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A Case Study of the Impact of Quaver's Marvelous

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A Dissertation

Submitted in Partial Fulfillment of the Requirements for the

Doctor of Education Degree

Union University

Stephen Darryl Foster

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DEDICATION

This dissertation is dedicated to my wife Sandra, and my children, Stephanie and Andrew, who have always supported me in my endeavors, even when it would have been easier for them to be less understanding. I also want to dedicate this to my mother and late father, who never set limits on the possibilities of life.

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ABSTRACT

This case study examined the impact of Quaver's Marvelous World of Music on an elementary school music program. Quaver's Marvelous World of Music is a software music curriculum designed to be used in Grades K-8. The purpose of the study was to examine the impact on the students' musical self-efficacy, interactive engagement, enjoyment of music class, and retention of knowledge. Fifty-four students from Grade 4-6, the music teacher, and the principal at a private elementary school in the southern United States participated in the study, which included a survey for all the students, focus group interviews of 4 students from each grade level, a teacher interview, and a principal interview. All participants in the study participated in elementary general music the year Quaver was implemented and the year prior to the implementation. The clear majority of the participants in this study had positive comments and attitudes about the impact they perceived the Quaver curriculum to have had on enjoyment of music, interaction and engagement, musical self-efficacy, and retention of knowledge. The music teacher found the students engaged because of the Quaver curriculum. She cited examples of how the students would remember the things that they had been taught with Quaver. She also related not only that she thought the students were enjoying music but also how they would tell her that they loved music class and Quaver specifically. Quaver impacted this school in a very positive way.

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CHAPTER 1

INTRODUCTION

The earliest formal education in America did not include music (Birge, 1937). Singing schools were developed to fill this void. When music was added to the curriculum in public schools, it was taught through the traditional method of the teacher imparting knowledge through lecture and example, with the student receiving the information and showing understanding through performance (Birge, 1937). Technological advances, beginning in the 20th century, began to have an effect on classroom instruction including the music classroom. As technology developed, the teacher had available more and better ways to supplement instruction and expose students to real-world examples. An important development was that of computer-assisted instruction, which gave students an outlet for self-paced, creative learning. The newest teaching technology is that of Web-based instruction. Quaver's Marvelous World of Music is a Web-based music curriculum that is gaining momentum and popularity. Despite the increasing popularity of the Quaver curriculum, no study to date has examined the claims that the program is fun, engaging, and interactive, helps retention, and increases musical self-efficacy.

Statement of the Problem

There is a problem in some elementary school general music classes. Despite the creation of National Core Arts Standards (NCAS) for Music Education that have been

adopted by most states for elementary school general music class, some elementary music educators find it difficult to adequately cover all standards with their classes throughout the year. This problem is due in part to the limited time students are in music class, and in part to the inadequate amount of time for music specialists to prepare for the extreme range of classes they teach daily. This problem can negatively impact elementary general music programs if all the standards outlined in the NCAS are not covered. A possible cause of this is the amount and quality of time dedicated to the teaching of music at this level. Perhaps a study investigating the most effective use of elementary general music class time by a case study could remedy the situation.

Purpose of the Study

The purpose of this case study was to determine the effect of Quaver's Marvelous World of Music curriculum on students' musical self-efficacy, interactive engagement, enjoyment of music class, and retention of knowledge by exploring the implementation of Quaver's curriculum in the music program at a private elementary school in the Southeast United States.

Significance of the Study

This study could impact music and education in general in several ways. The information gleaned in this study could help elementary music teachers make better informed decisions about adopting multimedia-based instructional software for music. There is also the possible impact of the way school budgets are spent on materials for the elementary school general music classroom. The results of this study could be transferred to other fields of study to improve the effectiveness of curriculum design and classroom

instruction, especially in the elementary school setting. Results could also impact the way supplemental and instructional materials are designed for multimedia, technology-rich classrooms. Web-based instructional software designers could use the information collected to improve existing programs.

Research Questions

Research Question 1. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student engagement?

Research Question 2. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student enjoyment of music class?

Research Question 3. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student interaction?

Research Question 4. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student retention of material?

Research Question 5. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student musical self-efficacy?

Definition of Terms

Musical Instrument Digital Interface (MIDI). A standard protocol for the interchange of musical information between musical instruments, synthesizers, and computers ("MIDI," n.d.).

Musical self-efficacy. Musical self-efficacy is herein referred to as the self-belief people have in their ability to successfully complete present and future musical tasks based on the success of completing musical tasks in the past.

National Association for Music Educators. An arts education organization that addresses all aspects of music education (National Association for Music Education, n.d.).

National Core Arts Standards for Music Education. "A process that guides educators in providing a unified quality arts education for students in Pre-K through high school" (National Coalition for Core Arts Standards, 2014).

Orthophonic. Refers to authentically reproducing sounds including full ranges (Schoenherr, 2000).

Rote. "Mechanical or unthinking routine or repetition" ("Rote"[Def. 2]. n.d.).

CHAPTER 2

REVIEW OF LITERATURE

The face of music education has changed over the years. The advances in technology have presented music teachers with tools to help engage students' attention and imagination. A new technological advancement is an online, multimedia curriculum for teaching music in Kindergarten through Grade 8. Quaver's Marvelous World of Music claims that its curriculum is fun, engaging, interactive, and promotes retention of materials learned. In addition, user comments suggest it helps develop musical self-efficacy. This review of literature will look at components that have been found to be factors that promote engagement, interaction, enjoyment of learning, and retention of materials learned. The first component is classroom management with subfactors of approval/disapproval, time on task, and academic pacing of the lesson. Second, the review will explore research on engagement and learning, and will explore the engagement subtypes of behavioral, cognitive, and emotional. Third, the review will look at attributes of self-efficacy and its importance to learning. Last, the review will look at the Quaver program and review what it offers.

Historical Perspective on Technology in Music Education

Education has historically been regarded as the instruction that occurs between teacher and student. The beginning of education in America was tailored after European models (Labuta & Smith, 1997) and emphasized both civic and religious instructions.

Though music was an important part of worship and entertainment, it was not a subject considered essential in developing future leaders, so it was not taught in public schools. Music instruction did occur outside of school, however, and it was taught much like the instruction that occurred with subjects in school–with a teacher in front of a class of students imparting knowledge. During the 18th century, schools became more common, but music was still not a subject being taught in school.

The development of the singing school came about because the quality of music in worship services was declining, and it eventually became a model for music education in public schools (Mark & Gary, 2007; Pemberton, 1985). These schools were a huge success, and a lot of materials were designed and printed for them. The popularity of the singing schools helped convince school leaders that music was important and that it should be taught in public schools around the country. As the common-school movement emerged, proponents of music education such as William Woodbridge and Lowell Mason came forward to help pave the way for music to become a part of the curriculum in every school (Mark & Gary, 2007). In the late 1830s, Lowell Mason succeeded in convincing the Boston public school board that music should be taught in the public school system because of its inherent ability to develop in the youth a moral, physical, and intellectual nature (Pemberton, 1985).

Students in the early years of music education in the United States were taught in a traditional manner, where the teacher was the source of information and books, or music was utilized as supplemental material. Public school teachers either adopted the "rote" or the "note" method of instruction (Keene, 2010). The rote method taught

students by having them repeat or mimic the teacher. Although students would learn to sing a melody or even sing harmonic parts, they would not be reading the music on their own. The note method, by contrast, would teach the students how to read the elements of a musical piece so they could perform it by reading it in much the same way a reader would read a book. Even today, the rote and note methods continue to be used by teachers in the music classroom.

By the turn of the 20th century, music began to be a part of every school's curriculum, and textbooks and other teaching aids began to multiply rapidly, enhancing the educational experience (Mark & Gary, 2007). During the first 10 years of the 20th century, the introduction of the radio and phonograph added yet another dimension to the method of teaching music in the classroom. Education became a more interactive and engaging endeavor with audio examples to listen to for evaluation and emulation.

As technology continued to increase, teachers had more options available to them for supplementing classroom instruction. In the late 1890s, the magic lamp became available for classroom use, in which glass slides would be prepared with images that would be projected onto the wall (Dunn, 2011). An improvement to this would come after World War II when the filmstrip was invented, which provided a low-cost alternative to glass slides and also offered the ability to put an entire presentation together on one roll of film. The advent of the 16-millimeter film came about in the 1920s and was popular until the 1990s. Both the development of electrical amplification in 1925 and the development of orthophonic sound enabled recordings to capture sounds an octave higher and lower than existing recordable sound ranges (Taintor, 2004).

Still another important development in the technological realm was the invention of vinyl records in the 1940s. Prior to vinyl records, discs were made of a heavy, breakable, and more expensive material. With the technology to make records out of vinyl, recordings of all types could be mass-produced and made available to the public (Record Collectors Guild, 1998). Educational materials could be viewed on filmstrips along with an audio track that would include talking, sound effects, and music. With the development of all the aforementioned advances, teachers were now able to present materials with combined audio and visual content.

In 1976 Video Home System tapes, better known as VHS tapes, became available for public use (Sony Corporation, n.d.). These were followed by the advent of laser disc technology in 1978. Laserdiscs were interactive metallic discs that could be manipulated with a remote control by the user. This ability to manipulate the disc allowed the instruction to be more customized to the individual user or situation. With laser disc technology as its catalyst, the DVD was created in 1995. Around this same time digital audio, such as mp3 and Wav files, were developed and made available to the general public (Sony Corporation, n.d.). Widespread use of the Internet came about during the 1980s and 1990s (Leiner et. al., 2012), followed by YouTube, which made audio and video clips available globally starting about 2006 (Ovide, 2011). Each of these technological advancements offered classroom teachers more ways of allowing their students to be actively engaged and physiologically immersed in the subjects being studied.

Music is certainly one of the areas of study that has been influenced by educational technology advances. Computer-assisted instruction–the use of computers as an interactive instructional tool to present and monitor learning–came about in the 1960s, followed by digital piano keyboards and Musical Instrument Digital Interface (MIDI) technology in the 1970s (Musiker, 2013). The development of this technology allowed users to connect a digital piano to a computer so they could "talk" to each other. Information input from the keyboard could be recorded on the computer and information on the computer could play on the keyboard.

Another prominent development in the field of music technology occurred when Phil Farrand invented the Finale software program in 1988 at the Coda Music Software office in Minnesota (Johnson, 2009). Finale was developed to enable users to connect the digital piano keyboard to the computer through the MIDI interface and input notes onto the staff. The software continues to be used today in teaching both orchestration and music theory. Additionally, it provides the capability of printing the music that was input by the user in a high-quality print.

Sibelius is a music notation software company similar to Finale founded in 1993 by twin brothers Ben and Jonathan Finn for the Acorn computer. It was released for the Windows and Mac platforms in 1998/99 (Brown, 2007). Sibelius has customers in over 100 countries and is used in 60% of the U.K., New Zealand, and Australian schools' systems. Like Finale, Sibelius is a teaching tool that can be used to teach a student music composition, orchestration, and elements of theory.

The interactive CD software, Music Ace Maestro, is a suite of music lessons with student assessments and curriculum management tools (Harmonic Vision, n.d.). According to the Harmonic Vision Web site, Music Ace Maestro was first offered in 2006 on an interactive compact disc. Lessons in Music Ace Maestro include lessons on the staff, pitch, tempo, piano keyboard, notation, melody, key signature, and scales, to name a few. There is a total of 48 subjects covered, as well as games and an interactive music doodle pad. The software can track and report student progress. The graphics in the software are targeted toward a younger group of students, although its Web site states the program is ideal for young or old, beginning, and intermediate students.

A different type of technology, SmartMusic, was released in 1994. Originally known as Vivace, this software is designed to give individual students immediate feedback about incorrect rhythm and pitch accuracy. The software comes with an accompaniment track that can be used by students during practice and performance and allows them to record themselves as they play. The audio recording allows them the ability to hear their part along with the accompaniment to give them a reference of rhythm and pitch while practicing on their own. The software is available for vocal, band, and string students of all skill levels and ages (Make Music Inc., 2015).

Classroom Management

Students who are actively involved in learning tend to enjoy learning. One of the claims on the Quaver Web site is that its curriculum is fun, engaging, and interactive. Managing a classroom has more than one aspect. In the overall scheme of classroom management, the desired outcome is an environment where the students feel safe, are

actively engaged in the learning environment, and are successful in retaining and applying the lessons taught in the class.

