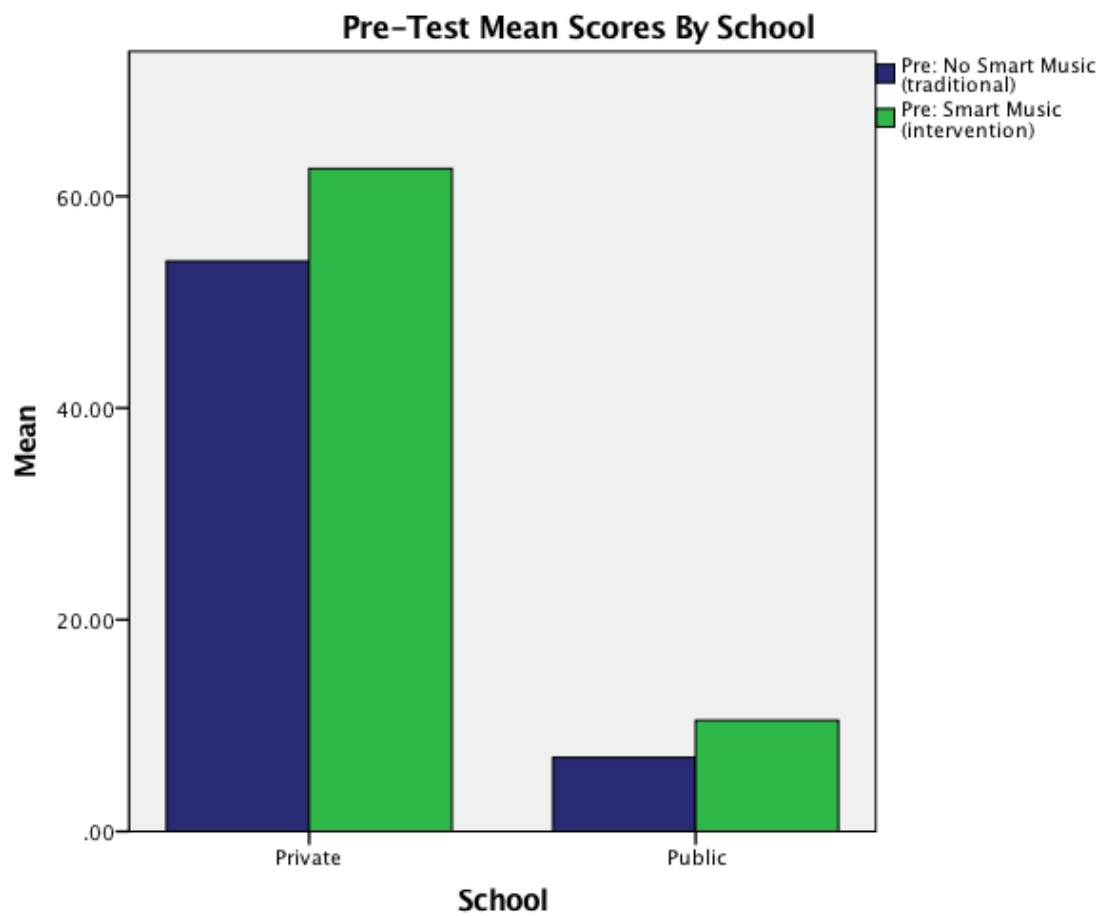


Figure 4. 3. Bar graph of traditional/intervention pretest score means. Data separated by school

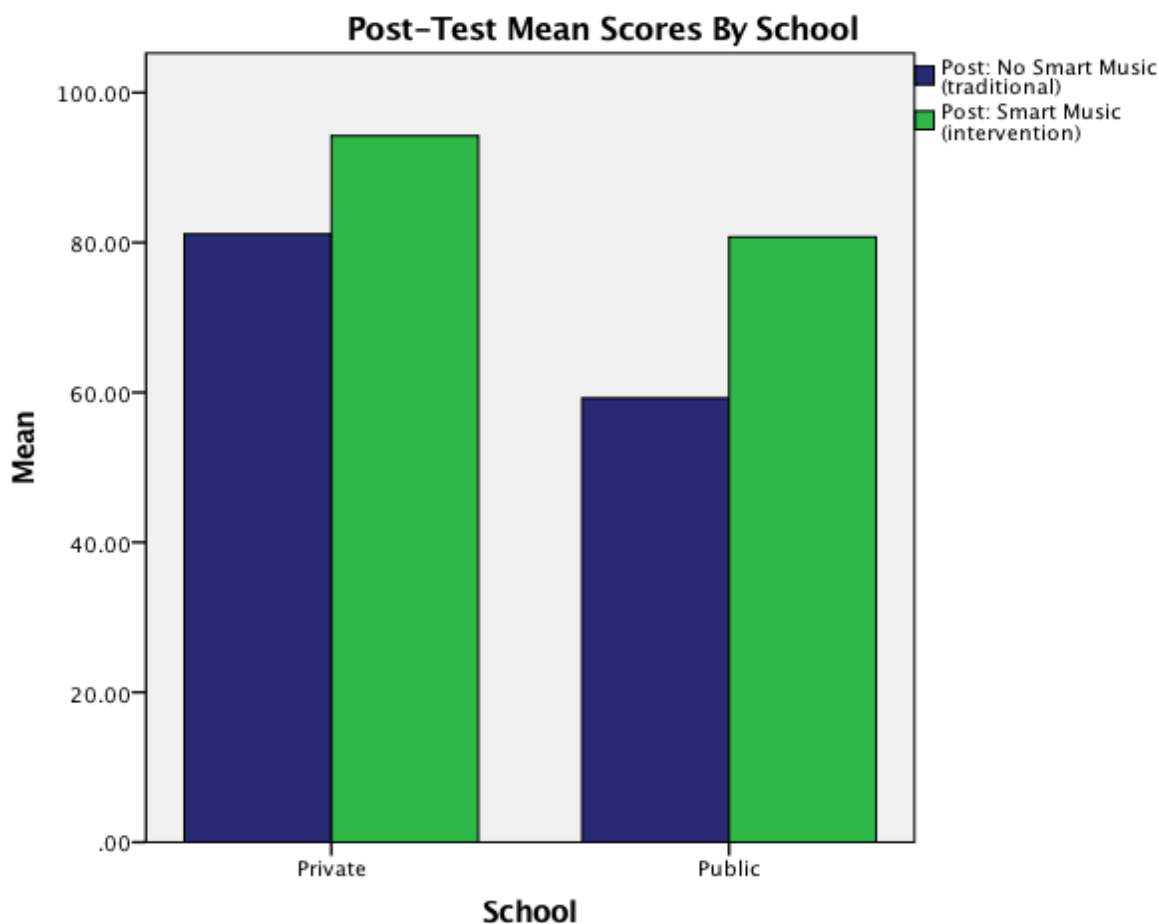


Figure 4. 4. Bar graph of traditional/intervention post-test score means. Data separated by school

Paired samples *T*-tests were computed on SPSS to calculate the comparisons between the methods and their growth scores (Table 4.2). There were 20 participants in both the private ($n=16$) and the public school ($n=4$). The music growth for the traditional-method mean score of $\bar{X} = 32.25$, $SD = 26.82$ seemed to be less than the growth of the intervention-growth mean score of $\bar{X} = 39.35$, $SD = 24.86$. There is a significant difference ($t(19) = -5.38$, $p < .001$) between the pre-test and the post-test for the traditional teaching methods. This indicated that the students learned to play better through this traditional requirement of practice. There is also a significant difference ($t(19) = -7.08$, $p < .001$) between the pre-test and the post-test for the Smart-Music teaching method. This indicated that the students learned to play better through this online

method of practice. There was not a significant difference between the growth rates (post-test scores minus the pre-test scores) between the traditional-practice method and the Smart-Music practice method ($t(19) = 1.66, p = 0.11$). This indicated that one method does not produce significantly larger gains than the other. Figure 4.3 was the growth-score means of the schools.

Table 4. 2

Paired Samples T-Test between Methods and Growth Scores

	Pair	Mean	Std. Deviation	<i>T</i>	<i>df</i>	Sig (2- tailed)
Pair 1	Pre: No Smart Music (traditional) - Post: No Smart Music (traditional)	-32.25	26.82	-5.38	19	.00
Pair 2	Pre: Smart Music (intervention) - Post: Smart Music (intervention)	-39.35	24.86	-7.08	19	.00
Pair 3	Smart Music Intervention Growth - No Smart Music Traditional Method Growth	7.10	19.17	1.66	19	.11

A visual analysis of Figure 4.3 leads one to suspect that there may have been significant gains made by, especially, the public-school students with the Smart-Music program. The small sample ($n = 4$) size prevented exploring this possibility.

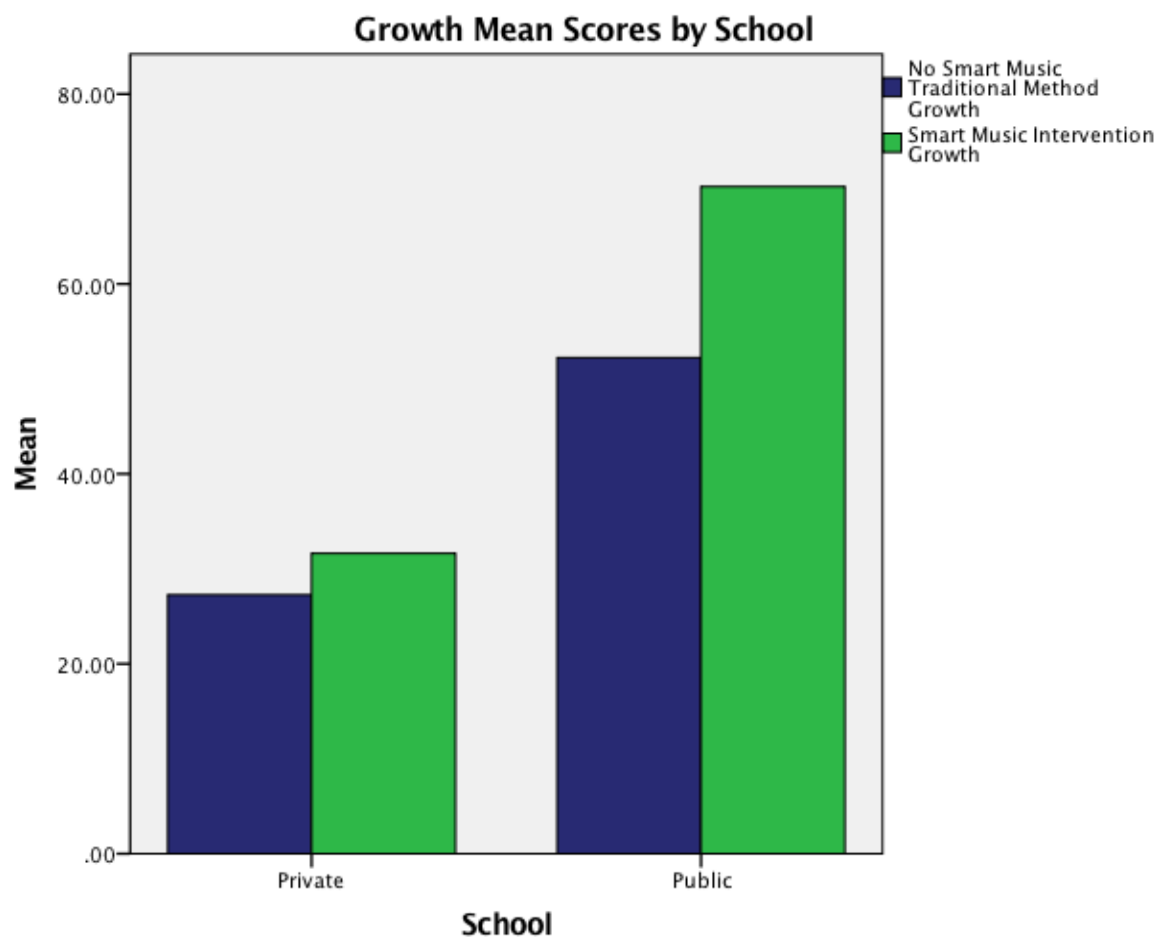


Figure 4. 5. Bar graph of traditional/intervention growth score means. Data separated by school

SmartMusic and Self-Regulated Learning

Learning and practicing a new piece of music through the computer program, SmartMusic, challenged the way of traditional methods of an instrumental-music program. For this research, students learned two selections of music: one with SmartMusic (labeled intervention) and one without SmartMusic (labeled No SmartMusic and traditional). Twenty students participated in the research. Each assignment was posted on SmartMusic each Monday and the students were able to work on them throughout the week. They had to submit the assignments Sunday evening by midnight for it to not be late or not counted in their weekly

practice-record log. Due to the small sample size from the public school, analysis for self-regulated learning was not separated by school but coded together.