Murray (1972) conducted an experiment involving six high school choruses with 340 student participants inclusively. This study was designed to investigate whether student behaviors during rehearsals were affected by the teacher's approval or disapproval responses during the class to the students' actions. For each of the six choral groups, an experimental director taught two different songs to the group and their regular director taught a third song. All the songs were of equal difficulty and similar in style. Neither the director nor chorus had previously practiced or performed the music selected.

The experimental director taught one of the songs, with 80% of his comments based on student performance as approving and the remaining 20% as disapproving. A second song was taught using a ratio of 20% approving comments and 80% disapproving. The regular director would then teach the third song as they normally taught with no additional instructions. Neither the regular director nor chorus knew what the experiment was looking to find. At the end of the 15-minute instruction for each song, the chorus sang the song it had just learned while it was recorded on an audiotape. As soon as the recording was finished the students were asked to answer two questions: did they like the music and did they enjoy rehearsing the music. Each of the three pieces of music was rehearsed twice with each of the three aforementioned conditions.

The researcher hoped to measure the effect of each approach by three dependent variables: musical performance, student attitude, and student attentiveness. The musical performance variable was rated by a panel of judges who were choral directors based on

the audiotape made at the end of each 15-minute rehearsal. The recordings were compared to a recording the chorus made just days before the study of a piece of music they had prepared for a concert. Student attentiveness was measured by observation of the percentage of students that were overtly on task during the rehearsal. The observation was both live and on videotape. Attentiveness was very high during this study and the researcher's opinion is that this was due to the "Hawthorne Effect." The Hawthorne Effect refers to a reaction of subjects of an observation that have modified behavior because they are aware that they are being observed.

Student attitude was assessed by a scale designed for this study and based on the two questions the students answered at the conclusion of each rehearsal period. The study showed no significant difference in musical performance ratings between music learned by the different methods, nor in the percentage of on-task students. The ratings however for student attitude was significantly higher ($p < .05$) for the selections that were rehearsed using the 80% approval condition as compared to the 20% disapproval condition.

Participants' attitude toward the music they sang during the positive rehearsal time was more positive than their attitude during the negative rehearsal time. There was no significant difference in student attitude ratings between rehearsing with their regular director and the experimental director. Murray (1972) conjectured that these results suggest that by using a greater percentage of approval statement instruction in class the regular director could positively affect student attitudes. With there being only 45

minutes of rehearsal on which to base student attitudes and behavior, greater or more decisive results might occur if the study were drawn out over a longer period.

A similar study by Dorow (1977) investigated whether fourth- and fifth-grade students' music selection behavior and attentiveness of concert were influenced by the ratio of teacher approval or disapproval during instruction. Participants of this study were 76 fourth- and fifth-grade students. The students were pre- and posttested and their off-task behavior was observed. The study attempted to use teacher approval to change the preference in the subjects as well as concert attending behavior.

Subjects of the study were divided into four groups: one received music instruction with high teacher approval, one received music instruction with high teacher disapproval, a third group attended both pretest and posttest but received no instruction, and a fourth group only attended the posttest. In the approval and disapproval groups, all teacher approvals and disapprovals were contingent on social and academic behaviors displayed by the subjects. Researchers concluded that teaching with high approval is reinforcing and teaching with high disapproval is less reinforcing. It was also concluded that treatment effects generalize from concert attentiveness to music selection behavior.

Yarbrough and Price (1981) conducted a study to find which variables contributed to off-task behavior in music rehearsals of several high school ensembles. Subjects for this study were students that were randomly selected from two mixed choruses, three bands, and one orchestra and their six high school ensemble teachers. The teachers conducted rehearsals that were video- and audiotaped. Rehearsals took place in the regular rehearsal area and were conducted by the regular teacher. These rehearsals

occurred about two weeks before a performance. Trained observers reviewed the recordings to record the overt off-task behavior of the student and eye contact by the teacher. There was also a verbatim script analyzed of each rehearsal and coded. Results of the study suggest that 81.38% of the variance for off-task behavior could be accounted for by nonperformance activities during the rehearsal and teacher eye contact. Some of the nonperformance activities were identified as nonperformance time, stops, errors, and disapprovals.

Another classroom management technique is time management. Teachers are responsible for the flow of instruction in the classroom. Flow refers to not only the pace of the instruction but also the quantity of time given to periods of instruction, explanation, housekeeping, and question/answer time. During some of these activities, the student is not actively engaged in the lesson. A student who is not actively engaged in the lesson is at risk of getting off task and even becoming a discipline problem. One of the most important management tasks in any classroom setting is the actual time spent on task with the subject. Students who are waiting for the teacher to pass out papers or who are listening to instructions tend to get off task and lose interest. The amount of time that the students are actively involved as opposed to passive involvement is important to their retention and enjoyment of the class.

In a study by Wang and Sogin (1997) teachers were asked to estimate the time spent in their classroom on the tasks of singing, reading, playing, creating, moving, listening, and describing. Nineteen of the teachers that responded to the survey subsequently were videotaped in the classroom. The researchers analyzed the tapes and

compared the results to the teachers' estimates. It was found that the teachers had overestimated the time spent on musical activities as opposed to the amount of time observed on the videotape.

Forsythe (1977) conducted a study where he observed 263 music classes for 10 to 20 minutes for all grade levels between kindergarten and sixth grade. Forsythe found that teacher talking took up a majority of activity time in the classroom at 41.6%, with student singing following at 19.2% and listening passively to live or recorded music being 11.1% of the time. In a similar study, Wagner and Strul (1979) observed nine music specialists from Grades 4 through 6 over a 5-week period. The observations lasted 15 minutes each, and the specialists were both beginning and experienced. They found that experienced music specialists spent 43.9% of the class time in some form of talking with only 12.78% of class time used for students performing on instruments and 11.91% for students singing. Movement in relation to music was only 3.2%.

A more recent study conducted by Orman (2002) included 30 experienced elementary music specialists, all of whom had or were pursuing a master's degree in music education. Of the 30 teachers in the study, 26 held Orff certification and their experience of full-time teaching ranged from 10 to 26 years. Classes were videotaped and the first 24 minutes of the tape was used for analysis. Classes from grade levels 1-6 were taped over an 18-month period. Orman found that 46.36% of teacher time, the largest portion, was spent talking. Modeling by the teacher took up another 21.57% of the time. Time spent with the teacher listening to the student was 20.43%. Only 36.65% of the

students' time in the music classroom was spent in an active role. Passive listening to teacher modeling or talking was 57.07%.

In a similar study that focused on the initial minutes of rehearsal in a choral setting, Brendell (1996) tried to determine how teachers' use of initial minutes of rehearsal time and rehearsal activities affected the off-task behavior of students. Initial minutes of rehearsal in this study referred to the time spent before the rehearsal of the first selection of choral literature. Participants in the study included choral directors from 33 public high schools in northwest and north-central Florida. Observations of the first 30 minutes of one advanced ensemble for each conductor were audiotaped, and a prerecorded cassette tape with earphones for the observer was used for interval observation using a 15-second observe then 5-second record technique. Rehearsal activities and attentiveness data were recorded on an observation form by the observer during the initial 30 minutes of rehearsal. The audio recordings were examined to collect time-use data ex post facto using a stopwatch.

On the average, conductors averaged 43.45 seconds before they made their first verbal statement for the class to begin. Among the 33 conductors, 10 began at the sound of the bell, 24 began their rehearsal within 60 seconds, five between one and two minutes, and four after 2 minutes. It is also interesting to note that there was an average of 14 minutes and 19 seconds for the conductors to begin rehearsing their first concert piece. There were a variety of activities taking place during this time including warm up, sight-reading, and verbal instruction.

Off-task behavior was highest during activities where students were not actively engaged or in activities that did not require active participation. Highest off-task behavior occurred during periods of physical warm up, literature instruction, and getting-ready activities including passing out materials, interacting with students, and completing class business. Analysis revealed that the nature of the activity was a strong predictor of off-task behavior. It is important for students to be actively engaged in and actively participate in class to stay on task.

An equally important aspect of classroom management is amount of time off task and in transition in the classroom. McLean, Sparapani, Toste, and Conner (2016) investigated how these aspects of classroom management affected literacy achievement in first grade students. This study was a longitudinal study involving 533 students across 18 schools in a North Florida school district. The students represented a wide range of racial and socio-economic diversity.

Over a three-year period the researchers collected literacy skills data from the participants three times a year, each year of the study. They also collected video recordings of each of the 72 classrooms in the study each year, one in the fall, one in the winter, and one in the spring. The video that was captured was coded to document time off task and time used to transition between instructional task.

Analysis of the data identified three trends in amount of time spent in transitional and off task activities. Some classes spent more time throughout the year in non-instructional activities, some the same amount of time, and some less time. Students in classrooms that decreased the amount of time off task and in transitional time between

activities could predict increases in student literacy achievement. These classrooms were referred to as high quality classrooms in this study. It was also found that more time was spent in these classrooms at the beginning of the school year to teach, practice, and learn transitional processes and expectations with amount of time being shortened considerably as students became familiar with routines and processes. In classrooms where students spent more time on task and made quicker transitions between activities, student attention and engagement increased and academic achievement increased.

Another aspect of time management is pacing of the lesson. Pacing in this context refers to the timing and duration of a teaching episode consisting of a teacher verbalization or student performance followed by the rate of alternation between the activities. Looking to assess perceptions of timing from the novice teacher's viewpoint in music and identify the aspects that are positively associated with instructional pacing, Duke, Prickett, and Jellison (1998) had 44 novice teachers watch videotaped lesson excerpts and evaluate their pace of instruction. The researchers selected short 1- to 3-minute teaching excerpts of four novice teachers in choral, band, and elementary music classroom settings. An excerpt that was judged as slow and one that was judged as faster were selected from each teacher, and each example was judged to be good teaching. Teachers that evaluated the excerpts did so based on the criteria fast-slow, too fast-too slow, appropriate-inappropriate, good-bad, tense-relaxed, and smooth-uneven. Each category was rated on a 5-point scale.

In each of the pairs of excerpts the faster example was rated more positively than the slower example, and the faster example was rated with considerably less variation.

Principal component factor analysis, including the six semantic scales and subjects'
responses to all eight excerpts, revealed three distinct factors. The first factor loaded
appropriate-inappropriate (.825), smooth-uneven (.653), and good-bad (.793). Fast-slow
(.729) and too fast-too slow loaded as the second factor and tense-relaxed (.910) loaded
as the third, with no meaningful cross-loading. There were briefer teacher-talk and
student-performance episodes in the faster examples than the slower, and the rates were
higher, indicating that the alternation between episodes of teacher and student activity
was more rapid. It is interesting to note that the rate of student performance opportunities
was proportional to the perceived pace of instruction in music.

Rehearsal pace was found to be at a high rate in a study on the instructional
patterns and behavior characteristics exhibited by a select group of music teachers
(Hendel, 1995). The teachers were nine experienced elementary music specialists from
culturally diverse regions from the Midwest, South, and Southwest. They were
recommended to the researcher by local music supervisors and university music
education faculty as being "excellent" music specialists. Quantitative data were collected
through analysis of audio- and videorecordings from which researchers found teachers, in
a 30-minute period of instruction, averaged 22 changes a minute in eye contact, vocal
variation, closeness, gesture, and facial expression. This high magnitude of instructional
pattern suggests a quick pace in instructional episodes. In the qualitative portion of the
study students from every region cited "fun" to describe their teachers more than any
other attribute. Students identified playing instruments, movement, and singing as the
most frequently performed and enjoyed activities.

In review, effective classroom management is dependent upon a combination of factors. A positive classroom with approval statements and teacher eye contact help students stay on task during the lesson. Disapproval statements cause students to get off task and lose interest in the lesson. Proper pacing of the lesson and classroom activities is also important to learning. Too much time spent on nonperformance task such as transition time, disapprovals, and error correction, distract from the flow of the class and cause the teacher to regain momentum and control of instruction. Classroom management is an important aspect of keeping students on task and engaged in the lesson.

Engagement and Learning

The role of engagement in student achievement and learning has been given attention in research studies. Most of these studies have studied engagement as a multidimensional construct whose subtypes are behavioral, cognitive, and emotional (Fredricks, Blumenfeld, & Paris, 2004). Engagement is considered a critical component for influencing a variety of outcomes in at-risk individuals (Birch & Ladd, 1997). Engagement holds equal relevance for the outcomes of the general student population (Klem & Connell, 2004). Previous studies on engagement have presented evidence of its influence on academic achievement and learning (Handelsman, Briggs, Sullivan, & Towler, 2005; Skinner, Furrer, Marchland, & Kindernann, 2008; Skinner, Wellborn, & Connell, 1990). McLean (2001) defined achievement as grades on standardized test and exams, while learning was representative of the process that takes place from which individuals gain knowledge.

Sagayadevan and Jayaraj (2012) sought to examine the relationship of the engagement subtype emotional behavior on student achievement and learning. Participants, a sample of 140 undergraduate psychology students, were asked to complete an information sheet, informed consent form, a Perception of Learning Questionnaire, the Class-Related Emotions Questionnaire, the Lecturer-Student Interaction Questionnaire, and achievement measures. The aforementioned questionnaires were based on whether the student had a good lecturer-student interaction or a poor lecturer-student interaction in the previous semester of study. Data were analyzed using SPSS Version 18.0. Correlation analysis results indicated a significant correlation between lecturer-student interaction, emotional engagement, achievement, and perceived learning. Participants indicating a good lecturer-student interaction as opposed to the participants indicating a poor lecturer-student interaction had significantly higher scores in emotional engagement. Results of this study suggest that emotional engagement significantly predicts perceived learning by individuals but is not a predictor of academic achievement. Emotional engagement, such as a positive attitude toward learning, is a significant predictor of intrinsic learning outcome.

What factors influence student engagement and achievement in school? Skinner et al. (1990) were looking to distinguish the factors that affected student engagement, which in turn affected achievement in school. In this study they specifically looked at (a) control beliefs that have to do with the amount of control one has over their success or failure, (b) strategies that are beliefs about what it takes to do well in school, and (c) capacity beliefs that are the beliefs a student has about whether they have the capacity to succeed. It is

important to note that when you put all of these beliefs together, you have the building blocks of self-efficacy.

Participants were selected from a school in upper New York State. There were 200 students from Grades 3-6 and 12 teachers, three from each grade. Students and teachers were administered the Rochester Assessment Package for Schools Forms S and T respectively. The package contained scales for perceived control, capacity beliefs, and control beliefs. Teachers, acting as expert raters, rated student engagement and disaffection using a 10-item scale. Students rated their current teacher's context with nine items using a 4-point scale. Students' school grades and achievement test scores were used to rate achievement.

In the initial analysis, students perceived effort and ability were identified as the two most effective strategies for influencing school performance respectively. Students also reported that effort was the easiest cause to enact for capacity beliefs. Control beliefs were significantly correlated with teacher reports of engagement, as were all strategy beliefs except effort, and all capacity beliefs. This correlation supports theories of external locus of control, self-efficacy, explanatory style, and perceived competence. Multiple regression procedures examining the strategy beliefs showed unique contributions to engagement. Ability and powerful others were found to be significant unique predictors of engagement. The findings support self-efficacy theories. In further analysis of the data, there was a relationship found between perceived control and engagement. Child perceived control is influenced by teacher behavior, and in turn, will either undermine or promote engagement affecting academic performance.

"Highly motivated children are easy to identify: They are enthusiastic, interested, involved, and curious; they try hard and persist; and they actively cope with challenges and setbacks" (Skinner & Belmont, 1993, p. 571). Are student motivation and engagement in the classroom dependent on teacher behavior? This is the question that Skinner and Belmont (1993) investigated with 144 children in Grades 3-5 and their 14 teachers. They were looking at teacher involvement, structure, and autonomy support as the three suspect variables. Structure in this study referred to context and amount of information that the teacher supplied to the student about how they could effectively achieve desired outcomes. Autonomy support referred to the amount of freedom a student was given while working or learning. Student engagement in this study referred to both behavioral and emotional.

The student participants in the study were divided equally by grade and sex while all 14 teachers were female. Students were from lower middle to middle-class socioeconomic status. Teachers and students completed questionnaires in the fall and spring of the school year facilitated by trained interviewers as part of a district-wide assessment. Questions were asked about teacher involvement, autonomy support, structure, and student engagement. Answers were on a 4-point format and were calculated by averaging the items, with "4" being the most positive. Data were analyzed using correlational and path analyses on the fall and spring data separately to search for relationships between teacher behavior and student engagement. Emotional engagement as reported by the students was more closely related to student behavior as perceived by the teacher than teacher reports of students' emotions. Results of correlation and path

analysis show that teacher involvement was the only consistent predictor of student perceptions. A unique predictor for students' behavioral engagement was the students' perception of teacher structure.

In a follow-up study on engagement or disaffection in the classroom, Skinner et al. (2008) focused on four indicators of emotional and behavioral engagement as well as three student self-perceptions as factors of change over a school year in student classroom engagement. This study explored the engagement's internal dynamics by examining how different components of engagement change each other over time, and secondly how the contextual and personal factors of engagement contribute motivationally to changes in engagement itself. The three areas examined in the hypotheses of the study included dynamics that underlie the motivational decline during late elementary to early middle school, forces at work between behavior and emotion and their predictive abilities on each other, and the motivational dynamics that affect student engagement and disaffection.

The study took place in upstate New York using 805 fourth through seventh graders and their 53 teachers as participants. The data were derived from fall and spring of year 4 of a 4-year longitudinal study of student motivation in school. Students were classified predominantly Caucasian (95%) from working to middle-class families. In three 45-minute sessions, participants completed self-report questionnaires administered by trained interviewers in the students' normal classroom. Teachers were not present when the students filled out their questionnaires, and for the most part that was when the teachers filled out their questionnaires. Student questionnaires gathered information on

perceived competence and control in academics, autonomy in the classroom, engagement versus disaffection in the classroom, relatedness to their teacher, and support received from their teacher. Teacher questionnaires gathered information on the support the teacher gave to each student.

Analysis showed that engagement differed by grade ($F(12,2111) = 8.64$, $p < .0001$), with lower levels of engagement and higher levels of disaffection after the transition to middle school. This was especially true for emotional engagement and emotional disaffection. A second analysis suggests that increases in behavioral disaffection, as well as decreases in behavioral engagement in the spring, were significantly affected by emotional disaffection in the fall. The predictors for disaffected emotions were bored, anxious, and frustrated. Self-perception as a prospective enabler of engagement was the focus of the third set of analyses. All four indicators of engagement and all three student self-perceptions indicators predicted the direction of engagement ($p < .001$). The final set of analyses concentrated on the social enablers of engagement. All the predictors were significant ($p < .001$) in the predicted direction.

Skinner et al. (2008) accentuates the idea that students work harder and pay more attention when they find learning activities fun, enjoyable, and interesting. Also, students who begin with a high degree of emotional engagement show declines in behavioral disaffection and increases in behavioral engagement over the school year. Students with low initial levels of efficacy showed increasing anxiety and behavioral withdrawal whereas students with initially high levels of efficacy showed increases in effort and exertion as well as increases in interest and enjoyment. Autonomy and relatedness were

also found to be important factors to student engagement as students with low levels are at risk for escalating anxiety, frustration, and boredom.

In an attempt to evaluate the effects a newly installed computer network had on a secondary school in England, Wishart and Blease (1999) conducted an action research study to determine its effect on teaching and learning. The researchers' basis for the construction of their model was behaviorist, cognitive, and social constructivist theories. Their surveys and questionnaires looked into both the intrinsic and extrinsic motivating factors that the use of computers can supply.

Two surveys were given, the first to the faculty of the school and a stratified, random sample of students. This group included 69 teachers and 161 students. This survey was conducted in January, just after the fall semester, giving the teachers and students time to experience the technology and form an opinion. The second survey was distributed to the same group as a follow-up questionnaire at the end of the school year, based on issues identified by the evaluation team and the senior management of the school. On the end of each survey, the teachers and students were asked for comments in their words about the effects the new networked computer system had on student learning and teaching styles of the teachers. Some selected staff was also interviewed after the first survey.

There was strong agreement that student learning had been affected greatly by computers and it was reported that pupil motivation for learning increased. This increase in motivation purportedly led to better work, attention to detail, increased concentration on task, and greater achievement. Both intrinsic and extrinsic motivators were seen to be

present including self-esteem, entertainment, challenge, curiosity, and immediate feedback. It was also reported that the use of computers helped enable differentiation and aided the teachers in scaffolding. The observers reported that students were paying more attention and students reported that they enjoyed learning more when using computers. The researchers concluded that there was improved teaching and learning as well as increased enjoyment of learning with the computer network.

Active participation is important to keep students engaged in the learning process. The more involved a student is in an activity, the greater their enjoyment and engagement in the activity. In Moore's (2002) study of 4 to 7-year-old students over a 3-week period of daily lessons, three trained observers recorded group and individual attentiveness as students learned songs with varying amounts of movement to determine if the amount of movement involved contributed to the degree to which the students liked the songs. Eight multicultural songs were chosen, then each song's degree of movement was determined by three judges using the Movement Classification Point System developed by developed by two researchers from the University of Oregon, Marjorie Woollacott and Rita Honka.

One of the three observers recorded group data while the remaining two separately observed five individuals each. The group observer recorded information on group attentiveness and only observed the entire group during the music period. The individual observers stayed with their individual student throughout the day and then during the music class recorded listening, singing, and movement behaviors. After the study period of 34 one-half hour classes, reference data or song preference was collected by having students silently indicate their song choice. The researcher also had songs rated

on a scale of 1-10 by a total of 33 students that he interviewed in small, one-to-three student groups. It was observed that the songs with the most movement were preferred by the students, and showed signs of more enjoyment and attentiveness.

Keeping students engaged and interactive in a music lesson is a challenge for any music teacher. One music teacher from a private parochial school in the northwestern United States had an interest in identifying the activities in elementary music class that would incite situational interest in his students. Roberts (2015) conducted a case study with students in his elementary classes, hoping to increase engagement and improve performance. This study was conducted over a 4-month period with 24 fourth-grade children as participants. During this time, he collected data from writing experiences, small-group interviews, examination of material culture, videotaped observations of class periods, and one-item surveys.

There were four themes that emerged from Roberts' study that led to situational interest in the music class. The four themes, though named separately, often worked in tandem. Novelty was one theme. Students in the study tended to be drawn to experiences that were new or different. Too much repetition seemed to dull the enthusiasm of the students. Kinesthetic activity was another identified theme. Study participants were more engaged in the lessons when they were moving around and interacting with their peers. Self-efficacy and challenge was the third theme identified. When there was little challenge to an activity the students tended to become uninterested quickly. If there was too much challenge and the task was too difficult, the students would be disengaged and uninterested. When the challenge was one that the students believed they could

accomplish based on their self-efficacy, there was great interest and engagement. The last theme was creativity. Students liked activities where they were allowed to be creative. These would be tasks where the students would be asked to use their imaginations to develop or create musical tasks.

Engagement is necessary for academic achievement and learning. Emotional engagement predicts perceived learning and is therefore connected to self-efficacy. All capacity beliefs and all strategy beliefs with the exception of effort are correlated with teacher reports of engagement (Skinner et al., 1990). Students work harder and are more engaged when they find learning fun, enjoyable, and interesting.

Music and Self-Efficacy

Although there has been a great deal of research on self-efficacy, there have been relatively few that have dealt with self-efficacy and music. Though there are few studies dealing specifically with music, the studies that have been conducted have similar results as the main body of research on self-efficacy. Researchers began looking at self-efficacy in earnest in the late 1970s when a researcher named Albert Bandura began looking at the resulting effect of an individual's effort, persistence, and choices of activities (Bandura, 1977).

Bandura's (1977) research is foundational in self-efficacy theory. He described self-efficacy as one's judgment about their ability to accomplish a certain task. It will change depending on the accomplishments and failures one has in their experience performing such a task. Self-efficacy is also affected by other stimuli such as verbal persuasion and vicarious accomplishments. In verbal persuasion, a person's efficacy can

grow when another with positive encouragement verbally persuades them that they have the ability to perform a certain task. Vicarious accomplishments can affect a person's efficacy when they decide that they can accomplish a task because they see that another person with the same skill set as them accomplishes the task. Vicarious and verbal persuasions are not as effective in building one's self-efficacy as when one gains the efficacy through performance accomplishment. An individual's physiological and emotional state can also affect self-efficacy beliefs.