Intervention: SmartMusic

The first phase of Zimmerman's (1986) self-regulated, learning theory was planning. For the intervention, students were assigned two different types of assessments each week through SmartMusic: Practice Reports and Assignments. Students had seven days to complete the two assignments to receive full credit in the instrumental-music class. Data for the two assignments were collected through the gradebook feature of the computer program. Completion of each assignment reflected how much time was spent practicing the assignment, as well as the date of completion. The traditional practice log that parents would sign is eliminated and replaced with a Practice-Record feature that calculated the time practiced each week, as well as how long the student practiced each assignment. Common themes that occurred during the intervention planning phases were:

1. Practiced throughout the week
2. Practiced on weekend
3. Did not practice

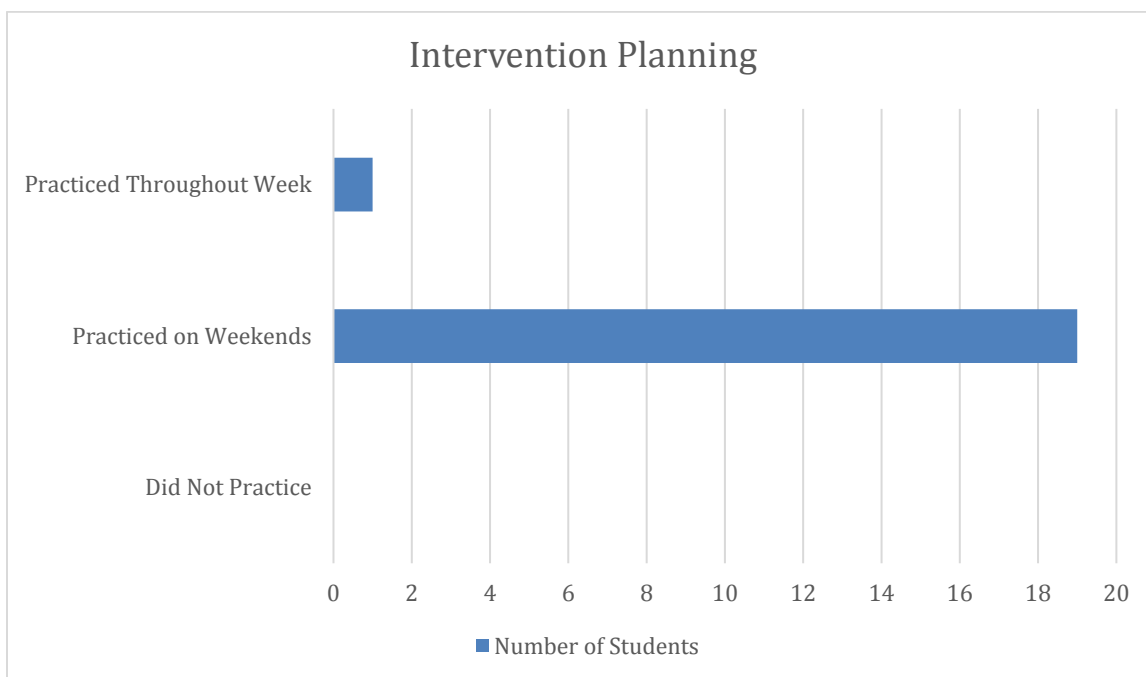


Figure 4.6. Bar graph of common themes of intervention planning phase. Data not separated by school

There was one student that completed their assignments throughout the week and 19 students that submitted their assignments on the weekend. All students practiced each week.

Assignments were taught in the instrumental classroom, but the SmartMusic computer program reinforced exactly what students needed to practice at home to achieve the weekly goals. Each week, students were asked to complete 100 minutes of practice time. However, to accommodate the traditional method of practicing, minutes were decreased to 60 minutes. In order to receive a passing grade, the combined time of both the practice record from SmartMusic and the time tracked on the practice record logs had to meet the 100-minute requirement. The computer program also tracked actual time played on the instrument. While the computer program may have been turned on, or the student was navigating the screen to select new assignments or selections of music, it was not calculating that time into the overall practice record. The times tracked only count when the student selected “start take” on the screen of the

displayed sheet music. Due to the spring break holiday the first week of April, the practice record was combined to 120 minutes. Common themes that occurred during the intervention practicing phase were:

1. Fulfilled minimum 60 minutes of Practice Record
2. Did not meet practice record minimum
3. Did not meet practice record minimum, but received acceptable or passing grades

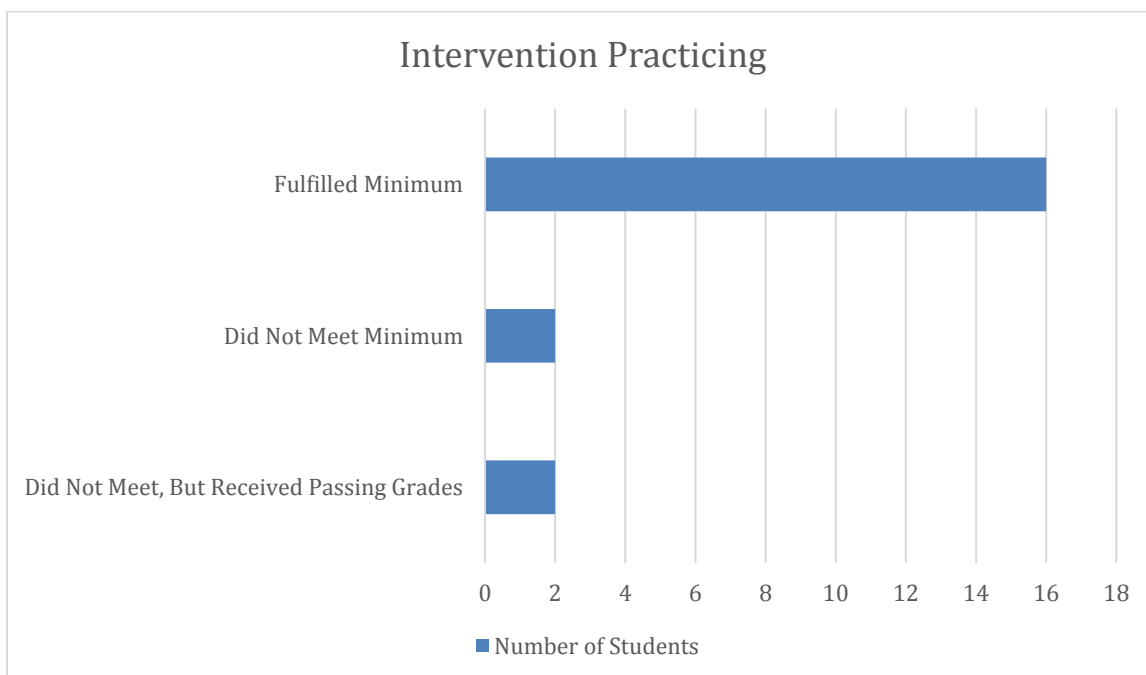


Figure 4.7. Bar graph of common themes of intervention practicing phase. Data not separated by school

There were 16 students that fulfilled the minimum time of 60 minutes for the practice record and two students who did not meet the requirement. In addition, there were also two students who did not meet the minimum requirement but received passing grades on their assignments. As an example, Student A, in Table 4.3, did not meet the minimal requirement for three out of the four posted weekly-practice records, but achieved passing grades for the assignments. Apparently, once Student A submitted an assignment with an acceptable grade, they did not continue to practice.

Table 4.3
SmartMusic Practice Record Minutes for Student A

Practice Record Dates	Due Date	Time Spent	Score
March 19- March 25	March 25	29/60 minutes	48/100
March 26-April 1 April 1- April 8 (2 Weeks Combined)	April 8	44/120 minutes	37/100
April 9- April 15	April 15	62/60 minutes	100/100
April 16- April 22	April 22	32/60 minutes	54/100

Note. Adapted from SmartMusic Gradebook Feature

The automatically-generated grades reflected the evaluation phase of self-regulated learning by providing students with immediate feedback. Based out of 100 points, students that were not satisfied with the score practiced the assignment over before submitting their best score.

Common themes that occurred during the intervention evaluating phase were:

1. Submitted assignments with passing grades above 90%
2. Submitted assignments with acceptable grades between 75-89%
3. Submitted assignments with unacceptable grades below 74%

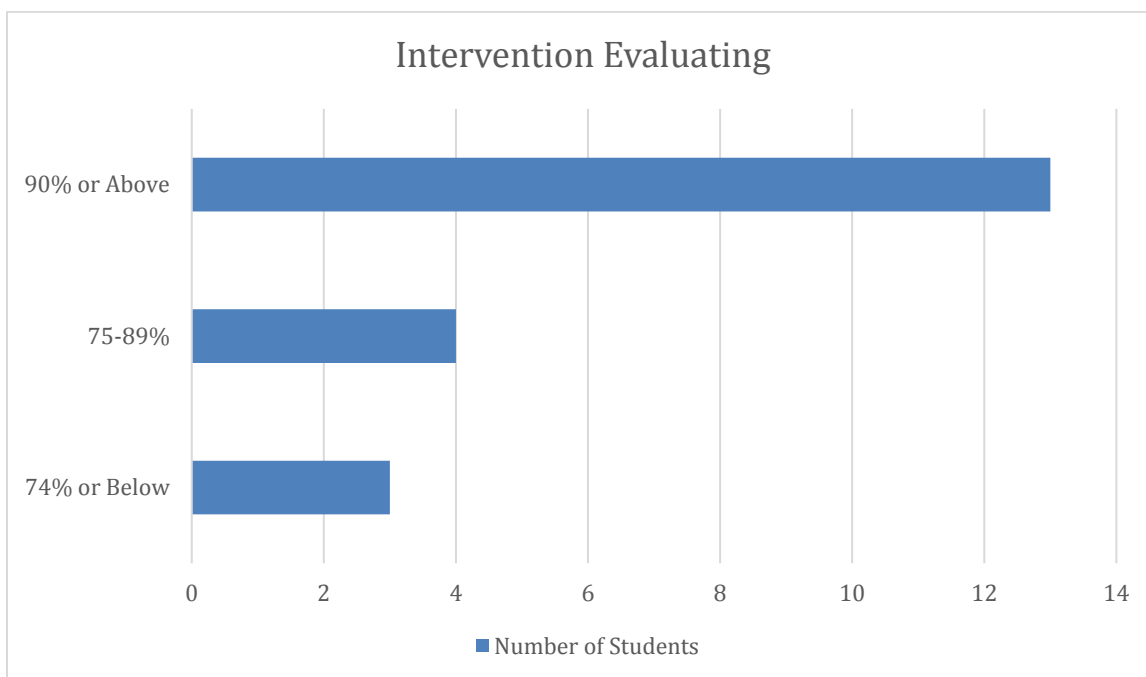


Figure 4.8. Bar graph of common themes of intervention evaluating phase. Data not separated by school

There were 13 students that submitted scores above 90% and four students who submitted scores that fell between 75% and 89%. There were only three students who submitted scores that were below 74%. As an example, Student A, in Table 4.4, fulfilled the requirements to receive a passing grade in the instrumental-music class. Looking at the intervention assignments, Student A completed the assignments with an appropriate amount of time. Student A practiced each assignment multiple times to achieve a higher score before submitting the recording to the instrumental teacher. Scores ranging from an 89/100 to 100/100, Student A received full credit for the assignments. The computer program generated an automatic score out of 100 based upon note and rhythm accuracy, as well as tempo. Assignments were supplemental reinforcements to lessons taught in the instrumental-music classroom. Student A also waited until the last day to submit the assignments to receive credit. Student A did not fulfill all the required minutes (Table 4.3), but yet submitted passing grades (Table 4.4).