Bandura (1977) ran a study with subjects who had a snake phobia. They were given a series of tasks that became more challenging involving a snake. They observed the snake at increasingly closer distances, handled the snake with gloves then bare hands, and then allowed the snake to crawl freely in their lap. Along the way they were given self-efficacy assessments both when they were able to complete and when they failed the task. The subjects continued to complete tasks until they finally reached the terminal task. He found that self-efficacy accounted for the largest variance for subjects' ability to complete a subsequent task. Bandura (1982), in a later article discussing this same experiment, postulated that the influence on self-efficacy comes more in how they interpret their successes than the success itself. Their perceived self-efficacy would predict subsequent behavior better than their actual performance attainment in the treatment itself.

In multiple studies, Bandura (1986) concluded that self-efficacy can explain a large portion of the variance in performance accomplishments. If self-efficacy is gained by developing competencies in a socially structured way, some commonality of perceived

self-efficacy can occur (Bandura, 1989). Individuals with a high sense of efficacy will envision successful scenarios and practice those performance guidelines to solve potential problems (Bandura, 1989). When one builds a set of successful skills to overcome obstacles, those skills can be used for problems in other domains. Building generalized skills that raise self-beliefs of efficacy is how self-efficacy can build successes across domains.

Schunk (1991) pointed out that prior experience and aptitude are the factors that affect initial self-efficacy. He went on to point out that the motivation for people to act is their belief that the goal is attainable and that it is attractive. If a student is successful, but the success comes through high effort, they will judge themselves less capable than a student who succeeds with ease. The self-efficacy of the student who was successful on the difficult task will be raised more than the student who felt the task was easy. In a previous article Schunk (1981) expressed that the higher the perceived efficacy, the more sustained the involvement in completing the task and also the greater the achievement. He also pointed out that since self-efficacy is thought to motivate a student toward completing a task, it would seem to be a relevant issue concerning achievement behavior.

In a more recent study to examine which variables impact a young musician's ability to perform a music assessment and clarify those variables' relationships, McPherson and McCormick (2006) performed a study with 446 Australian music students who were completing an Australian Music Examinations Board (AMEB) performance examination. Students undertaking the exams ranged from ages 9 to 19 taking exams in Grades 1-8. The grade level denoted their years of study and not their

grade level in school. In the month before the exam teachers were sent copies of the research questionnaire for distribution to their students.

The instrumentalist filled out the questionnaire the night before the exam. Participants in the study were learning to play one of the following instruments: brass, woodwind, strings, or piano. The questionnaire gathered information about self-efficacy, cognitive strategy use, practice regulation, formal practice, and informal practice. The difference between formal practice and informal practice deals with what is being practiced. Formal practice refers to a structured practice including warming up, sight-reading, practicing scales and arpeggios, and practicing studies and etudes. Informal practice is improvising and playing by ear.

Results of the study showed a high path coefficient from "cognitive strategy use" to "formal practice." Cognitive strategies were items related to learning. Students who used these strategies tended to report more formal practice time. From "practice time" to formal practice there is a direct path. Students who spent more time practicing also spent more time on formal practice. Self-efficacy was shown to be the best predictor of a student's examination performance results.

Self-efficacy scales have been increasingly used in the field of music. Ritchie and Williamon (2011) adapted the Self-Efficacy for Musical Learning questionnaire and tested it with 404 primary school children. The questionnaire produced a robust Cronbach alpha of (0.87) and test-retest scores showed that the measure was stable over a 9-month period. This study found no relationship between socioeconomic factors and the children's self-efficacy beliefs for learning music. There was a difference in self-efficacy

between genders, with girls scoring higher than boys. It was suggested that this difference in gender scores could be explained by the initial differences in which boys and girls approach learning. This study also found positive correlations with participating in individual sports and with the physical activity of dancing.

The authors of this study pointed to some generalization effects of self-efficacy as related to how music and reading and music and math are related. Bandura (1986) pointed to vicarious experiences as being the second strongest influence that affects one's perceived self-efficacy. Because learning music is related in technique to learning math and reading, one can postulate that self-efficacy in music can positively affect their self-efficacy for reading and math. This is an area that has not been fully explored and is in need of further study.

In a study of 144 fifth- and sixth-grade students from two different Midwestern towns, Hedden (1982) examined whether academic achievement, gender, self-concept in music, attitude toward music, or music background attributed to the variance as predictors of music achievement. Subjects were given the Music Achievement Test, Iowa Test of Basic Skills, an Attitude Toward Music Scale, a Self-Concept in Music Scale, and a Music Background Scale. The tests measured music achievement, general academic achievement, attitude toward music, self-concept in music, and music background respectively. Results of the analyses showed academic achievement at both schools to account for the most variance in music achievement. The second variable at School 1 was self-concept in music while the second variable at School 2 was attitude toward music; each of these contributed consecutively as the second variable, with the most effect on

explaining the variance. In the intercorrelation matrix for each school, the largest

coefficient was the relationship between self-concept and attitude toward music. Attitude

toward music and self-concept in music are closely related to self-efficacy because one's

self-concept and attitude towards music are two of the components involved in

developing one's concept of efficacy in music.

Zimmerman (2000) pointed out that self-efficacy generality refers to how self-

efficacy beliefs can be transferred across activities. If there is success in one task, and the

subject can relate that success to another subject, the effects of the success can cause the

subject to feel efficacious about completing the task at hand. In general, the more success

one experiences, the more self-efficacy they have in general. This general self-efficacy

can cause improved performance overall. Students' beliefs concerning their academic

capabilities are a strong predictor of their motivation to achieve. A student who believes

he or she can succeed will be motivated to try. A student who does not believe they have

what it takes to succeed will not have the motivation to try because they believe that they

will fail.

Joet, Usher, and Bressoux (2011) investigated the beliefs of Grade 3 students on

the influence of the four sources of self-efficacy on self-regulated and academic self-

efficacy in mathematics and language class. Self-regulated self-efficacy refers to the

students' beliefs about their ability to self-regulate their own learning. As discussed

earlier, the four sources that affect self-efficacy are accomplishments or mastery, verbal

persuasion, vicarious persuasions, and physiological states. The researchers also wanted

to examine whether classroom context or gender explained any significant variance affecting either type of self-efficacy.

Joet, Usher, and Bressoux (2011) used 395 students in 21 classes from 19 different schools for their study. Two hundred of the participants were male and 195 were female. Students were from Grade 3 and averaged 9.1 years old. To measure self-efficacy in mathematics and French, two 15-item questionnaires were used. Students' general belief of their capabilities was measured by six items while their task-specific self-efficacy was measured by nine items. A measure created by Zimmerman, Bandura, and Martinez-Pons (1992) was used to measure self-efficacy for self-regulated learning. In this measure, they used seven items of the original 11-item scale that were appropriate for their study.

The researchers used a preexisting scale to measure the four sources of self-efficacy. Mastery experiences were measured by seven items, verbal persuasion was measured by nine items, vicarious experience by eight items, and physiological and emotional states were measured by eight items. The measure of academic achievement was taken from a national examination that Grade 3 students were required to take at the beginning of the year.

The sources of self-efficacy, with the exception of vicarious experiences, were found to be significantly related to both achievement and self-efficacy in both French and mathematics. This study found that classroom variations explained a small (4.7%) portion of the variance of self-efficacy ratings. Individual-level factors explained a large portion (95.3%) of the variance. In mathematics, mastery experience was the most significant

predictor of self-efficacy, while verbal persuasion and the classroom-level mean self-efficacy score were also predictors. Results for French class were similar, with strong predictors being mastery experience and verbal persuasion.

None of the variance for self-regulated self-efficacy were accounted for by between-class variations. It was all accounted for by student level differences. Students' self-efficacy for self-regulated learning was predicted by all four sources in the area of mathematics. Unrelated to self-efficacy for self-regulated learning was prior mathematics achievement. In French, vicarious experiences were not related to self-efficacy for self-regulated learning; however, mastery, verbal persuasion, and physiological factors were predictors. The relationship between verbal persuasion and students' self-regulatory capability beliefs was strong.

Over half the variance in self-efficacy in both subjects was explained by the four sources of self-efficacy. Self-efficacy for self-regulated learning in mathematics was influenced by all four sources of self-efficacy. Three sources explained the variance in French, vicarious experience being excluded.

One aspect of self-efficacy that has drawn attention from researchers is that of self-motivation of the learner towards academic attainment. Zimmerman, Bandura, and Martinez-Pons (1992) investigated the role that personal goal setting and self-efficacy beliefs played in students' self-motivation towards attainment of academic goals. Academic goals of both students and their parents were studied to determine their influence on the students' final academic grade.

One hundred two Grade 9 and Grade 10 students from two high schools in the Eastern United States participated in the study. The academic achievement measure was the grades achieved in a social studies class. Social studies was chosen because it was required of all students and enrollment was not subject to academic ability tracking. Participants were from lower middle-class neighborhoods and ethnically diverse.

Researchers selected two subscales from the Children's Multidimensional Self-Efficacy Scales to use in the study to measure perceived self-efficacy. The two subscales were for self-efficacy for academic achievement and self-efficacy for self-regulated learning. Grade goals for the students and the parents were assessed through the use of a rating scale. Final grades for the course were used to measure academic attainment. Prior year grades were obtained from school records to measure prior achievement.

Analysis of data collected during the study suggested that student perceived self-efficacy for academic achievement and student goals could explain 31% of the variance in academic attainment. Parents set goals for their children based on prior grade accomplishments. Students set their goals based on their self-efficacy beliefs as well as the aspirations their parents have for them. Self-motivating influences such as perceived self-efficacy for academic attainment and personal goal setting regulate, in a large part, academic attainment.

Self-concept is the vision one has of oneself in a general overall sense (Hedden, 1982). Self-concept and self-efficacy are closely related constructs. When a students' self-efficacy increases, their self-concept rises. Perceived control is also closely related to self-efficacy. Perceived control refers to how one perceives the control one has over

outcomes, whether one has internal control or whether external forces control the outcome. Students with higher self-efficacy feel in control of situational outcomes (Bandura, 1989). Students with low self-efficacy feel that they are not in control and that external forces such as luck affect outcomes. Becoming more self-efficacious in one area should help students learn that they can be in control of their outcomes in other situations (Zimmerman, 2000).

Self-efficacy is an important component in transfer of learning, which is when individuals can transfer the things they have learned on one task to another task. Task transfer was the subject of a study by Stevens, Anderson, O'Dwyer, and Williams (2011). Their focus was to observe the effect of task difficulty on task transfer by dividing their participants into three groups. One group would practice the task at an easier version and then perform a posttest. The second group would practice the same version as the posttest. The third group would practice the task at a more difficult level than the posttest. The task was to balance a stick on their middle finger. Participants consisted of 36 volunteers who were all university students. Seventeen of the students were male, and 19 were female. None had any prior experience with the task in the experiment.

Participants were asked to balance a stick for as long as possible on their middle finger. All participants were right handed, and they all balanced the stick on their right hand. Shorter sticks are more difficult to balance than longer sticks. The posttest was to balance a 52-cm stick for as long as possible for a 2 min 30 sec time allotment. Participants completed a pretest, which was identical to the posttest parameters. Next, they were randomly assigned to either the Same, Difficult, or Easy group. The Same

group used a 52-cm stick, which is the size used in the pre- and posttest. The Difficult group used a 33-cm stick and the Easy group used a stick that was 102 cm. Four practice blocks of 5 minutes of practice followed by 5 minutes of rest followed the pretest. The posttest followed immediately after the last 5 minute rest period. Before the pretest, each practice block, and the posttest, each participant's self-efficacy was assessed. Task performance was measured by the number of times the subjects dropped the stick during the prescribed time allotment.

The practice of an easier version of the task or the same version showed greater transfer of learning than practice with a more difficult version. The strongest predictor of posttest performance was self-efficacy before the posttest performance. Regression analysis showed that self-efficacy explained 55% of the variance in performance. Practice at a more difficult version caused the majority of that group's participant's' self-efficacy to decrease due to their inability to succeed at the task. In the discussion of the results, Stevens et al. (2011) capsulated their findings by the statement, "Self-efficacy and performance success appeared reciprocally intertwined during practice; higher success was associated with higher self-efficacy and lower success was associated with lower self-efficacy" (p. 1127), suggesting that the reason the Easy and Same groups were more successful was due to their greater success during the practice sessions.

Self-efficacy is judgment about one's own ability to accomplish a certain task based on past accomplishments. Self-efficacy is instrumental in a subjects' ability to complete an assigned task. When combined with goals or belief in success, self-efficacy

leads to academic attainment. Self-efficacy has also been linked to transfer of learning. Musical self-efficacy is obtained through musical experiences and accomplishments.

Classroom management, engagement and learning, and self-efficacy in music are all necessary to achievement and learning. Student engagement and interaction are increased when the pacing of the lesson and the attitude of the teacher are positive. Positive feedback from the teacher helps increase self-concept and perceived self-efficacy. The general concept of Quaver's claims suggests that using Quaver will make the classroom experience better because of their product. The current study gathered information about each of these areas to explore whether the use of Quaver has made any impact on these factors.

A New Music-Based Technology

One new music-based technology that has emerged in the past decade is Quaver's Marvelous World of Music (QuaverMusic.com LLC., n.d. -a). One distinguishing aspect of this technology, in comparison to the others previously mentioned, is that it is available on DVD, and is also accessible via the Web. The homepage of the Web site depicts an illustration of a music shop, from which users can click various parts and can go on a journey through the music shop to discover music. On the Web site, users encounter a music laboratory, time-traveling phone box, live recording studio, and a cast of energetic and hilarious characters. The site is designed to help teachers engage students in music.

The Quaver Web site lists seven trademarks of the Quaver vision. The first is that their program provides "Seriously Fun Learning," not only for students but teachers as

well; this advocates that if learning is fun, the classroom will be more energetic, and the students will have far greater retention. The second is that they have "Teacher-Friendly Resources" that increase teacher effectiveness through predeveloped lesson plans that are simple and easy to use, as well as automatically graded assessments. The third trademark is that the content is "Standards Based" on the Common Core Standards, the National Coalition for Core Arts Standards (NCCAS), and the National Association for Music Educators (NAfME) Standards. Fourth, the creators of the Quaver program assert that it is "Customizable Curricula," which means that teachers can adapt, rearrange, or extend the curricula to meet state standards or their specific teaching objectives and also allow District Supervisors to monitor student performance and teacher activity electronically. The fifth trademark is that the program incorporates "State-of-the-Art Technology" since, unlike other music curricula, it is cloud based and can be used with the iPad and other mobile devices. Finally, the trademark of "Total Teacher Support" includes on-site training, live webinars, hotline support, and customer support via social media.

The Quaver program has several components. The two comprehensive modules of the basic curriculum, for Grades K-5 and 6-8, are called Quaver's Beyond Marvelous General Music Curriculum. For Grades K-5, there are over 216 fully developed lessons, and for Grades 6-8 there are 14 multisession major projects across the three grades. Grades K-3 include Quaver Musicals. The Lesson Plan Presenter provides lesson plans and interactive activities so that teachers can customize the lessons for their class.

Another component is Quaver's Marvelous Music Essential's, which includes 30 video episodes that are each about 15 minutes. These episodes are topic based and

include corresponding material such as musical tracks and interactive whiteboard activities. It also includes 30 corresponding Online Quaver Classrooms, which consist of leveled quizzes and over 300 interactive whiteboard activities. There are six interactive song-based activities, access to Quaver's World Music and Bach's Brain, and a printed and digital teacher guide for each episode.

Quaver has a component named ClassPlay[tm] with interactive song-based activities. ClassPlay incorporates nearly 200 interactive songs with animated backgrounds that help to teach lyrics, music concepts, skills, and movement. The song base is inclusive of traditional, patriotic, folk, holiday, and original Quaver song literature, and there is a full-score option using ClassPlay that lights up notes for each instrument as it plays. There are connections to other academic subjects, and videos as well.

The final component listed is a free Web site for students. Students can log onto the Web site outside the classroom and have their personal music room, compose music, and learn about music styles and history. Teachers can digitally assign work, grade the assignments, and encourage the students to continue with their exploration of music at home.

The Quaver Web site also includes testimonials from current users (QuaverMusic.com, LLC., n.d. -b). Comments from teachers focus on how students feel successful while using the Quaver activities and how it gives them the confidence to take on more challenges. There are also comments about how Quaver is interactive and engaging. Some comments discuss how Quaver covers all areas from composition to

music history. Teachers seem to love the smart board technology built into the program. Teachers also speak of how their students have better retention of content and how they believe this comes from the fun, engaging, and interactive way the lessons are presented. One teacher stated that she can see an increase of participation since beginning the program.

The statements and the comments on the Quaver Web site describe the components necessary for self-efficacy theory. These point to the program being engaging and interactive, with the outcome of student performance being high and participants motivated to go deeper into the program to learn more. Self-efficacy refers to a students' judgment in their ability to complete a certain task based on past positive experiences (Bandura, 1977). They would not be excited about upcoming challenges had they not been successful with previous ones; thus, Quaver builds self-efficacy in the students.

Despite the increasing popularity of the Quaver curriculum, no study to date has examined the claims that the program is fun, engaging, and interactive; helps retention; and increases musical self-efficacy. There are studies that have been done of the effects that have been claimed by the program including classroom management techniques and self-efficacy theory. The present study will examine these concepts and whether Quaver's claims are accurate and helpful for the teacher and student.

CHAPTER 3

METHODOLOGY

Educators are constantly faced with finding ways to keep students interested and engaged in the classroom. Classroom management techniques such as teacher approval/disapproval and teacher use of instruction time (Brendell, 1996; Forsythe, 1977; Orman, 2002) are important in keeping students on task and engaged in class. Engagement in academic learning is important to achievement. Studies have presented evidence of the influence of engagement on academic achievement and learning (Handelsman et al., 2005; Skinner et al., 2008; Skinner et al., 1990). Self-efficacy has also been found to account for a large part of the variance in subjects' ability to complete sequential tasks (Bandura, 1982). Self-efficacy has also been found to be a strong predictor of students' exam performance results (McPherson & McCormick, 2006). The use of technology in music education has advanced greatly since the beginning of public education in the United States. The invention of new technologies allows music educators to offer exciting and interactive ways to engage students in learning music and increase their musical self-efficacy.

One new Web-based technology for teaching general music in Kindergarten through Grade 8 is Quaver's Marvelous World of Music. The Quaver's Marvelous World of Music Web site outlines how their curriculum aligns with the National Music Standards of both the National Coalition for Core Arts Standards (NCCAS) and the

National Association for Music Educators (NAfME). User comments and claims on Quaver's Web site say that the program is fun, engaging, and interactive; helps with retention of music facts, and builds self-efficacy. Can a multimedia music curriculum make a positive impact on student attitude and engagement? This study investigated the impact that Quaver's Marvelous World of Music curriculum has made on one private elementary school in the Southeast.

Purpose of the Study

The purpose of this case study was to determine the effect of Quaver's Marvelous World of Music curriculum on students' musical self-efficacy, interactive engagement, enjoyment of music class, and retention of knowledge by exploring the implementation of Quaver's curriculum in the music program of a private elementary school in the Southeast United States.

Research Questions

Research Question 1. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student engagement?

Research Question 2. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student enjoyment of music class?

Research Question 3. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student interaction?

Research Question 4. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student retention of material?

Research Question 5. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student musical self-efficacy?

Engagement is the degree to which a student's attention is focused on the lesson. Interaction involves all the ways that the student is caused to interact in the music learning process, but most specifically during music class. Enjoyment of music class will address if, how, and why students enjoy music class. Retention of material refers to the amount of knowledge students retain from music class. Musical self-efficacy is herein referred to as the self-belief one has in his or her ability to successfully complete present and future musical tasks based on the success of completing musical tasks in the past.

The primary objective of this study was to investigate an elementary school music program that just finished the first year using the Quaver's Marvelous World of Music curriculum. The study was a case study in design. The research methodology included a survey for all students in Grades 4-6 who attended the school and participated in music class during the 2015-2016 school year. The classroom music teacher was interviewed along with focus groups of students from fourth, fifth, and sixth grades respectively. The school administrator was also interviewed about his impressions of the program. Parents were given the opportunity to voice their impressions when signing the consent form for their children to participate in the study.

Participants

The participants in this study were the music class participants in Grades 4-6 of a private elementary school in the South. To be eligible to participate in the study the students had to have been participants in this schools' music class for the 2014-2015 and 2015-2016 school years. All the students who returned a consent form participated in an online survey. There was a focus group of students from Grade 4, Grade 5, and Grade 6. Focus group participants were chosen randomly by drawing names from a hat. Focus groups were interviewed to gather additional information and to corroborate the information from the survey. Separately the music teacher was interviewed to glean information concerning how the program worked for her classes and how it impacted student interaction, engagement, and retention of information. The music teacher began her tenure with the school in August 2012. She has a bachelor of arts degree in musical theatre and a master's degree in education. The parents were given an opportunity to make comments about the program and how it had impacted their children. The principal was interviewed to examine his impression and knowledge of the program and the effect it had on the children in his school. The principal received his master's degree in elementary education in 1991. He taught 2 years before he began teaching Grade 4 at this school in 1993 and became principal in June of 2011.

Instruments

The assessment tools used in this study were a survey created by the researcher; interview questions for small focus groups in Grades 4, 5, and 6; interview questions for

the teacher; interview questions for the administrator; and an open-ended question for parents. The question for the parents was on the consent form that was sent home.

The survey was an online survey that asked 16 questions to measure how students felt about their experiences with the Quaver program and how they viewed their experiences with the class in general. Questions on the survey focused on engagement, enjoyment of the class, interaction, retention of materials, and musical self-efficacy as viewed by the participants. The survey was developed by the researcher and reviewed by a professional in the field of elementary music education. Feedback was used to modify the survey for trustworthiness.

The interview questions for the focus groups consisted of guiding questions with more specific probing based on the responses. The questions focused on the five areas of student impact cited in the research question. Students were asked these questions:

1. Do you enjoy music class? Why? Give an example.

2. Did you enjoy music class as much before using Quaver? Explain why.

3. What is your favorite part of music class? Give an example.

4. Can you remember what you are taught in music class using Quaver better than you did before using Quaver?

5. Do others in the class pay attention better with Quaver than before? Give an example.

6. Do you feel like you have the ability to do the things that you are asked to do in music class?

As the students answered the questions, supplemental questions were asked based on their answers to gain further insight and detail about the why and how of their answers.

The interview questions for the teacher were also guiding and general questions with probing questions depending on the responses given. The questions focused on the five areas of impact on the student as cited in the research question. These were the questions for the teacher:

1. Tell me about a typical class using Quaver.

2. How does that compare to the way you taught the class before using Quaver?

3. Do you see any difference in students' behavior since using Quaver? Please go into detail about what the differences are.

4. How engaged are the students with Quaver? Give an example.

5. Do the students have better retention of the materials learned with Quaver?

6. Is Quaver a cross-curricular curriculum? Give an example.

7. Can you tell a difference in students' attitude toward music class with Quaver? Give an example.

8. Is the Quaver classroom more interactive than your regular classroom would be? Give an example.

9. Does the Quaver curriculum cover the National and State Standards for Elementary Music?

10. Tell me about an "Ah-Ha" moment you witnessed with Quaver.

11. Do you have any examples of students who, by using Quaver, are more engaged and involved with music class?

The teacher was encouraged to tell any stories and elaborate in any way to any and all the questions during the interview.

The researcher asked the administrator questions that would allow insight into how the administration interpreted the results achieved with the new curriculum. These were the questions asked of the administrator:

1. What differences have you observed in the music classroom since the implementation of Quaver?

2. Can you cite any examples of changes in students' attitudes towards music class?

3. Have you observed student interaction in music class?

4. Will you describe that interaction?

5. Have you observed student engagement in music class?

6. Will you describe that engagement?

7. Is the interaction different than before Quaver?

8. In what way?

9. Is the engagement different than before Quaver?

10. In what way?

The question to the parents was on the parental consent form. The question was worded, "If you choose, please tell me your impressions about the Quaver curriculum used for music class and about your child's experience in music class (do they enjoy music class? do they participate? do they feel they are good at music? do they talk to you

about what they learned? etc.).” The parents were given the option of answering this question. It was not a requirement for participation.

Procedures

The music teacher, principal of the school, and headmaster of the school were contacted to get permission to conduct the study. Details of the study were explained to them as well as what would be done with the information collected. Agreement to conduct the study was obtained, and consent forms were collected. The next step was to send home consent forms for parents to sign to allow their children to participate in the study and assent forms for the child participants to sign. Consent and assent forms were collected. Fifty-four students agreed to participate in the study from a total of 94 possible participants.