Table 4.4

SmartMusic Gradebook Log for Student A: Intervention Assignments

Assignment	Due Date	Submitted	Time Spent	Score
Intervention Assignment 1	March 25	March 25	2.32 minutes	97/100
Intervention Assignment 2	March 25	March 25	2.52 minutes	89/100
Intervention Assignment: Measures 1-33	April 8	April 8	5.14 minutes	96/100
Intervention Assignment: Measures 22-42	April 8	April 8	3.18 minutes	100/100
Intervention Assignment: Measures 43-66	April 8	April 8	3.42 minutes	94/100
Intervention Assignment: Measures 66-82	April 8	April 8	0.87 minutes	100/100
Intervention Assignment: Measures 83-end	April 8	April 8	0.93 minutes	96/100
Intervention Assignment: Entire Piece	April 8	April 8	7.51 minutes	91/100
Intervention Assignment: Entire Piece	April 15	April 15	4.36 minutes	89/100
Intervention Assignment: Entire Piece	April 22	April 22	4.26 minutes	93/100
Intervention Assignment: Entire Piece	April 22	April 22	6.37 minutes	94/100
Intervention Assignment: Entire Piece	April 22	April 22	4.25 minutes	96/100

Note. Adapted from SmartMusic Gradebook Feature

Traditional Method: No SmartMusic

Students were required to keep a student log that tracked their weekly-practice sessions for the No SmartMusic (traditional) piece. The logs were collected by the researcher for analysis. Without SmartMusic planning weekly assignments, students were independently required to plan their own practice sessions. Practice logs were provided for each student, as they helped guide the student through the self-regulated learning process. Students determined what they wanted to practice during each session, what they accomplished and how long it took them to do it. In order to receive full credit, parent signatures were needed on each practice session. It helped students to plan out their practice sessions and also reflect on it after they finished.

Students were given blank copies of the practice log each Monday during their instrumental-music class. The logs were for weekly-practice sessions and had to be turned in at the beginning of class the following Monday. A bin was placed in the front of the classroom for students to turn in the weekly-practice logs. In addition, logs that were turned in late received only partial credit per the school handbook rules of late assignments.

After coding the student practice logs, the researcher found common themes that emerged during the three phases of self-regulating learning. Common themes that occurred during the traditional method planning phases were:

1. Practiced throughout the week
2. Practiced on weekend
3. Planned Small Assignments: Goals Written
4. Played Only “No Smart Music”

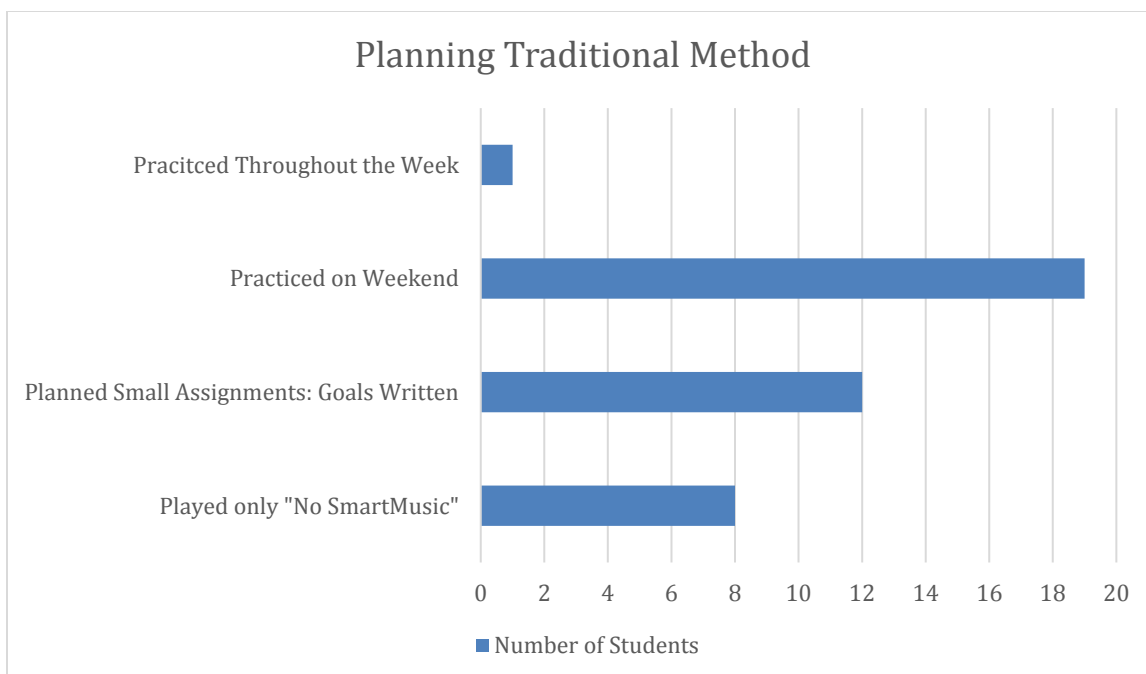


Figure 4.9. Bar graph of common themes of traditional method planning phase. Data not separated by school

Similar to the intervention-practice record, there was only one student that practiced throughout the week. The remaining 19 students practiced only on the weekends. Students filled out each practice log regarding their musical goals for each practice session. Twelve students wrote out assignments with specific goals, while eight students wrote, “Practice No SmartMusic Song.”

In Figure 4.8, the student was more specific with the measure markings for the practice session. However, they notated that they still had to work on the accidentals, despite the improvement of playing. This was an example of specific goals planned for the practice session.


Date	Goal for Practice Session	What I Accomplished	Time Spent	Parent Signature
3-25-18	Measure 3-23	I think I got better at them but still have to work on accidentals	6 min.	

Figure 4.10. Example of student practice log for traditional method of learning for one practice session

In Figure 4.9, the student fulfilled the minimal amount of time for the week. However, the log portion for the practice sessions show minimal effort. The traditional-method piece of music was identified as No SmartMusic for the purpose of the research. This demonstrated students that just wrote, “Play No SmartMusic.”



Date	Goal for Practice Session	What I Accomplished	Time Spent	Parent Signature
5/15	No Smart Music; whole song	→	20m	
5/14	↓ ✓	✓	30m	

Figure 4.11. Example of student practice log for traditional method of learning for entire week.

Students were required to play 40 minutes with the traditional method of learning. Parents were required to sign off on the practice record verifying that the time listed on the log was accurate. Common themes that occurred during the traditional-method practicing phase were:

1. Fulfilled minimum 40 minutes on Practice Record
2. Did not meet Practice Record minimum
3. Did not turn in Practice Record

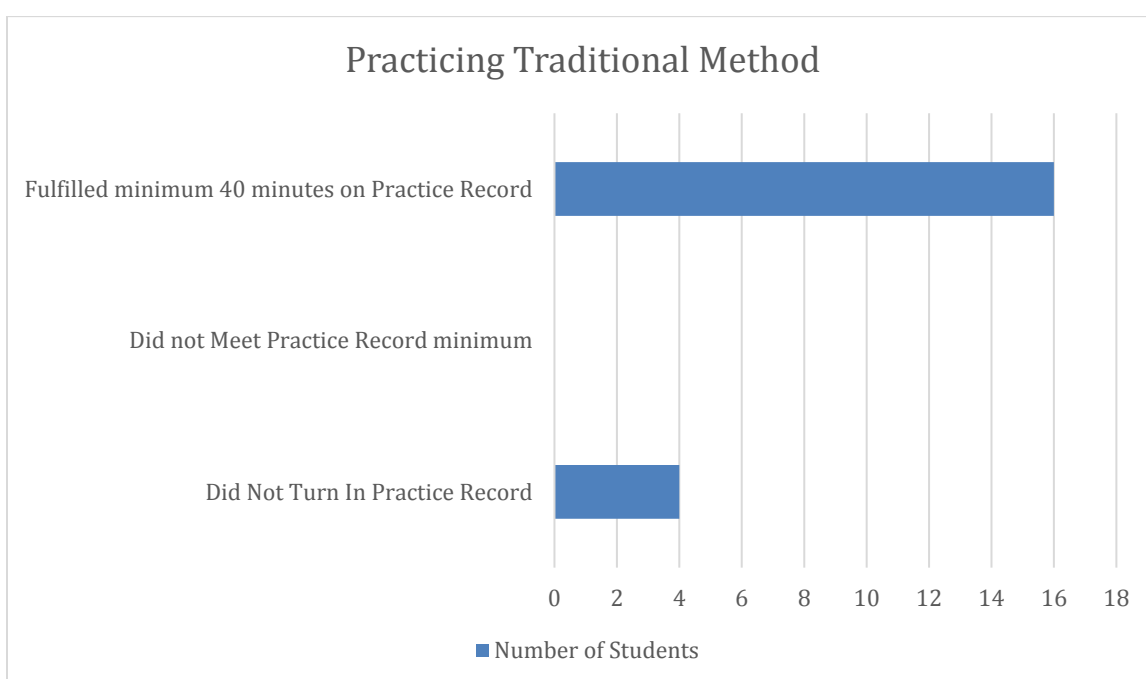


Figure 4.12. Bar graph of common themes of traditional method practicing phase. Data not separated by school

There were 16 students that turned in their practice records that fulfilled the 40 minutes with parent signatures. Four students did not turn in a practice log and did not receive credit. Any practice log that was not turned in or did not have a parent signature did not receive full credit.

Lastly, students were required to evaluate their individual sessions on the practice records. Based upon the goals that they had written for the planning phase, students determined

what they accomplished during the practice session. Common themes that occurred during the traditional-method evaluating phase were:

1. Goals Met
2. Goals Not Met
3. Needed Smart Music

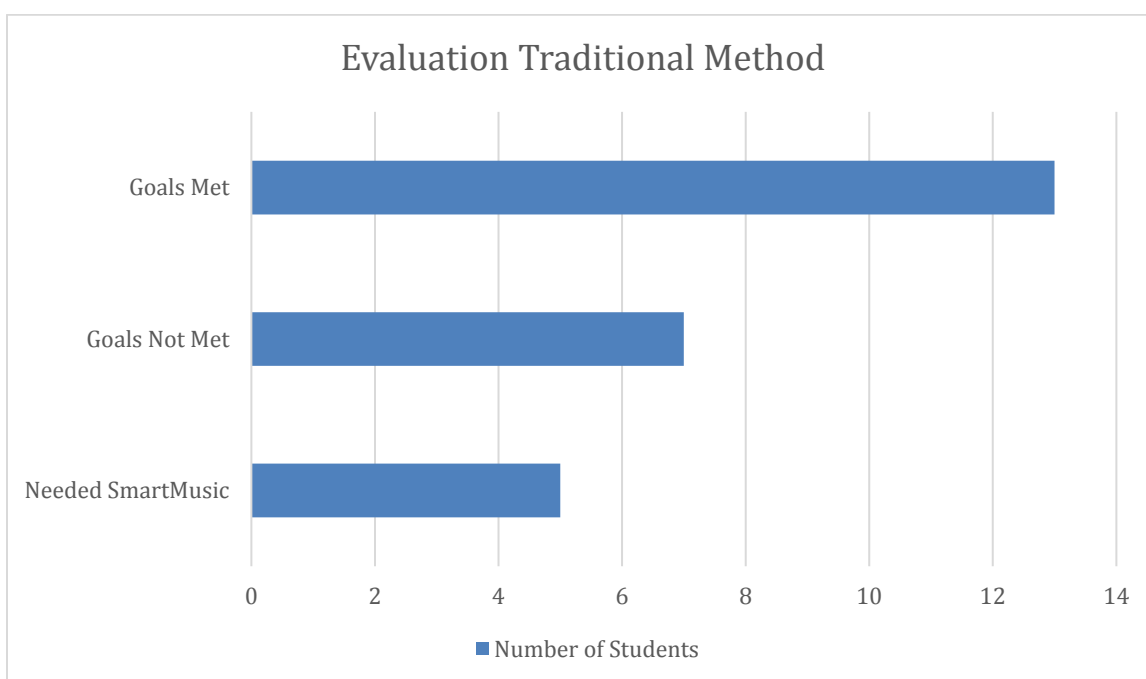


Figure 4.13. Bar graph of common themes of traditional method evaluation phase. Data not separated by school

Thirteen students felt that they met their practice session goals. Seven students did not feel like they met their goals. In addition, five students listed in their evaluation that they wished they had SmartMusic to help them evaluate their practice sessions.