Survey results were reported to the researcher by grade level to be assessed after all surveys and interviews were complete. Students were selected randomly to participate in the focus group from those who turned in the consent and assent forms to participate in the study by drawing names from a hat. All of the students whose names were drawn were present and participated in the focus groups. The focus groups met with the researcher, who asked them a set of questions designed to elicit discussion and insight about their experience in music class using the Quaver's Marvelous World of Music curriculum.

During each of the focus group interviews, audio was recorded for use in evaluation and paper notes were taken during the interview. The teacher was interviewed to glean information about how the program worked for her classes, how each class

responded to the curriculum, and her impressions of the positives and negatives of the curricula. An audio recorder was set up before the interview, and the recording was used along with written notes taken during the interview for evaluation.

The music teacher was interviewed at the beginning of the study. No further interview was deemed necessary after all data were collected and reviewed. The principal was also interviewed. He was asked to share his professional impressions about the general music class before and after the implementation of the Quaver curriculum.

Data Analysis

Research Question 1. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student engagement?

Research Question 2. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student enjoyment of music class?

Research Question 3. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student interaction?

Research Question 4. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student retention of material?

Research Question 5. How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student musical self-efficacy?

Procedures. The interviews and the online survey answers were used to investigate these questions. The teacher interview was used to shed light on each of these areas from her unique viewpoint. The student focus groups were asked questions from which this information could be gleaned by coding the discussions and looking for trends. Student elaboration about the questions asked gave additional insight into how they felt about these areas and what events contributed to the opinion. The interview data were studied to gain a global view of opinions and viewpoints. Parental and administrator impressions about the program were recorded and coded to identify trends and attitudes.

Educational Implications

Participants of this study agreed with the claims of the Quaver program, suggesting that if future studies agree, elementary school music teachers need to look closely at the program to supplement or replace their current curriculum. The study will help to determine if the Quaver program is a beneficial program for elementary school music education. The study also sought to determine if the program is fun, engaging, and interactive per Quaver Web site claims and explore whether students better retain learned information. Teachers are always looking for a way to make sure their students do as well as possible on summative testing. This study found Quaver to help students retain information better as well as to enjoy and engage in music class, providing teachers with

a curriculum or supplement to help them attain their academic goals with their students while utilizing the National Standards for Music Education.

Limitations of the Study

This study explored one school's experience with the Quaver's Marvelous World of Music curriculum. This particular school was a private school with a reputation for academic excellence. The socioeconomic status of this school was middle class or higher. This study should be repeated with different schools of various student demographics to see if the school's population make-up affected the outcome. Another limitation of this study was that the surveys and interviews were administered after a summer break, though giving the students and teacher time to reflect on the previous year may have been a positive aspect of the study as well.

CHAPTER 4

RESULTS

The purpose of this case study was to determine the effect of Quaver's Marvelous World of Music curriculum on students' musical self-efficacy, interactive engagement, enjoyment of music class, and retention of knowledge by exploring the implementation of Quaver's curriculum in the music program at a private elementary school in the Southeast United States. The curriculum was examined and compared to the previous curriculum used in this particular music class in order to see if the amount of interaction in the class and engagement of the students in the lesson had increased, decreased, or remained the same. Retention of knowledge both prior to and commensurate with the beginning of the Quaver curriculum was compared to determine the impact, if any, of the Quaver curriculum.

Chapter 2 looked at components that have been found to be factors that promote engagement, interaction, enjoyment of learning, and retention of materials learned. It was shown that classroom management was very important. Time on task and pacing of the lesson are important components of classroom management. The review also explored research on engagement and learning, discussing the importance of interaction and engagement in the learning process. Third, the review looked at attributes of self-efficacy and its importance to learning.

A total of 94 students met the requirements of having been a full-time student at the school 1 year prior to the beginning of the Quaver curriculum until the present time. Out of the 94 possible participants, 54 agreed to participate and completed the necessary consent and assent forms. Students had to have been enrolled at the school and been a participant in the music class for the 2014-2015 and 2015-2016 school years to qualify. The qualification was necessary to have participants who could evaluate the same class and teacher with the traditional curriculum and the Quaver's Marvelous World of Music curriculum. Participants from Grade 4 included 21 students from a possible 33; Grade 5 included 17 from a possible 28; and Grade 6 included 16 from a possible 35. Grade 6 students did not participate in General Music class during their Grade 6 year but had participated for the 2 years prior, 1 year without Quaver and the following year with the Quaver curriculum. All Grade 4 and Grade 5 participants were involved in music class for the 2 years prior as well. The music teacher had been at the school for 4 years. The first year she taught with a curriculum that consisted of outdated books and supplemental materials from the Internet. The second year the music teacher completely developed the curriculum herself based on the state standards, and the third year she began using the Quaver curriculum.

The following results are the comments and answers from the student survey, Grade 4 focus group, Grade 5 focus group, Grade 6 focus group, music teacher interview, and administrator interview. The results are organized by research question. Any overlap in information will be addressed in the conclusion and discussion section.

Research Question 1

How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact student engagement? Questions 4, 15, and 16 from the student online survey were asked to explore participants' individual beliefs and perspectives on this question. Question 4 asked the students if they ever got on the Quaver Web site when they were not in music class. Overwhelmingly, the answer was "no." Of the 54 responses, 47 responded that they had never visited the Quaver Web site outside of music class. Of the seven remaining responses, five said they had visited the site one or two times and two responded that they had visited the site every week. The responses seem to suggest that students were not interested in spending time with Quaver or that perhaps Quaver did not engage their interest enough for them to be prompted to visit the Web site at home. During the teacher interview, however, she stated that she had never encouraged the students to get on the Web site at home, nor had she made it a point to tell them that it is available for them to use at home.

Question 15 of the survey asked the students if they got bored when using Quaver in class. The possible choices were "sometimes," "usually," and "always." The answer "sometimes" was chosen by respondents 50 times, the answer "usually" was chosen twice, and the answer "always" was also chosen twice. Question 16 asked the students if they liked to learn new things with Quaver. The responses were 34, 14, and 5 respectively for the answers "yes a lot," "yes a little," and "no".

Question 5 on the student focus group interviews was also used to shed insight into the student engagement question. Survey question 5 asked if others in the class tended to pay attention better with Quaver than they did before Quaver was implemented. The following comments are some of the responses to this question. A Grade 4 boy stated, "Yes, because like when we watch Quaver shows everyone is quiet." When the Grade 6 focus group was asked this question, all students in it answered "yes." When asked why they had all answered yes to the question, one of the girls responded: "Because you didn't have the option not to listen because you would have to go up there and complete it and see if you learned it." She was referring to the way students have to go up to the whiteboard at the front of the class and complete the activity on the board that checks for understanding of the concept.

In the teacher interview, Questions 4, 7, and 11 offered insight into student engagement, although many other comments from the interview can and will also be cited. Question 4 asked the teacher how engaged the students were with Quaver. Question 7 asked if the teacher could tell a difference in students' attitude toward music class with Quaver. Question 11 asked for examples of students who, by using Quaver, were more engaged and involved in music class. Two examples given by the teacher were particularly informative.

One example the teacher shared with the researcher was of twin boys. She described these boys as being

very, very quiet. Like, I can hardly pull answers out of them when I ask them questions specifically, and they just, they're quiet boys. … I don't think I have ever said a word to them about talking out of turn. They just do not talk, and they don't seem really engaged most of the time. But with Quaver they want to answer the quiz questions, they want to do the games. I have no problem getting them involved in that.

She stated that she thought a part of it was that they were getting a little older and maturing a bit, but she thought that Quaver was a bigger part of their coming out of their shell. She continued in the interview to say,

This is their second year on Quaver, and they are a little more outgoing, and part of that's them growing up, but they are more willing to raise their hand and answer questions and stuff, be involved. Like they, I, I think the first time they raised their hand to answer a question I was like, well, of course I'm going to call on you, I never get to call on you and you raised your hand, I'm so excited!

She said that "it was fun to see that, … I guess that change in them; it's something that actually draws them in a little bit." She felt that when she taught the class, it was harder for them to grasp the content but that with Quaver "it makes sense to them now."

She continued with another example about a fourth-grade boy who she said "has not been the best," citing that she had sent several e-mails and notices home concerning his behavior and had sent him to the office for his behavior. She said, "But he understands Quaver, like, he gets it." She said that when she had him in the earlier grades that she wanted to pull her hair out because he was so hard to keep focused and keep his

mind on what they were doing. She was dreading Grade 4 because they start recorders and she was dreading his potential behavior with the recorder. She stated, "I thought he would be one of these that every week he came in and I would have to take his recorder away in the first 5 minutes and like go write sentences, and I don't." She said that

> He's actually trying. The fun thing about the Quaver recorder is that they will play, and then they will take a music break where they are doing some kind of movement to it, and he gets up and does the movement [some type of physical movement to the music], and he sits back down and he tries to get his recorder ready you know, he works on it and he tries, at least he tries, and I never thought I would see that from him.

In a surprised tone, she said, "He actually likes it, enjoys it, seems to enjoy it like he gets the sentences done [he has to do sentences when he misbehaves with the recorder] as fast as he can to get the recorder back."

The principal was asked what differences he observed in the music classroom since the implementation of Quaver. His answer was, "More engagement by more students. Before they were engaged but it wasn't as many." He continued, "So a higher number of students have been engaged." He was then asked to describe any student engagement that he had observed in class. His answer spoke to the engagement that the teacher expected from and got from her students. He stated,

> Her engagement for what Quaver asks them to do is exactly what she did some in the past. Get up and move to Quaver and do things through Quaver which, any time a kid gets up to do something with themselves

instead of just sitting there with their hands folded is a plus for any of

them because it's just mind–numbing. You and I have just set back in

meetings and you know what it's like. And they have a lot shorter patience

than we have. And they are wired, think of these kids' wiring compared to

our wiring. They can't sit and have a conversation for a period of time.

They don't have, they're not wired like that anymore.

When asked if engagement is different than it was before Quaver, he stated,

She's [music teacher] so good I don't think it is different, there is just more of it.

More opportunities to be engaged because you have to think about ideas that are

already there. There is so much to choose from. She can pick that and that and

then add her own stuff. She was always engaged. She's a drama girl. She loves to

get up and make them do sounds or make them listen while they are doing

something.

Research Question 2

How does the implementation of Quaver's Marvelous World of Music curriculum

in a private elementary school music program impact students' enjoyment of music class?

Online survey questions used to gain insight into this question were Questions 2, 3, 6, 7,

and 18. Survey question 2 asked how much the students enjoyed music class before

Quaver. The choices were: "did not like class before Quaver," "okay before Quaver,"

"liked a little before Quaver," "and liked a lot before Quaver." The answers were 3, 14,

19, and 18 respectively. Generally speaking, the students liked music class.

Question 3 asked how much they liked music class with Quaver. The choices were the same: "did not like class," "like class okay," "like class a little," "and like class a lot." The answers were two, four, eight, and 40 respectively (see Figure 2). A large number of students liked music class more since the implementation of the Quaver curriculum. Two of the students that answered they did not like music class with Quaver liked music class a lot before Quaver. All three of the students who answered that they didn't like music class before Quaver answered that they liked music class a lot with Quaver.

Survey question 6 asked the students how they felt when music class was over and their time with Quaver came to an end. One student answered "very happy," eight answered "happy," 36 answered "sad," and nine answered "very sad." In total, nine were happy and 45 were sad for the class to end. Survey question 7 asked how excited they were when they used Quaver in music class. The choices were "very excited," "a little excited," "not excited," and "don't like Quaver." Those who answered "very excited" and "a little excited" were 19 and 31 respectively, totaling 50 students. Those who answered "not excited" and "I don't like Quaver" were two and two, totaling 4 students out of 54 that answered negatively about using Quaver. The final Survey question asked if students liked music class better with or before Quaver. Forty students chose better with Quaver while 14 chose better before.