In Figure 4.8, the student was more specific with the measure markings for the practice session by planning to practice measures 3 -23. However, they notated that they still had to work on the accidentals, despite the improvement of playing when evaluating their goals for the practice session.

In Figure 4.14, the student stated that they wanted to work on the [rhythm] that they had difficulty within the traditional piece of music. The student reflected after the practice session that they wished they had SmartMusic to determine if, in fact, they were playing it correctly.


Date	Goal for Practice Session	What I Accomplished	Time Spent	Parent Signature
3-29 -18	Practicing parts of rhythm that I struggle with	I was hoping to know if I was correct but there was no way to without SmartMusic	~ 10 min ~ 5 min	

Figure 4.14. Example of student practice log for traditional method of learning for one practice session

Parental Involvement Impact on Instrumental Music Program

An interview was conducted between two, instrumental-music teachers for analysis of instructor perceived parental involvement. The researcher, the instrumental music teacher for the private school (labeled T1 or Teacher One), answered the same questions that was asked of the public-school music teacher (labeled T2 or Teacher Two). Common themes were coded and noted for their similarities and differences. Instructors were asked two questions through email (see Appendix G). Themes were coded based upon responses from both teachers. These codes were “Parent Support Group” and “Communication.”

TQ7 What type of parent support do you have in your instrumental music program?

Example, boosters, concert set up/tear down, daily classroom needs, field trips, etc.

TQ8 How do you communicate with parents? Do you only communicate regarding grades and/or behavior issues?

The first theme that was coded was based on teacher responses that shared the same belief of a parent-support group. There were major differences in the responses from the music

instructors in regard to parental involvement. Teacher One had a very strong parent group that provided a lot of support for the music program and even said that they “have the best parent-support group in the entire world.” From the classroom to backstage, Teacher One’s parent group was very active with the needs of the teacher and the music program. “They pretty much do everything and anything that I need so that I can completely focus on teaching the students.” Teacher One utilized the parent-support group to help with classroom parties, as well as fundraising monies for items that were not approved by the administration for purchasing with their own bank account. Examples of items that were purchased were “music stands, and sometimes paying for school buses for band trips.” On the contrary, Teacher Two was not allowed to have a parent group based upon the decision of the administration. As a result, Teacher Two relied heavily on “student volunteers, ASB members, and my own family members for support during concert events.”

The second theme that was coded was based on teacher responses that shared the same belief of communication. Both teachers communicated with their parents in various means that distributed important information to the respective groups. Teacher One and Two communicated through email. Teacher One, however, shared her personal cellphone number with parents to respond to simple questions or even to speak to parents in-person regarding behavioral issues. Teacher One also sent emails on behalf of the parent-support group since “they do not have access to parent emails.” Teacher Two communicated with parents through e-mail about grades, concerts, behavior issues, fundraisers, field trips and even “how to support their child with home at home.”

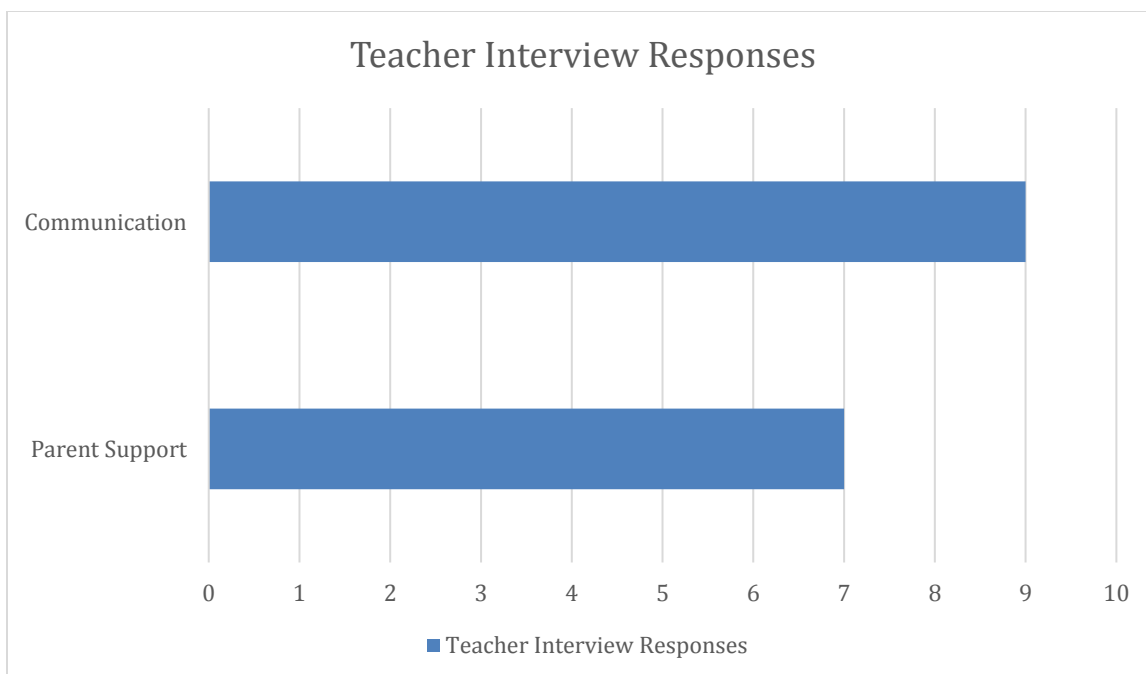


Figure 4.15. Interview response indicating numbers of times a theme was mentioned by teacher

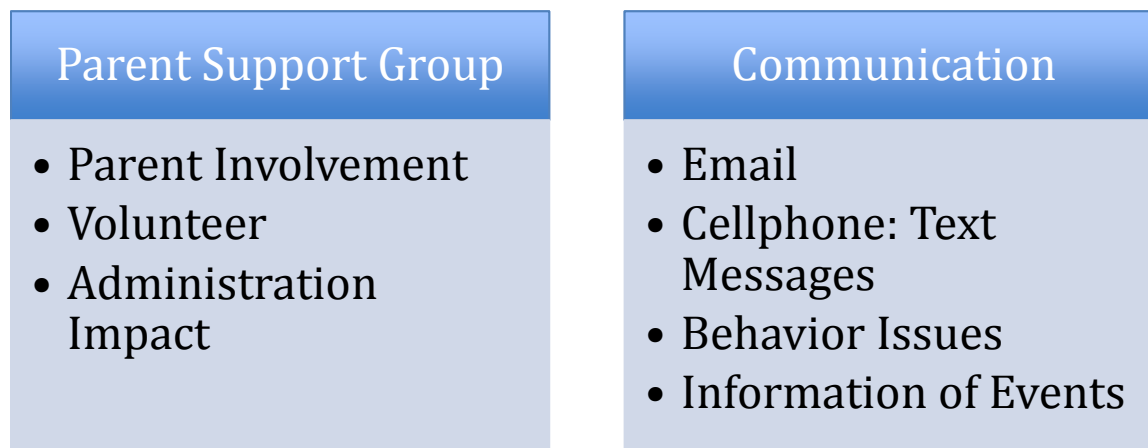


Figure 4.16. Music teacher interview themes and codes part B

Factors of Parental Involvement Most Present

Parent Survey

A parent survey was conducted for analysis on Epstein's (1986) framework on parental involvement. Permission was granted by the Center on School, Family and Community Partnerships to adapt Epstein and Salinas's (1993) survey through the purchase of the survey from Johns Hopkins University. For the study, the researcher received 21 consent forms for parent participation in the survey for both electronic and paper survey. Eighteen invitations were

sent to parents through the online-survey database, SurveyMonkey.com. After a month of reminders, the researcher collected data from 10 parents, eight from the private school and two from the charter school. As stated at the beginning of the survey, parents were not obligated to complete the survey and at any time could opt out of the survey. For paper collection, two surveys were returned to the researcher. All data was compiled together in SPSS for data analysis ($n = 12$).

The survey was separated into eight survey sections. Survey section seven was an open response that no participants filled out. The researcher coded each question or statement in each section to reflect one of the six factors of parental involvement. They were coded as “parenting”, “communicating”, “volunteering”, “learning at home”, “decision-making”, and “collaboration with community.”

In Table 4.5, the mean scores and standard deviations for each factor were computed for each question. Section one pertained to the music teacher with a range of 1 = *well* to 5 = *never*: Parenting was $\bar{X} = 1.67$, $SD = .89$, communicating was $\bar{X} = 1.61$, $SD = .69$, volunteering was $\bar{X} = 1.73$, $SD = .82$, learning at home $\bar{X} = 1.67$, $SD = .72$, decision making was not surveyed and community was $\bar{X} = 1.54$, $SD = .62$. Section two pertained to statements about the child’s school and teacher with a range of 1 = *strongly agree* to 5 = *strongly disagree*: Parenting was $\bar{X} = 1.34$, $SD = .44$, communicating was $\bar{X} = 1.29$, $SD = .40$, volunteering was not surveyed, learning at home was not surveyed, decision-making was not surveyed and community was not surveyed. Section three was about how families were involved in different ways at home and home with a range of 1 = *every day or most days* to 4 = *never*: Parenting was $\bar{X} = 2.46$, $SD = .66$, communicating was $\bar{X} = 3.03$, $SD = .44$, volunteering was $\bar{X} = 2.46$, $SD = 1.18$, learning at home $\bar{X} = 2.27$, $SD = .76$, decision making was $\bar{X} = 2.08$, $SD = 1.0$, and community was $\bar{X} =$

2.29, $SD = .84$. Section four was about parents' responsibility with a range of 1 = *strongly agree* to 5 = *strongly disagree*: Parenting was $\bar{X} = 1.50$, $SD = .52$, communicating was $\bar{X} = 1.39$, $SD = .37$, volunteering was not surveyed, learning at home $\bar{X} = 2.50$, $SD = .63$, decision-making was $\bar{X} = 1.94$, $SD = .66$, and community was not surveyed. Section five pertained to statements about parents' responsibility with a range of 1 = *strongly agree* to 5 = *strongly disagree*: Parenting was $\bar{X} = 3.33$, $SD = 1.15$, communicating was not surveyed, volunteering was not surveyed, learning at home $\bar{X} = 3.21$, $SD = .39$, decision making was $\bar{X} = 2.18$, $SD = .72$, and community was not surveyed. Section six asked parents about their connections with other parents with a range of 1 = *very often* to 4 = *never*: Parenting was $\bar{X} = 1.92$, $SD = .95$, communicating was $\bar{X} = 1.96$, $SD = .72$, volunteering was $\bar{X} = 2.50$, $SD = 1.0$, learning at home $\bar{X} = 2.83$, $SD = 1.11$, decision making was $\bar{X} = 2.25$, $SD = .66$, and community was $\bar{X} = 2.31$, $SD = .66$. The results revealed that communication was the most prominent factor of Epstein's (1986) parental involvement in the instrumental-music departments. In sections two ($\bar{X} = 1.29$, $SD = .40$), four ($\bar{X} = 1.39$, $SD = .37$), and section six ($\bar{X} = 1.96$, $SD = .72$), communication had the lowest mean factor of the six factors ($\bar{X} = 1.85$, $SD = .52$). This indicated that communication was the highest factor. The small-standard deviations also indicated that the responses of the participants were very similar.