During the focus group interviews, the first two questions helped shed a little light on the answers received in the survey. Interview question 1 asked if the students enjoyed music class, and Question 2 asked if the students enjoyed music class as much before the implementation of Quaver. All the students in all three focus groups answered that they

enjoyed music class. When asked why they enjoyed music class, the Grade 6 class offered the following comments. One girl said, "I liked it because I got to hang out with my friends and we got to do fun stuff with music and get to learn it better instead of just learning it straight up." Another girl in the group said, "I liked in class when we did the quizzes because I already know a lot about music because I take piano and all that and I liked that I could show what I knew and all that." The boy in the group stated, "One of my favorite parts was probably doing the rhythm. I guess like clap them. We would do different things with our rhythms like sticks in class, which would make it more fun to learn." When asked if they liked music class better after using Quaver or before, they all said they liked it better with Quaver. The boy said, "I like when we did instead of doing the regular music we would actually have different activities with Quaver. When we started learning it, then we could learn it easier."

The Grade 5 focus group stated that they liked music class "Cause it's fun," as stated by a boy in the group; "I like to sing and act," as stated by one of the girls; and "She's really good at teaching," as stated by another girl. When asked what they liked about music class the discussion focused around a musical that the class was doing (the Grade 5 class presented a musical production each year). The class used the Quaver curriculum up until it was time for the musical and then they worked on the musical to prepare for the performance. At the time of the interview, the class had just performed a musical. The three girls in the focus group all had acting and singing parts in the musical. When the students were asked if they enjoyed music class better with Quaver or before Quaver, the answers were a bit mixed. The boy in the group liked music class before

Quaver, stating that he liked the class better when the teacher was doing all the teaching.
The three girls in the group said that music class before Quaver was "okay" but that they
liked it better with Quaver. One of the girls said,

> … I liked using Quaver when we were learning the recorders. … it would have
> like the notes, and we would have to play along, and it would have the music that
> would go along with it, and that was my favorite.

The Grade 4 focus group members all stated that they enjoyed music class. When
asked why, they responded, "It's fun" and "We do recorders." The researcher asked the
students what they liked about recorders and the following conversation ensued.

> Girl 1: Um, because, it's like, I don't know. I just like them.
>
> Researcher: Do you like it because of the way Quaver does it or do you just like
> the recorders?
>
> Girl 2: Yes. I like the Quaver actually.
>
> Boy: Quaver is pretty funny.
>
> Girl 3: So if we didn't have it we'd probably just be playing blaah, blaah, blaah,
> blaah.
>
> Researcher: Not as much fun?
>
> Girl 3: Probably not.

Another thing this focus group cited as liking about music class was singing.
When the students were asked if they liked music class before they started using Quaver
they said that they enjoyed it okay. The boy then said, "When we had music class without
Quaver we were like 'Do we have to go to music class today? Can't we do some other

thing?'". The researcher asked, "Is it just because Quaver makes it more fun?" His response was "YES!" in a very quick and loud response.

In the interview with the music teacher, she was asked to tell about a typical class using Quaver. She was also asked if she saw any difference in students' behavior since using Quaver. These two questions were asked to help gain insight into how students' enjoyment of music class was interpreted by the teacher.

In answering the question, the teacher explained how the Quaver curriculum was used in class. Music classes at her school were 30-minute slots. She told how each lesson began with a review of the previous lesson and how it led to the current lesson. The lesson then proceeded to maybe a short game or puzzle, "something they have to do, it's interactive." Next was usually vocabulary. If it was the beginning of the unit, the vocabulary was introductory. If it was a lesson in the unit, the vocabulary was used to expand or review previous lessons. A Quaver video usually followed and could be anywhere from three to 15 minutes depending on the grade level and the subject. The video was followed by questions, which the class answered. This was followed by a review and then a preview of the next lesson and how they would apply this lesson.

Beginning with the second lesson and continuing on in the unit, there was a lot of application, "a lot of interactive stuff where they'll have to do games, or sometimes they're on the smart board games. Sometimes they're games they have to do out on the floor." She also talked about how the curriculum was constantly being updated so she would review the lesson before she would begin teaching it. Before implementing Quaver, the curriculum consisted of outdated music books. "The kids weren't really

involved in them." She said that they might be on the right page, but they were not connecting with it (the printed book material). The next year she created her own curriculum entirely using the State Standards. She talked about how time-consuming it was to develop the lessons and find supplemental material that was appropriate to use in class. The children used dry erase boards and markers in class. She felt like she did a pretty good job.

In the 2014-2015 school year, she got Quaver, and she said, "it has made such a difference." She went on to say,

> The kids are involved, they love it you know, when they first heard it. You know they heard the British accent and I, I did a little preview with them the year before and just to see how they liked it you know. I wanted to test it out on the kids, and they couldn't understand him at first, but they were much more engaged, like, even if they were giggling a little bit at first at how silly some of it was, they still remembered it, and they did everything.

The music teacher also related a story about the Grade 2 students learning about dynamics. When they were in Grade 1, they learned what the "p" in music stands for (piano/soft) and what the "f" stands for (forte/loud). When they got into Grade 2, they didn't remember the word dynamics, but they did remember what the p and f meant. Their Grade 2 lesson was built upon what they learned the previous year. There was a lot of scaffolding in the Quaver curriculum. In this lesson, they were going to learn what crescendo and decrescendo mean. Because the words are foreign words, Quaver starts out with explaining where the words come from and shows some things from the culture of

the people from that country. Since crescendo and decrescendo are Italian words derived from Latin, they talked about Italy, where it is in the world, and about pizza and spaghetti. The teacher and students talked with Italian accents saying the two words they were learning. The teacher said,

> They had a great time. They were able to expand on that and that is what was neat to me because I could see that connection where they went, oh yeah, I remember this, oh we are going to do this now. So we go piano, crescendo into forte. They made that connection themselves.

In a later statement about their behavior she said. "It really does make a difference in their behavior." Expanding on that thought, she said that the number of students that are disruptive are less

> because they are busy. They are too busy to cause problems. They don't have a chance to. They are trying to get a turn at the game or trying to pay attention to the song, or trying to watch the video or whatever and their classmates will police each other.

She said the kids would tell each other to be quiet during the videos, with which she is okay. "I am okay with the positive peer pressure, so I feel like the kids that love it and are involved far out-number the kids I have to get on to."

In the portion of the interview with the principal that spoke to whether the implementation of the Quaver curriculum made an impact on students' enjoyment of music class, he was asked for examples of changes in student attitudes towards music class. In responding to this question the principal said, "There are some games in there

with the initials IWB. I don't know what IWB stands for, but the games that they play seem to help them, and again, it's not like video games or fun games. It's more interactive games."

Behavior and discipline problems were also discussed. The question centered around problems caused when a student would act up because they disliked music class. He said that

> The younger ones are the only ones that I have behavior problems. They just want to get in there and play too much. They're not doing it because they get in there and don't like it. They just can't focus hard enough and they just want to "uuuh" (mimicking how a student would do). There are no seats and no chairs. Just some of the young ones not really comprehending what they are supposed to be doing.

He did give one example of a Grade 4 student.

> He has struggled. He was one of the outliers. "I just don't want to do it" (he quoted the student). So he just drew a line. And she kind of removed him from the classroom because he wasn't going to try.

The student whose attitude changed for the better because he wanted to be able to play the recorder was discussed, noting that with some kids it does make a difference.

In a later discussion about playing recorders in class, the principal discussed how recorders had been taught in the past. In the past they had implemented "recorder karate." In this game, the students earn different color belts by playing certain tunes on their recorders proficiently. He remembered how the two previous music teachers, as well as the current one, would struggle with teaching recorders. One teacher, in particular, would

have headaches due to listening to the recorders. Since using Quaver to teach recorders, he said,

> I've not heard her complain one time with Quaver. But they were pushing songs all the time (with recorder karate). Got to earn this belt, got to earn this belt. And the problem was, the kids weren't going home and practicing it. With Quaver bringing it down to another level where you have one note, then two notes, then three and then you have a song going.

Research Question 3

How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact students' interaction? To explore how Quaver impacts student interaction in music class, the answers to the student survey to Questions 5, 13, and 17 were examined. Question 5 asked if the students liked the activities when using Quaver. The possible answers were "I do not like the activities," which was chosen by one student; "I like some of the activities," chosen by 13 students; "I like most of the activities," chosen by 13 students; and "I like all of the activities," chosen by 27 of the participants.

Question 13 asked the students if they participated in music class when using Quaver. The first choice was that they always participated and 46 students chose this answer. The second choice was that they sometimes participated and six students chose this answer. No students chose the third choice, which was that they never participated. Question 17 asked the students if they were eager to answer the questions in the Quaver quizzes. The answer choices were "never," "sometimes," "usually," and "always."

Participants that chose "never" were two, "sometimes" was chosen 17 times, "usually" 16, and "always" 19 times.

In the focus groups the students were asked to identify their favorite part of music class. The following conversation is from Grade 4:

Researcher: What is your favorite part of music class?

Boy: Quaver.

Researcher: Are you saying that because that's what you think I want to hear?

Boy: Kind of, maybe.

Researcher: Seriously, tell me the truth, say what you are really thinking.

Boy: I just said what I really think.

Researcher: So you really think it's because of Quaver?

Boy: Yes.

Researcher: Okay, you say that's your favorite part. Quaver has a lot of different things it does like it's got the classes you can go to and you can go and listen to a jazz concert, or you can do all kinds of different stuff.

Boy: Sometimes you get like the best famous music groups and sometimes it's like we've got a problem and we need your help with this. I don't like that.

Girl 2: I like when she shows us all the videos. Those are funny.

Girl 3: And his British accent. [imitating Quaver's voice] Hi, I'm Quaver, and I'm going to teach you chords.

Boy: I like Quaver, the whole thing, yeah, but the character is the funniest thing of all. [imitates Quaver some more then says] Yeah, he's funny.

Grade 5 all answered that their favorite part was singing with an added "It's all good" by the boy of the group. Later in the conversation the following was said:

Boy: What I like is playing around. Not the bad way playing around.

Researcher: Like playing different instruments?

Boy and Girl 1: Uh huh.

Girl 3: Yeah, that's fun too.

Boy: Like on Quaver, like sometimes there's like, if you get like, sticks or something you can like beat them together like this and go like beat, beat.

Researcher: So you don't have to do the same thing that everybody else is doing?

All: Uh huh.

Researcher: So everybody can do something different?

All: Yeah.

Grade 6 students, when asked the question, asked if it was just Quaver or could it be anything they liked. They were told to share anything they liked about music class. Girl 2 in the group responded that her favorite part of music class was spring fling. The researcher asked what that was and she said it is a time in class when they got to perform in front of people.

During the teacher interview the teacher was asked if the Quaver classroom was more interactive than her regular music classroom would be. She responded that she couldn't remember a great deal about when she was in elementary school music as a child other than the fact that they sat in a chair or on the floor a lot and didn't really do much. She commented, "And it's probably why I don't remember much of it." She also

responded that she had only been able to visit one other music classroom while class was in session. It was a Grade 1 class and she remembered that they seemed pretty active and involved and that the teacher was doing a lot of activities with them and keeping them involved. Next, she stated that

> even with the older grades Quaver tries to keep them up out of their seats occasionally, even fourth and fifth grade you know. You want to get up. You want to get moving because there are all kinds of different learners. I'm not with them enough to figure out the whole, who's a kinesthetic learner, who's the auditory learner, you know, who learns different ways. I'm not with them enough to figure that out. If I can hit all of those in the same lesson it is perfect and Quaver tries to do that I feel like.

Continuing she stated,

> They're built to be 30- to 45-minute lessons, so in the 30 minutes you might hit every single one of those learning types, which is excellent because that means hopefully it sunk in for every single one of those kids in some form. It does feel much more interactive to me.

She continued to talk about the smart board and how the students loved it. She stated that even the

> little ones know good and well to go up and use their fingers or use the little baseball or whatever it is, which is what I have for my touchscreen…I typically make a student run the board, like I'll be walking around the classroom you know trying to police activity and making sure they are doing what they are supposed to

do and make sure they are in their seat and things like that and where they're

supposed to be and I'll end up having a kid on the front row, and I'll say "Hey, go

touch that for me," "go to the next slide," or "go touch that up there," "go see

what that does," and stuff like that so there are very few times that I have to be the

one to do the smart board because it's so user friendly.

According to the teacher, one of the best things about Quaver was that it's obvious what

you do on every page.

A discussion ensued about the last time the principal came in to do an

observation. It was with the music teacher's K4 class and they were doing a lesson on

high and low. She said that they were constantly up and down for the lesson as well as

going to the smart board individually. In the lesson they were making their bodies as big

and as small as possible. She said that one of the comments the administrator made was

something along the lines of "they stay busy and they stay involved, and they're

engaged."