Table 4.5

Mean Values and Standard Deviations of Factors

	S1		S2		S3		S4		S5		S6	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Parenting	1.67	.89	1.34	.44	2.46	.66	1.50	.52	3.33	1.15	1.92	.95
Communication	1.61	.69	1.29	.40	3.03	.44	1.39	.37	N/A		1.96	.72
Volunteering	1.73	.82	N/A		2.46	1.18	N/A		N/A		2.50	1.0
Learning at Home	1.67	.72	N/A		2.27	.76	2.50	.63	3.21	.39	2.83	1.11

Decision Making	N/A	N/A	2.08	1.0	1.94	.66	2.18	.72	2.25	.66
Collaboration with Community	1.54	.62	N/A	2.29	.84	N/A	N/A		2.31	.66

Table 4.6

Overall Mean Values and Standard Deviations of Factors

	<i>M</i>	<i>SD</i>
Parenting	2.04	.77
Communication	1.85	.52
Volunteering	2.23	1.0
Learning at Home	2.5	.72
Decision Making	2.11	.76
Collaboration with Community	2.05	.71

Parent Interview

Four of the 18 parents, who completed the survey, participated in individual follow-up interviews. They answered six additional questions that supplemented the survey through email (see Appendix H). Common themes from Epstein's (1986) six factors of parental involvement contributed to the interview questions. The researcher refined the codes of common themes after the interviews based upon patterns in the participant responses. These themes were "Volunteering", "Encouragement," "Social Interaction," "Communication," and "Technology." All of these parents were from the private school.

PQ1 What do you feel like you can contribute the most to the instrumental-music program?

- PQ2 Do you have any recommendations for parent involvement for the upcoming school years?
- PQ3 How do you encourage your child to practice their instrument at home?
- PQ4 How has the instrumental-music program impacted your child's education?
- PQ5 How do you communicate with your music teacher? Does it differ from academic teachers? If so, how?
- PQ6 Do you think that SmartMusic helped your student grow as a musician? If so, how and, if not, what alternative do you suggest?

Participant responses shared the same theme of parent-volunteering. P2, P3 and P4 all believed that they contributed the most to the music program by volunteering. P3 stated that “through volunteer work, I am willing to help out whatever needs support.” P2 and P3 both stated that having a parent-volunteer group helped the teacher that ultimately aided to the success of the music program. P2 said that by “having a parent volunteer group like what we have at our school is very beneficial. P2 also stated that their contribution “starts with supporting my child by encouraging them to keep up with practicing their instrument and music.” By having the parent group, P3 believed that it helped bridge the parents, teacher and the student throughout the year, and served as a “liaison for the program.” Common themes that occurred in the interviews regarding volunteering:

1. Volunteered in classroom
2. Volunteered with Parent Support Group

Participant responses also shared a common theme of encouragement. P1, P2, P3 and P4 all felt that encouragement from the parent to the child contributed to the overall success of the student in the music classroom. P1 believed that they contributed to their child’s music

education by letting their “child follow the teacher’s instructions and encouraged him to participate in the events.” It was important that P1, P2 and P3 guided their children at home to practice. This came from allocating time for practicing, the importance of practicing, but also providing an environment for them to effectively practice. P1 said that they had to “allocate time on weekend and make sure he finished assignments on time.” P3 “created a small space” for their child to practice so that “they have everything they need without having to set anything up.” This allowed the child to “practice any time” in the household of P3. P2 also encouraged their child by encouraging them to “look up other songs that he enjoys to listening to and see if he can play it.” Instilling a positive mindset, P3 believed that was a huge contributing factor to the success of musical growth by listening to their practice sessions to let their child “know I am interested in their music.” Common themes that occurred in the interviews regarding encouragement:

1. Participate
2. Practice at home
3. Allocate time and place for practice
4. Instilling positive mindset

Participant responses also shared a common theme of social interactions. P1, P2, P3, and P4 all shared that the instrumental-music class was more fun for their child. In return, the positive experience of the music class was contributed by the social interactions that they had with their peers. P2 and P3 stated that the team aspect of the music classroom was an important result of the music program. “To play with an ensemble and be part of the fun activities they do together, gave my child a sense of belonging to a group that I think is important to have especially at a young age” was very important for P2. P3 believed that their child’s “creative

thinking, self-confidence, team-building, and disciple skills were beyond enhanced” in the instrumental-music class. The environment of the music classroom created a “more social and fun environment for the child rather than just being in a classroom lecture style all day”, as stated by P4. Common themes that occurred in the interviews regarding social interactions:

1. Fun learning environment
2. Team Building

Communication was also an important theme for P1, P2, P3, and P4. All participants at one point communicated with the music teacher. P1 stated that they only communicated with the teacher at the “very beginning” of the schoolyear when their child had difficulty, but “did not get involved at all” after. Having a more personal relationship with the music instructor, P2, P3, and P4 all mentioned how easy it was for them to communicate. This was done either through email, text message, or personal interactions. P3 stated that “aside from emails, my communication with the music teacher differed from the academic teachers in that I also have the options to communicate through phone text.” P4 felt that the relationship between the teacher and parents is more personal and relaxed since they “volunteer and can communicate freely.” P2 and P3 also stated that communications between parents was also important. P2 communicated with other parents, where the results contributed to “parents get to know others” and discussed “struggles and success with each other and help to make the music program grow”. P3 believed that strong communication between the teachers and the parents also established “goals and philosophies of the music program” at the beginning of the school year so that “everyone starts off on the same page.” Common themes that occurred in the interviews regarding volunteering:

1. Communicated with teacher
2. More personal communication

3. Communication with other parents
4. Shared goals

Finally, participant responses shared a common theme of technology. P1, P2, and P3 contributed that technology played a positive role in their child's music education, specifically, with SmartMusic. The individual assignments fostered practicing at home, but yet held them accountable for their work. P1 stated that "SmartMusic helped a lot! The students can do it on their own at home." The program allowed the students to practice, with little or no guidance from the parents, as stated by P1 and P3. P2 believed that SmartMusic was "a wonderful teaching tool that students can use to learn new music." They particularly enjoyed the music library that SmartMusic provided for their child. "Every once and a while my child would look to see what songs he could play other than what was assigned." In addition, P3 liked the feature of the program that provided the student with immediate feedback and scoring, since it allowed their child to "practice on his own time and yet, allowed the teacher to assess his progress."

Common themes that occurred in the interviews regarding technology:

1. Supported SmartMusic
2. Independent Work
3. Self-Directed

Volunteering	Encouragement	Social Interaction	Communication	Technology
<ul style="list-style-type: none"> • In Classroom • With Parent Support Group 	<ul style="list-style-type: none"> • Participate • Practice at Home <ul style="list-style-type: none"> • Allocate Time/Place for Practice • Instilling Positive Mindset 	<ul style="list-style-type: none"> • Fun Learning Environment • Team Building 	<ul style="list-style-type: none"> • With Teacher <ul style="list-style-type: none"> • Personal Communication • With other Parents • Shared Goals 	<ul style="list-style-type: none"> • Supported SmartMusic • Independent Work • Self Directed

Figure 4.17. Parent interview themes and codes

Summary

This chapter addressed the data collected. Results of the intervention and the traditional method of teaching were computed in SPSS, and statistical tests were performed using a paired samples T-test. The data from the parent survey were coded and organized into categories based on Epstein's (1986) factors of parental-involvement. Interviews of the music teachers and the parent participants from the survey were also coded and categorized into different themes. Chapter 5 discusses the data, including a summary, limitations of the research, significance of the research, recommendations for further research and conclusions.

CHAPTER 5: DISCUSSION

In Chapter 4, analysis of the data collected from the research was presented. Based on the Theoretical Framework of Epstein and Zimmerman, the data contributed to the findings of the impact of technology and parental involvement on instrumental-music programs in middle schools. This chapter presents a discussion of the data of the research questions. It will also include limitations of the research, significance of the research, recommendations for future research, conclusions, and a summary of the research presented.

Discussion of Data

The purpose of this study was to determine the impact of parental involvement and how access to technology contributed to the success of creating independent musicians in middle school, instrumental programs of varying structure. Previous research by Nolan (2008) indicated that Epstein's six parental involvement factors were highly accurate in a school setting when initiated by the school. Parents believed that open communication between them and the teacher were beneficial for their child's education. Some parents reported that they wanted more open communication between not only the teacher, but also the school. Essentially, more communication significantly contributes to a more beneficial education.

In addition, Nolan (2008) discovered that parents wished they had more time and availability to volunteer in their child's music class. To be more involved with the music program, parents believed that they would have a more significant impact on their child's success in music. Other parents stated that encouragement and other ways to promote music education at home were just as beneficial as physically volunteering.

Previous research on technology, Tucker (2016) and Nichols (2014) found that SmartMusic impacted the instrumental classroom in a positive manner. Tailored-practice

sessions contributed to teachers creating formative and summative assignments for students through the computer program. The various features of the program brought excitement and enjoyment to students while they were practicing at home; the visual tool of practicing contributed to the success of musical growth (Nichols, 2014; Tucker, 2016). SmartMusic not only enabled students to practice, but it contributed to mastery of their musical goals (Nichols, 2014).

Research Question One

What are the differences of two middle school, music programs in developing independent musicianship? Interviews between the music instructors indicated that there are differences between two middle school, music programs in developing independent musicianship. In the interview with Teacher One (T1), the researcher from the private school, and Teacher Two (T2), the public charter school teacher, four themes emerged. The four themes were “support,” “enrollment,” “funding,” and “technology.” Support was in reference to the partnership between the music program and with administration and the school community. Enrollment referred to the student population that was involved with the instrumental-music program, as well as the size of the program. Funding dealt with the financial aspect of the music program and lastly, technology reflected the use of technology implemented into the curriculum of the instrumental-music department.

Support for the music program, while similar, had variances between the two schools. T1 and T2 both felt that they were supported by the administration, and funding was provided to improve the music programs. New courses were added to the school curriculum, but the private school hired more music teachers to accommodate the new courses added and did not add to the job description on T1. The new classes that were implanted in the public school were taught by

T2; therefore, the classroom preparations of lesson plans, equipment, etc. of T2 cannot be focused on one subject matter. T1 school site hired new teachers for the new classes, which ultimately allowed T1 to focus on the instrumental-music band classes. Support for instrumental music encourages teachers to improve their programs, which, in turn, contributes to students developing independent musicianship. Music education has a direct impact on creating life-long learners (Curtis & Fallin, 2014). Without the instructors or support from the administration, students would not have the exposure to the music classes.

The second theme that emerged from the interviews was enrollment in the music programs. Both teachers indicated that there was a significant increase in the number of students over the past eight years at the school locations. T1 stated that participation in the instrumental-music program in elementary grades was mandatory. Due to the mandatory classes in fourth and fifth grade, T1 mentioned that students sometimes did not elect to participate in the instrumental-music classes in middle school. Similarly, in the public school, instrumental music in the middle school classes was an elective. With an emphasis on academic core classes, T1 and T2 both indicated that students sometimes elected not to participate in instrumental-music classes with the hopes of improving grades that are predicated by parental perception of better potential career pathways. T1 also shared that students did not participate in the instrumental-music classes because it required extra work and they wanted the “easy A.” While both music programs continued to grow, the teachers encountered problems when academics and grades which are the determining factors for student-electives. Despite research that links music education with academic growth (Arts Education, 2011), other classes that are perceived to improve grade-point averages, standardized test scores, and better career pathways impacted the enrollment of students in instrumental-music classes.

The third theme that developed from the interviews was funding. In order for the music programs to function, funding was a critical component of the instrumental-music programs. Instruments and curriculum are crucial for the classes in order for students to gain independent musicianship. Both teachers indicated that funding came from the school budget as well as fundraising. However, school-budget funding for T1 was composed of student tuition as well as profits from the music department, private lessons. Essentially, the profit made in revenue from individual private lessons were used to support the curriculum. Accessibility of private lessons that are offered at the private school are another contribution to independent musicianship. The parent-support group also fundraised to help fund the music program. T2, on the other hand, relied on school budget and fundraisers run by the students for funding of the music program.

Lastly, technology was the final theme indicated by the researcher. Since technology is recognized as a crucial part of music education (Core Music Standards Technology Strand, 2014), the use of SmartMusic in the instrumental classroom encouraged students to be 21st century learners (Crawford, 2013). Besides the computer program, T1 and T2 felt that features of the instantaneous feedback helped save time in terms of teacher assessment. Students were able to practice at home with the aid of the computer program and knew exactly what they were doing both correctly and incorrectly. Time, procrastination, and commitment to using it effectively were contributing factors to T1's students' use of the program. Accessibility to the program was an obstacle that T2 faced for students to complete their assignments. The use of the technology, such as SmartMusic in both school sites, contributed to creating independent musicianship gain.

The interviews were conducted to determine the differences of two middle school, music programs. The four themes were "support," "enrollment," "funding," and "technology." The

importance for music education was established by the support of the administration and school community. This was to include new classes and new curriculum. Student enrollment in the music program was impacted by the stress of core academics and better career paths. Students were not enrolling in the music program based on perceptions that would help them to achieve better grades. Funding for programs was based upon budgets set by administration, fundraisers, as well as additional revenue from the music department. Lastly, the implementation of computer-based music technology was a crucial part of the success of the music classroom.

Research Question Two

Is there a difference in musical gain between traditional teaching methods and SmartMusic computer program? There was a significant difference in the pre-test and post-test for both the traditional teaching method ($t(19) = -5.38, p < .001$) and the intervention method ($t(19) = -7.08, p < .001$). However, there was not a significant difference between the growth rates of the traditional method and intervention method ($t(19) = 1.66, p = .11$). This indicated that either method was an effective way for students to learn a piece of music. Utilizing SmartMusic as a reinforcement of lessons taught in the classroom produced similar results to the traditional method of practice. Students were not practicing the same amount of time at home, but the quality of the practicing with the computer program produced similar results as more time practicing the traditional way. Nichols (2014) reported similar results that students were spending less time practicing on the computer than compared to paper-practice records. Previous research by Flanigan (2008) found that there was no significant difference in SmartMusic practice methods. In a four-week study, Flanigan had participants separated into two groups: with SmartMusic and No SmartMusic. In addition to the computer-generated scores, expert judges were utilized in the research to evaluate the two groups in other areas, such

as interpretation and expression. In this case, there was a significant difference in the SmartMusic participants in the expert judge's scores in comparison to the No SmartMusic group in Flanigan's study (2008).

Based upon the growth scores of the intervention, there was not a significant difference between the growth rates of the traditional method and intervention method. Either method of learning music is effective in the instrumental-music classroom. However, studies have shown that the time spent practicing with SmartMusic is more effective (Flanigan, 2008).

Research Question Three

How does the computer program SmartMusic facilitate self-regulated learning? Tucker (2016) indicated that teachers created formative and summative assessments for students through SmartMusic. They tracked musical growth gained across time for student success and achievement.

During the first phase of Zimmerman's self-regulated learning theory (1986), students were assigned two different types of assessments each week through SmartMusic: practice reports and assignments. There were three common themes that occurred during the intervention planning phase. They were: practiced throughout the week, practiced on weekends, or did not practice. For the traditional method of learning, there were four common themes that occurred. They were: practiced throughout the week, practiced on weekends, planned small assignments (goals written), and played only "No SmartMusic."

In both the traditional method and intervention method of practicing, 19 out of the 20 students waited until the weekend to complete their work. Only one student opted to work on their assignments throughout the week. As indicated in Table 4.4, the song was broken down into smaller sections (Intervention Assignment: Measures 1-33, Intervention Assignment:

Measures 22-42, etc.) and eventually leading to the summative assessment of the entire piece. The researcher planned musical goals for the students for their weekly practice sessions for the intervention assignments. Sections of the song were separated into different progression assignments that eventually concluded with the whole piece. In Figure 4.7, there were eight students that did not have specific goals for the practice session. On the other hand, there were 12 students that demonstrated more specific goals for the student-practice session. The log entries in those figures were similar to the assignments posted by the music instructor. Example of planned small assignments were evident in Figure 4.8 and an example of played only “No SmartMusic” was displayed in Figure 4.9; therefore, SmartMusic exhibited appropriate planning techniques for individual student practice sessions, the first phase of self-regulated learning.

Research by Buck (2008) indicated that students felt like they succeeded more in musical growth when using SmartMusic. Figure 4.10 supported that five students wanted the use of the computer program to help them effectively evaluate their practice sessions. The use of SmartMusic helped students to feel more successful in music growth, which was exhibited in Figure 4.11.

Previous research, Nichols (2014) discovered that students spent more time practicing their music with the traditional method of a paper-practice record. Additionally, students were more motivated to practice with SmartMusic at home, despite the significant difference of the tracked time on the software than on the paper record. Research of Nichols’ (2014) study indicated that students did achieve better scores with the SmartMusic intervention. During the intervention, there were 16 students that fulfilled the minimum time of 60 minutes for the practice record and two students who did not meet the requirement. However, there were two students who did not meet the minimum requirement, but still received passing grades on their

assignments. In Table 4.3, Student A did not meet the minimal requirements for three out of the four posted weekly practice records. However, Table 4.4 presented that Student A produced passing grades. As a result, the students were motivated to practice with SmartMusic to evaluate their individual assignments to obtain a passing grade, the final phase of self-regulated learning. The practice log of Figure 4.11 indicated that students did not know how to evaluate their practice sessions to achieve their goals. Ultimately, much like what was found by Nichols (2014), the motivation to use the software program was to obtain passing grades of individual assignments or mastery of their musical goals.

Students facilitated self-regulated learning through SmartMusic. The three phases of Zimmerman's (1984) framework were present when an analysis was conducted of the traditional practice records and also the generated gradebook from the software program. Motivation to submit higher scores was found to be an important element of evaluation, which the students did not have access to with the traditional method.

Research Question Four

How does parental involvement directly impact middle school, instrumental music programs? Parental involvement has a direct impact in middle school, music programs. An interview between the two instructors indicated that there were two emerging themes: parent support groups and communication. In order for music instructors to focus on their students, support groups were beneficial to the programs by taking away large time of investments in areas but by also providing a positive environment (Watham, 2013; Bauch, 1994). By having the parent-support group, it was a way to engage parents without it being overwhelming (Robbins & Searby, 2013). Communication was also an important theme since constant communication with schools were shown to produce better student achievement (Cotton & Wiklund, 1989).

The parent-support group of T1 was heavily involved with all aspects of the music program. From fundraising, to classroom parties, to backstage, the parent-support group volunteered a lot of their time to help contribute to the success of their child's music education. Brandt (1989) indicated that parents generally volunteer based upon the needs of the teacher. Parents are directly and physically involved with the music program. When there are parent volunteers in the classroom, the child's perception implies that their parents care about their education (Gigante, 2011). On the other hand, due to administrative decisions, T2 relies on the teacher's family, the students and faculty for any outside support during concerts or field trips. As a result, parents in T2 are not allowed to volunteer for events at the school that could ultimately contribute to the music program in a positive way.

Communication is an important theme for a positive relationship between parents and music instructors. Especially, since T2 was not allowed to have a parent-support group, they must rely on communication. Teachers and parents have more access to communicate with one another regarding music-program activities and student behavior. With technology, parents and teachers can communicate easily and instantly with each other through email, and T1 communicated with parents through text messages on their cellphones.

Ultimately through constant communication, parents can reinforce expectations and concerns of the music instructor at home. In addition, parents can communicate with teachers about any issues when the child is practicing at home, or any personal issues that the child may be having that could affect their behavior and learning potential in the classroom. Positive involvement will improve student achievement (Long, 2007).

Research Question Five

Of the six types of parental involvement of Epstein's theory, which is the most present in the instrumental, middle school music programs? Epstein's framework of parental involvement consists of six areas: parenting, communicating, volunteering, learning at home, decision-making, and collaborating with community. The Likert-scale of the survey rating positioned one with the positive responses. Based upon the data (Table 4.5), communicating ($n = 12$) was the most present parental factor in instrumental, middle school music programs. The results revealed that communication was the most prominent factor of Epstein's (1986) parental involvement in the instrumental-music departments. In sections two ($\bar{X} = 1.29$, $SD = .40$), four ($\bar{X} = 1.39$, $SD = .37$), and section six ($\bar{X} = 1.96$, $SD = .72$), communication had the lowest mean factor of the six factors of the survey. This indicated that communication was the highest factor. The small-standard deviations also indicated that the responses of the participants were very similar.

Based upon the interviews with the music instructors, communication was also a common theme among parent support. According to Hara and Burke (1998), effective communication between teachers and parents help to bridge a relationship between home and school. Since the music instructor of the public school was not allowed to have a parent-support group, communication between teachers and parents was very important for success in the music department. Based upon the survey responses, communication about student success ($n = 12$, $M = 1.25$, $SD = .45$) and communication about overall care ($n = 12$, $M = 1.25$, $SD = .45$), communication about student success and overall care was the highest concern for parents. COM1a asked participants how well the music teacher helped them to understand their child's music development and COM2d asked if they agreed with the statements that the teachers cared

about their child. Communicating effectively with teachers, parents believed that they had a better understanding of their child's music development.

Additionally, when teachers and parents can communicate effectively, it demonstrates a positive relationship between the two, which also contributes to the overall care about the child. Participants believed that strong communication between the teachers and the parents also established "goals and philosophies of the music program" at the beginning of the school year, so that "everyone starts off on the same page." Epstein (1986) believed that when parents and teachers worked together, they developed effective goals for the child. Ultimately, parental involvement of communication with the teacher will directly impact the music education of their child in music education.

Conclusions

This study examined how parental involvement and technology impacted the success of students becoming independent musicians in middle school, instrumental music programs.

According to the results from this sample, positive communication between parents and teachers promote:

1. A better understanding of a child's music development. It is important that teachers are communicating with parents about their child's success (or failures) in the music program. Constant communication will produce better student achievement.
2. Parents want to know that their teacher cares for their child. When a teacher can communicate to the parent effectively, it helps break the barrier between home and school. Through this communication, parents can understand the relationship between the student and the teacher. Together, the partnership of the caring teacher and the parent contribute to overall student success.

Technology in music education facilitates self-regulated learning by:

1. Demonstrating how to plan each practice session. Students can see how the teacher utilizes the computer program to map out their individual practice sessions at home. When asked to practice on their own, the assignments on SmartMusic serve as a guide for students to plan their own session.
2. Motivating students to practice. Students are motivated to do well by achieving higher scores on SmartMusic. As a result, they practice more effectively to complete assignments to receive full credit and better grades.
3. Evaluating immediately with instant feedback feature. Students can recognize immediately if their practice session is effective or not. The automatic-generated

scores of the program inform students what they are doing right and wrong. They can practice their assignments several times and evaluate what needs to be done to accomplish the goal successfully.

Parental involvement and technology together promote independent musicianship in middle school, music programs, as well as life-long successful learners.

Limitations of the Research

The researcher faced many limitations that directly impacted the data collection. For the quantitative research, the limited number of participants affected the ability to make certain generalizations and comparisons about the groups. The potential lack of buy-in from the public-charter school contributed to the issues in data collection. The sample size of the participants from the public school of the parent survey was two individuals. In addition, none of the parents elected to be interviewed as part of the qualitative research. The small sample size from the public school altered the results to reflect mostly the participant data from the private school. Secondly, the sample size of the student participation was also affected by students of the public-charter school losing their consent letters, not returning the letters, parents not electing for student data to be collected, and lastly by state testing. When the researcher went to the public-charter school to collect data for the pre-test and post-test, students were pulled from the instrumental-music class for standardized testing. This happened multiple times during the research study.

For the private school, timing of the break in the spring semester interrupted classroom instruction. As a result, the researcher decided to combine two weeks of the intervention and traditional method of learning practice records. This interruption to the scheduled instruction resulted in students not turning in practice records upon return from the spring break week.

Implications for Practice

With the fate of music education in various school systems, the data found in this study will contribute to the importance of instrumental-music education in the middle school sector. As stated in the “Every Student Succeeds Acts,” music is a contributor to a child’s well-rounded education (National Association for Music Education, 2015). Parental involvement is also a factor that is measured in school performance through ESSA. In addition, the implementation of technology into music education is important, as it is a strand of the new core music standards (NAfME, n.d.).

The two schools, both public and private, while different SES environments, ultimately have the goal in producing independent musicians in the program. Understanding that communication is an important factor in both school settings will help future music teachers to be successful. A shift in the platform of education and the use of technology will only enhance the experience for students and teachers. Concerns that students cannot facilitate their self-regulated learning, programs such as SmartMusic will guide students in a direction to be successful. Motivation to improve musical growth, which, in turn, produces better grades, sets students up to be independent musicians. Teachers can delegate formative and summative assessments through the use of the program, which allows them to focus more on fostering an effective program.

Recommendations for Future Research

For future research, a larger sample size of participants would benefit the overall study. Having a significant difference in the sample sizes from the two locations could have impacted a bias result in the data. Very little participation from the public-charter school did not provide enough data for an analysis comparison between the two school locations.

In addition, the researcher recommends doing the intervention for a longer period of time with varying musical selections. The four-week period of data collection could have impacted the results. In addition, the selections of music were only limited to two selections: one with SmartMusic and one without SmartMusic. For future research, more selections of varying genres could contribute to different generated scores by the computer program.

Similar to Flanigan's study (2008), future recommendations for research would be to have an expert judge score, in addition to the automatic-generated scores by the computer program. Since the computer program focused primarily on pitch and rhythm accuracy, the expert-judge scores would be used to analyze elements the program cannot achieve, such as intonation, expression and musicality. The expert judge would be used for both study groups of the traditional and intervention method for additional pre-test and post-test scores.

Summary

A mixed-methods research analysis was completed to explore parental involvement and technology impacts on developing middle school, independent musicianship. An interview was conducted between a public-school music teacher and the researcher being the private-school music teacher. Surveys were sent to parents of both school sites to investigate which factor of parental involvement of Epstein's (1986) framework was most present in a middle school, music program. In addition, interviews were conducted to parents that elected to participate in a follow-up survey. In a qualitative analysis, common themes were coded from the interviews. Data was inputted into SPSS for a descriptive analysis and computed to determine that communication was the most present, contributing factor in a middle school, music program.

An intervention was also implemented into the study to determine if there was a significant difference in musical growth gained between technology and the traditional teaching

method, but also to determine if SmartMusic facilitates Zimmerman's (1986) framework of self-regulated learning. Pre-test scores were recorded by the researcher prior to the invention. For the research, students used SmartMusic to track their practice records for the intervention and used practice-log reports for the traditional method of learning. The practice-log reports were analyzed for evidence of self-regulated learning. There was no significant difference in either method of practicing, indicating that either approach is effective in the instrumental-music classroom. Lastly, SmartMusic does facilitate self-regulated learning, as it motivates students to succeed and use their time effectively when practicing. Practice sessions with SmartMusic are better quality, as scores reported are of passing grade, despite students not meeting the time minimums. Together, parental involvement and access to music technology promote a successful path to developing independent musicianship in middle school students in both public and private school settings.

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APPENDICES

Appendix A: IRB Approval

Hello stephanie.hartzell@cui.edu,

This message is from the
Concordia University Irvine
Office of Institutional Research.

Date: Feb 16, 2018 @ 09:58 am
Creator: stephanie.hartzell@cui.edu
Summary: EDD IRB Application - Expedited -
Lange (Hartzell)

If you have any additional information regarding this case respond to this email. Please remember to keep "[Ticket #3968]" in email topic.

On Mar 07, 2018 @ 10:28 am Blanca Quiroz wrote:

Ticket closed: CONCORDIA UNIVERSITY IRVINE INSTITUTIONAL REVIEW BOARD PROTOCOL REVIEW

IRB Protocol Number: 3968

IRB Approval Date: 3/7/2018

Ms. Lange

Congratulations! Your research proposal has been approved by Concordia University-Irvine's IRB. Work on the research indicated within the initial e-mail may begin. This approval is for a period of one year from the date of this e-mail correspondence and will require continuation approval if the research project extends beyond a year.

If you make significant changes to the protocol during the approval period, you must submit a revised proposal to CUI's Institutional Review Board (IRB). Please write your IRB # and "EdD IRB Application Addendum # (and the IRB Protocol number)" in the subject line of any future correspondence.

If you have any questions regarding the IRB's decision, please contact me by replying to this email or by phone at [512 810 9172](tel:5128109172)

Kind Regards,

EdD IRB Reviewer

On Mar 07, 2018 @ 10:28 am your ticket was marked as closed,

This means your request was considered resolved. If it has not been resolved to your satisfaction, simply reply to this message to automatically reopen your ticket.

Please do not reply to this email unless your issue has not been resolved to your satisfaction. Any reply to this message will automatically reopen your ticket.

Thank you,

Concordia University Office of Institutional Research

Appendix B: Letter to Parents and Informed Consent



Dear Parent(s) and/or Guardian(s),

I am writing to you to ask permission to participate in research for my doctorate degree in Educational Leadership from Concordia University Irvine. My study is based upon Parental Involvements and Computer-Based Music programs and their impacts on developing Independent Musicianship in Middle School students in both public and private school. It is being conducted under the supervision of Dr. Stephanie Hartzell, Ph. D. in the School of Education of Concordia University Irvine. The purpose of this research is to identify methods of parental involvement and if computer-based music programs enhance independent learning in middle school instrumental band music programs. This study has been approved by the Institutional Review Board, Concordia University Irvine, in Irvine, CA.

The procedures for the research involve two components. The first is a questionnaire (survey) that will be available in both paper and electronic form. The survey should not require more than 30 minutes to complete. The survey will help to identify which factors of involvement are preferred by parents and also the reasoning for parental involvement in middle school instrumental band programs. In addition to the survey, I would like to interview a few parents. Selection to be interviewed will have no impact on the survey.

The second component of the research is based upon the computer program, SmartMusic. Since SmartMusic is already a required program for middle school students in the band program, there will be no impact on your child's curriculum. The use of the computer program will be used to compare traditional methods of music learning (which does not use the computer). A comparison of the methods will involve using the computer program and not using the program to learn grade-level appropriate music. For traditional methods of learning, the computer program will be used for generated scores and will be completed during the school hours. Individual practicing minutes that are tracked in SmartMusic will be decreased when traditional method of learning is added to ensure that students are not given additional homework beyond the stated requirements in the classroom syllabus.

The study is voluntary and should you choose to not participate, it will not impact your child's grade and education in the instrumental band music program. Your name as well as your child's will be confidential and results will not be shared with school staff. Only children in the eighth grade, who have parental permission and choose to participate in the event, will be involved in the data collection for the study.

To participate and to grant permission to use the data that will be collected, please sign the attached consent form and return it to me in the self addressed stamped envelope (or return to classroom teacher). Please check the appropriate boxes for preference of survey and whether or not you give permission for your child to participate. Please return by March 23, 2018

If you have any questions regarding the study or you would like additional information, please feel free to contact me at Elisabeth.lange@eagles.cui.edu or (978)273-6539 or my advisor, Dr. Stephanie Hartzell at Stephanie.hartzell@cui.edu

Thank you in advance for your support,

Elisabeth Lange
Elisabeth.lange@eagles.cui.edu
 Concordia University, Irvine
 School of Education, Ed.D.

Letter of Informed Consent

Please sign and return this form in the self-addressed stamped envelope. You may keep the cover letter for reference incase you have any questions.

By signing this consent form, I confirm that I have read and understood the information. I understand that my participation is voluntary and that I am free to withdraw at anytime, without giving a reason and without cost. I understand the nature of the study, the potential risks to me as a participant, and the means by which my identity will be kept confidential. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

_____ (Please print your name)

_____ (Signature and date)

I consent to use my child's data: **Yes** ☐ **No** ☐

I prefer to participate: **in the survey only** ☐ **in the survey and interview** ☐

I prefer to participate: **through mail** ☐ **through email** ☐

Email address (if participating through email)

Address (if participating through mail)

Thank you for your time,
Elisabeth Lange
Elisabeth.lange@eagles.cui.edu

Appendix C: Parental Letter and Survey

Dear Parent/Guardian

This survey is being sent to you based upon your agreement to provide information for the study of Parental Involvements and Computer-based Music programs and the impacts on developing Independent Musicianship in middle school students. I will analyze your information to better understand parent involvement in both public and private music programs

Please note that this survey:

- Is voluntary. We hope that you answer every question, but you may skip any questions you feel are too personal.
- Is confidential. Please do not write your name anywhere on the survey.
- Has no right or wrong answers.
- Is not part of your child's schoolwork.
- Will not influence your child's learning or grades in any way.

Please respond to this survey and mail it back in the self-addressed stamped envelope.

Thank you very much,
Elisabeth Lange

Elisabeth.lange@eagles.cui.edu

This survey should be answered by the PARENT or GUARDIAN who has the most interest and concert with your child's participation with the instrumental music program.

A. Who is filling this out?

PLEASE CHECK IF YOU ARE...

- | | | |
|---|--|--|
| <input type="checkbox"/> 1.) mother | <input type="checkbox"/> 5.) aunt | <input type="checkbox"/> 9.) guardian |
| <input type="checkbox"/> 2.) father | <input type="checkbox"/> 6.) uncle | <input type="checkbox"/> 10.) other relative |
| <input type="checkbox"/> 3.) stepmother | <input type="checkbox"/> 7.) grandmother | <input type="checkbox"/> 11.) other |
| <input type="checkbox"/> 4.) stepfather | <input type="checkbox"/> 8.) grandfather | Describe: _____ |

B. How many children in your household participate in the instrumental music program?

A. THE SCHOOL'S CONTACT WITH YOU

- 1. How well has your child's music teacher has done the following THIS SCHOOL YEAR?** Circle ONE answer on each line to tell if the teacher does this:

- (1) Well
(2) OK
(3) No Opinion: N/O
(4) Poorly
(5) Never

My child's music teacher	Does this...				
	Well	OK	N/O	Poorly	Never
a. Helps me understand my child's musical development	1	2	3	4	5
b. Tells me how my child is doing in instrumental music.	1	2	3	4	5
c. Asks me to volunteer for the music department.	1	2	3	4	5
d. Explains how to check my child's homework.	1	2	3	4	5
e. Sends home news about things happening at school.	1	2	3	4	5
f. Tells me what skills my child needs to learn	1	2	3	4	5
g. Provides information on community services that I may want to use with my family.	1	2	3	4	5
h. Invites me to parent volunteer meetings.	1	2	3	4	5
i. Assigns homework that requires my child to talk with me about things learned in class.	1	2	3	4	5
j. Invites me to a performance at the school.	1	2	3	4	5
k. Asks me to help with fund raising.	1	2	3	4	5
l. Has a parent-teacher conference with me.	1	2	3	4	5
m. Includes parents on school committees, such as curriculum, budget, or improvement committees.	1	2	3	4	5
n. Provides information on community music events that I may want to attend with my child.	1	2	3	4	5

- 2. How much do you agree or disagree with the following statements about your child's school and teachers?** Circle ONE answer on each line to tell if you

- (1) Strongly Agree
(2) Agree
(3) Neutral
(4) Disagree
(5) Strongly Disagree

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a. This is a very good instrumental music program.	1	2	3	4	5
b. I feel welcome at the school.	1	2	3	4	5
c. I get along well with my child's teacher(s).	1	2	3	4	5
d. The teachers at this school care about my child.	1	2	3	4	5

B. YOUR INVOLVEMENT

3. Families are involved in different ways at school and at home. How often do YOU do the following activities? Circle ONE answer on each line to tell if this happens:

(1) Everyday or Most Days

(2) Once a Week

(3) Once in a While

(4) Never

How often do you...	Everyday/ Most Days	Once a Week	Once in a While	Never
a. Talk to my child about instrumental music class	1	2	3	4
b. Volunteer at school during performances or rehearsals	1	2	3	4
c. Help my child with music practice/homework	1	2	3	4
d. Listen to my child practice	1	2	3	4
e. Practice skills before a lesson or performance	1	2	3	4
f. Visit your child's music class or rehearsal	1	2	3	4
g. Help my child plan time for practicing, homework, and chores	1	2	3	4
h. Talk with my child about music on TV or radio	1	2	3	4
i. Talk to with my child's music teacher at school	1	2	3	4
j. Talk to my child's music teacher on the phone	1	2	3	4
k. Communicate to my child's music teacher through email	1	2	3	4
l. Go to instrumental music parent volunteer meetings	1	2	3	4
m. Check to see that my child has done his/her practice or homework in instrumental music	1	2	3	4
n. Ask your child how well he/she is doing in instrumental music	1	2	3	4
o. Go to Concerts	1	2	3	4
p. Take my child to see music performances outside of school	1	2	3	4
q. Tell my child how important instrumental music is	1	2	3	4

C. YOUR IDEAS

4. **How much do you agree or disagree with the following statements about what parents should do?** Circle ONE answer on each line to tell if you

- (1) Strongly Agree
 (2) Agree
 (3) Neutral
 (4) Disagree
 (5) Strongly Disagree

It is a parent's responsibility to...	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a. Make sure that their child learns music.	1	2	3	4	5
b. Teach their child to value music.	1	2	3	4	5
c. Show their child how to use things like a fingering charts, practice tools	1	2	3	4	5
d. Contact the teacher as soon as academic problems arise.	1	2	3	4	5
e. Test their child on music taught in school.	1	2	3	4	5
f. Keep track of their child's progress in instrumental music.	1	2	3	4	5
g. Contact the teacher if they think their child is struggling in instrumental music.	1	2	3	4	5
h. Show an interest in their child's music.	1	2	3	4	5
i. Help their child understand homework/practice.	1	2	3	4	5
j. Know if their child is having trouble in school.	1	2	3	4	5

5. How much do you agree or disagree with the following statements?

Circle ONE answer on each line to tell if you

- (1) Strongly Agree
 (2) Agree
 (3) Neutral
 (4) Disagree
 (5) Strongly Disagree

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a. I know how to help my child do well in music.	1	2	3	4	5
b. I never know if I'm getting through to my child.	1	2	3	4	5
c. I know how to help my child make good grades in music.	1	2	3	4	5
d. I can motivate my child to do well in music.	1	2	3	4	5
e. I feel good about my efforts to help my child learn.	1	2	3	4	5
f. I don't know how to help my child on practicing.	1	2	3	4	5
g. My efforts to help my child learn are successful.	1	2	3	4	5
h. I make a difference in my child's music performance.	1	2	3	4	5

D. CONNECTIONS WITH OTHER PARENTS

6. How often do you talk with parents who have children at your child's school about the topics listed below? Circle ONE answer on each line to tell if this happens:

- (1) Very often
 (2) Once in a while
 (3) A few times a year
 (4) Never

How often do you and parents at your child's school . .	Very Often	Once in a while	A few times a year	Never
a. Talk about activities at your children's school?	1	2	3	4
b. Talk about your children's teacher(s)?	1	2	3	4
c. Provide each other advice about parenting?	1	2	3	4
d. Share helpful information about your child's music class	1	2	3	4
e. Talk about your children's behavior or misbehavior?	1	2	3	4
f. Talk about where to send your children to school?	1	2	3	4
g. Share information about community music events	1	2	3	4
h. Share information about extra-curricular music activities	1	2	3	4
i. Talk about how to become involved with the instrumental music program	1	2	3	4
j. Provide each other with advice about helping your child with practice	1	2	3	4
k. Talk about your children's accomplishments in music?	1	2	3	4

7. How have your connections with other parents helped you the most as a parent?

E. YOUR FAMILY

8. The following questions will help us plan programs and activities to meet your family's needs. Please mark one answer for each item.

- a. Is your child at this school a:** ☐ Girl ☐ Boy
- b. When was your child born:** ☐ Month ☐ Year
- c. What is your relationship to the child?**
☐ Mother ☐ Grandmother
☐ Father ☐ Grandfather
☐ Stepmother ☐ Other (please describe) _____
☐ Stepfather
- d. How much formal schooling have you completed?**
☐ Some high school
☐ High school diploma
☐ Some college
☐ Vocational school/Technical college
☐ College degree
☐ Graduate degree or credits
- e. How much schooling do you think your child will complete?**
☐ Some high school
☐ High school diploma
☐ Some college
☐ Vocational school/Technical college
☐ College degree
☐ Graduate degree
- f. How do you describe yourself?**
☐ Asian-American
☐ Black or African-American
☐ White or Caucasian
☐ Hispanic or Latino(a)
☐ Other (describe) _____
- g. What language do you speak at home?**
☐ English
☐ Spanish
☐ Other
 (describe) _____
- h. Marital Status:**
☐ Married ☐ Divorced or separated ☐ Never married
- i. Are you employed?**
☐ Full-time ☐ Part-time ☐ Not employed
- j. If applicable, is your spouse or partner employed?**
☐ Full-time ☐ Part-time ☐ Not employed ☐ Not applicable
- 9. What other suggestions do you have about how the school could help you support your child's education or learning?**

Appendix D: Center on School, Family and Community Partnerships Letter

**Center on School, Family, and Community Partnerships**

Johns Hopkins University • 2701 North Charles Street, Suite 300 • Baltimore MD 21218

TEL: 410-516-8800 • FAX: 410-516-8890 • nops@jhu.edu

To: Users of Surveys of School, Family, and Community Partnerships
from Johns Hopkins University Researchers

From: Joyce L. Epstein, Ph.D. & Steven B. Sheldon, Ph.D.

Re: Permission to use and adapt surveys on family and community engagement

- Sheldon, S. B. & Epstein, J. L. (2007). Parent and Student Surveys of Family and Community Involvement in the Elementary and Middle Grades. Baltimore, MD: Center on School, Family, and Community Partnerships at Johns Hopkins University.
- Epstein, J. L. & Salinas, K. C. (1993). Surveys and Summaries: Questionnaires for Teachers and Parents in Elementary and Middle Grades. Baltimore, MD: Center on School, Family, and Community Partnerships at Johns Hopkins University.
- Epstein, J. L., Connors-Tadros, L., & Salinas, K. C. (1993). High School and Family Partnerships: Surveys for Teachers, Parents, and Students in High School. Baltimore, MD: Center on School, Family, and Community Partnerships at Johns Hopkins University.

This letter grants you permission to use, adapt, translate, or reprint the survey(s) noted above in your study.

We ask only that you include a full reference to the survey(s) and authors in the text and bibliography of your reports and publications.

Best of luck with your project.

Appendix E: Letter to Student



Dear Student,

You are being asked to participate in research for my doctorate degree in Educational Leadership from Concordia University Irvine. My study is based upon Parental Involvements and Computer-Based Music programs and their impacts on developing Independent Musicianship in Middle School students in both public and private school. It is being conducted under the supervision of Dr. Stephanie Hartzell, Ph. D. in the School of Education of Concordia University Irvine. The purpose of this research is to identify methods of parental involvement and if computer-based music programs enhance independent learning in middle school instrumental band music programs. This study has been approved by the Institutional Review Board, Concordia University Irvine, in Irvine, CA.

Please talk this over with your parents before you decide whether or not to participate. I will also ask your parents to give their permission for you to take part in this study. If you volunteer to participate in this study, you will be asked to do the following:

You will be using Smart music to compare methods of music learning (which does not use the computer). A comparison of the methods will involve using the computer program and not using the program to learn grade-level appropriate music. For traditional methods of learning, the computer program will be used for generated scores and will be completed during the school hours. Individual practicing minutes that are tracked in SmartMusic will be decreased when traditional method of learning is added to ensure that you are not given additional homework beyond the stated requirements in the classroom syllabus. Since SmartMusic is already a required program for the band program, there will be no impact on your curriculum in band class. You will also be asked to keep a practice log journal to track your traditional methods of practicing at home. This will last for four weeks and will only be used on two music selections.

The study is voluntary and should you choose to not participate, it will not impact your grade and education in the instrumental band music program. Your name will be confidential and results will not be shared with school staff. Only children in the eighth grade, who have parental permission and choose to participate in the event, will be involved in the data collection for the study. There are minimal risks to participants as you may opt out of the study. However, you may benefit from this study to improving your self regulated learning skills, as well as improving your independent critical thinking skills. To participate and to grant permission to use the data that will be collected, please sign this consent form and return it to me in the self addressed stamped envelope with your parent's letter (or return to classroom teacher).

By signing this consent form, I confirm that I have read and understood the information. I understand that my participation is voluntary and that I am free to withdraw at anytime, without giving a reason and without cost. I understand the nature of the study, the potential risks to me as a participant, and the means by which my identity will be kept confidential. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

_____ (Please print your name)

_____ (Signature and Date)

Thank you,
Ms. Elisabeth S. Lange

Appendix F: Practice Log for Traditional Method

Name: _____

Grade: 6 7 8

Date	Goal for Practice Session	What I Accomplished	Time Spent	Parent Signature

Appendix G: Interview Questions for Teachers

- TQ1 How do you feel about the administrative and school support towards your program?
- TQ2 How has enrollment in your program changed over the years?
- TQ3 What do you think impacts students' decisions to take band as an elective? Are any students restricted from signing up?
- TQ4 Financially, how is your program supported? By school budget, fundraisers, etc?
- TQ5 Are instrumentals accessible to all students in your program? Where does the funding for instruments come from?
- TQ6 Do you feel that the implementation of SmartMusic improved your music program? If so, how? How many students have access to SmartMusic and internet at home?
- TQ7 What type of parent support do you have in your instrumental-music program? Example, boosters, concert set up/tear down, daily classroom needs, field trips, etc.
- TQ8 How do you communicate with parents? Do you only communicate regarding grades and/or behavior issues?

Appendix H: Interview Questions for Parent Participants

- PQ1 What do you feel like you can contribute the most to the instrumental-music program?
- PQ2 Do you have any recommendations for parent involvement for the upcoming school years?
- PQ3 How do you encourage your child to practice their instrument at home?
- PQ4 How has the instrumental-music program impacted your child's education?
- PQ5 How do you communicate with your music teacher? Does it differ from academic teachers? If so, how?
- PQ6 Do you think that SmartMusic helped your student grow as a musician? If so, how and if not, what alternative do you suggest?