The other question about interaction asked for examples of students who, by using

Quaver, were more engaged and involved with music class. She once again referred to

the stories involving the twins and the boy in Grade 4.

The insight of the principal on Quaver's impact on students' interaction was also

positive.

That was a big plus for us. And because it's so interactive, and they only have

music once every 30 minutes, 30 minutes once a week, they can recall and

remember so much better because it was written where you could visualize things

that are just, here's your beat, let's work on our beat. You can remember, oh, we worked on this last week. Quicker remembrance.

In the preceding research question the principal was quoted about the games with the initials IWB. In this quote he talked about the games helping them, but they were not like fun games or video games. He said, "It's more interactive games." In his observation of students interacting in class he said, "She doesn't just have them sitting in chairs. She has little circles and they have to do certain rhythms and they have to do something together as a team."

The principal said he didn't think that the teacher's interaction was much different using Quaver than it was before the implementation of the Quaver curriculum. He said,

It's just that not only can she bring in what she already had, she's got Quaver and then what she has here and she can always embed that stuff. You can embed it. So she's got this base that she wants to go by and then her experience is that this works so she can stick it in there, she can stick it in there, so it just gives her [thought trails off]. I think she is teaching more than she ever taught because it's already lined up for her without having to set down and search, search, search, and look all the time. She's getting more out of them than she was getting before.

Research Question 4

How does the implementation of Quaver's Marvelous World of Music curriculum in a private elementary school music program impact students' retention of material? The questions on the online survey used to gain insight into this question were Questions 9, 11, and 14. Question 9 asked the students how they felt like they did on the quizzes in

Quaver. None of the students answered that they didn't know any of the answers. The choices were that the students knew "some of the answers," "most of the answers," and "almost all of the answers" received 15, 28, and 11 responses respectively.

The majority of student's felt that they knew most of the answers when taking the Quaver quizzes. Question 11 asked the students if using Quaver helped them remember what they had learned. Forty-five of the students answered affirmatively while nine students did not think Quaver helped them remember what they were learning. The other question asked the students if they knew the answers to the quizzes in Quaver. One student answered that he/she never knew the answers and 10 students answered that they almost always knew the answers. Of the 43 students left, 16 said they sometimes knew the answers while 27 stated that they often knew the answers.

The focus group question that allowed the students to elaborate on this was "Can you remember what you are taught in class better using Quaver than you could before you started using Quaver?" The Grade 4 focus group's three girl participants all answered "yes." The boy participant answered "probably." The researcher made the observation, "Probably. You were singing something then that comes from Quaver."

Boy: Yes.

Researcher: Why do you remember it, because it … [gets cut off]

Boy: Because it's funny and because Quaver says it with a British accent. He goes [imitates Quaver], and it's with a British accent, and it's funny.

Researcher: Okay. When you are talking about things like note names and dynamics and stuff like that, does using Quaver help you remember that better?

Girl 1: Yes.

Girl 2: Yes.

Girl 3: Yeah.

Researcher: Okay. Why?

Boy: On a scale of 100 to 1 it's gonna make it better because if you didn't have

Quaver, little kids aren't gonna just sit and listen to a teacher "waa waa waa waa

waa waa" all day so if they have Quaver or something that is not a teacher that

they can learn from then they will listen better.

Researcher: So with Quaver you pay better attention?

Boy: Yeah.

Girl 2: Yeah.

Girl 1: For some people.

The responses from the Grade 5 focus group was equally affirmative. Some of

their responses are as follows:

Girl 3: Sometimes because it puts things in song where you can probably

remember it better.

Girl 1: Yeah.

Girl 2: Yeah, that does help.

Girl 3: Like how we learned to play the recorder. If I took it to my house and tried

to learn it right now, it probably is not going to happen.

Girl 1: Well I do because it's like the pizza one [one of Quaver's songs], remember that, [all agree] it's like [indistinguishable talking]. It's still my favorite one. And I remember like the "b" and the "a" and like . . .

Girl 2: It made it like fun and it was funny, and it made me remember it.

Girl 3: I still remember it. I remember it because it made it fun.

Boy: I just don't like; to me, it just wasn't fun. I just like when there's somebody in front of us in person, not like on a screen. I just don't really understand it on the screen.

Girl 1: Yeah, and I'm like just the opposite of you. It's hard for me to like, if (music teacher) got up there right now and I had my recorder it would be hard for her to say do this and that and it would be hard for me to do it without Quaver because . . .

Girl 2: She would have to sit there and draw all the notes on the board.

Girl 1: Yeah, on the board.

Girl 3: Yeah, that would be … [voice drops out]

The Grade 6 focus group all felt that using Quaver helped them learn and remember what they learned. This group was a bit less conversational than the others and was more inclined to answer yes or no.

The teacher interview question asked specifically if the students had better retention of materials learned with Quaver. Her answer was, "I feel like they do." She continued by relating a story about the Kindergarten classes and the end of the year review in Quaver. She stated,

Kindergarten surprised me last year. I gave them their end-of-the-year review and they got every single question right, and that's a 30, 30 or more question review. It was a long review for Kindergarteners, and they got every single question right. On the first try. There was none of this, you know, some of the answers were like "A" or "B." Well, if you don't get it right on "A" then, of course, it was the other one, but they got them. All four classes. . . Both K4s and K5s got all of them right, on the first try. Wow. These guys are 4, 5, and 6 years old. I didn't expect that at all.

She also recanted how the Grade 4 and Grade 5 students were good at rhythms. They start to read rhythms in Grade 2 and Grade 3. She said that by Grade 4 "they're great with it. They remember what all the things are, like what they all mean." She talked about giving them a mathematic problem in class and how they are "very good at picturing it in their heads, which is a big deal to me." She said,

there is a huge difference to me between seeing it on the screen and you go, well that's a half note, and that's a quarter note, and being able to stand there and go, okay. You have a measure of 4/4 and you need, you have 1 quarter note and a half rest. How can you complete that? And for them to go and count it up and figure out what different things could fit in there and give you different answers based on that. Like, like that's pretty good to me, to, for them to be able to figure it up in their heads like that, and I mean, they don't cheat by looking around my room (she points out the different things on her wall like note values and pictures of notes and rest, etc.). They will sit there and actually be looking at the floor or at

each other, you know, and be trying to figure it out, so I, I feel like that's a pretty

big deal. Like I said, not having it in their hands, not having it on the screen, but

having to do it in their heads.

The researcher queried, "You can tell that they understand it that way" and she answered
"YES!"

The principal talked about the interactive qualities and about how engaging the

Quaver curriculum is. His comments about retention were focused more on the

advantages that it gives to the teacher. In talking about student retention, he commented,

I think the cool thing about Quaver, she can go in and set that up. If they got that

(a concept of study) easy we don't have to review it. So when she sets up that

lesson she doesn't have to pull that over. And if they didn't get it, hey, I'm going

to pull this over and have it ready for the next lesson, so it's already sitting there,

you just have to think how to do it.

Research Question 5

How does the implementation of Quaver's Marvelous World of Music curriculum

in a private elementary school music program impact students' musical self-efficacy? A

person's musical self-efficacy deals in part with how well they believe they can

accomplish a musical task based upon past experiences of accomplishment in music. Part

of this measure is how they feel about their ability as a musician and their ability to learn

new things. Question 8 of the survey asked students if they felt that they were good at

music. Nineteen of those surveyed stated that they felt they were very good at music.

Thirty students felt they were okay at music. The remaining five participants didn't feel

like they are very good at music. When asked if their friends thought they were good in music class, two said their friends thought they were not very good, while 15 said their friends thought they were okay, 28 said their friends thought they were pretty good, and nine said their friends thought they were really good at music. The majority of students felt that they were good at music to some degree and believed their friends thought they were good at music. When asked if they had an easy time learning new things with Quaver, none of the students said they had a hard time learning new things with Quaver. Eighteen said they could learn things but it took a while, 31 said they could learn things pretty easily, and 5 said they learned thing really quickly with Quaver.

In the focus group interviews, the question was posed, "Do you feel like you were able to do the things asked of you in music class?" The Grade 6 focus group all responded, "yes sir." This question was followed up in the Grade 6 group with "Did you feel that way before you started using Quaver too, I mean, you felt pretty comfortable in there?" The boy in the group answered "some." They were then asked if they thought Quaver helped them to feel a little more comfortable with it (doing things in music class). At this point their answers were "yes sir," "yes sir," "I do," and "some."

Positing the same initial question to the Grade 5 focus group, the answers were "definitely," "yeah," "yeah," and "uh huh." They were then queried if they were asked to do new things a lot in music class. Their answer was yes; they were asked to do new things a lot. Following up on that response they were asked if they still felt pretty able to do what they were asked to do, and they all replied "yes." Girl 3 offered, "Like so many things are fun to do" and then Girl 1 said, "and I learned a lot with Quaver."

The teacher was asked to give me an "aha" moment that she had witnessed with Quaver. Her immediate response was, "Oh my goodness. There's so many." An example that would provide insight into when the students begin to feel like they can do it based on a series of previous successes was the intent of the question. The teacher was not told what type of example was intended; she was simply asked to relate an aha moment. Her response was very good at showing how Quaver helps build learning through building musical self-efficacy and musical self-confidence.

She began with "When I went, 'oh my goodness, this works', was first graders learning to read music." She related how teaching music to first graders is like learning a new language and how before using Quaver she found it difficult to find a good way to teach it. She was impressed with how Quaver uses objects such as eggs, dogs, and chickens to teach the students how to sound out the rhythms to count them. The program substitutes the words for the note values but then you can have the images switch from the words back to the note values. Once you learn to count it by saying the words, you can turn it over and clap the rhythms by looking at the note values instead. It also gives you the ability to take a 4x4 block and create your own rhythms using the images and then flip them over to see how the rhythms look. She stated,

> They started to relate the sounds to the musical notation, and, eventually it kind of transformed into they didn't need those words anymore. They just knew it. And I was like "Oh my goodness, this is amazing." I called their teacher in when they learned it and I was like "you've got to watch this."

 After demonstrating to the teacher their ability to read music from the 4x4 block with ease, she had a little girl from the class come up to her as the class was leaving. The little girl said to her, "I'm going to go home, and I'm going to tell my mom that I learned to read music today." The little girl then said, "I love Quaver." The teacher responded, "You do?" and the little girl said, "Yes. I think I love all things British."

This story lead into her next aha moment, which was with the Grade 3 class. Grade 3 was when the students began to learn to play a recorder. She explained their normal frustrations learning to play recorder based on their lack of dexterity and lack of fine motor skills. In addition to this, their first notes on the recorder were played with the left hand, which added to the students' apprehension and stress.

> The first time they get one [recorder] in their hands they learn "B." Thumb on the back, first finger on the top. Use your left hand. What? [students query] Yep, every time. I have to use my left hand? (students) And they hate it; they hate it so much. And I pull up that first song, and they go oh, wait, I can read music. And they remember from first and second grade they know how to read these rhythms. They know how to do this already. So now all they have to know is to hold that thumb and that finger in one place. Because what's cool about Quaver, you only learn one. It doesn't try to overstep what the kids are capable of doing. You know it pushes them, their expectations for them, but, because of the building blocks they can look at that and go, oh, all I have to do is play this like I would clap this. And they do it, and so all of the sudden I go from, you know 75% of the class going Oh we are going to be terrible to 75% of the class going Oh, I can do this. I

remember doing this from last year. And they do have that change. In that one day, in that one 30-minute lesson where they go, this isn't as hard as I thought it was going to be. I can read rhythms, now I know what the note "B" looks like, sounds like, and feels like on my recorder. I can do this. It's so much easier to go on to the next thing, and, I think that's where I see the biggest "aha" moment. Them going, taking what they have learned and have only played on rhythm instruments and all of the sudden going, oh, I have to play this pitched instrument. Oh no. And having seen the slides and seeing them introduced in that way that they go, "Oh. Okay. I Got This."

Musical self-efficacy was not specifically addressed in the principal interview. Comments about attitudes and interactions in music class, however, painted a picture of students who were confident in their abilities and eager to attend music class and explore new dimensions of learning. He did cite an example of a Grade 5 student who was having difficulty with a rhythm task. He explained that the teacher simplified it for the student. He stated as well that none of the other students ridiculed or pushed him to make him feel uncomfortable. The teacher worked with him in the classroom setting to help him overcome his "panicked" feeling when it would be his turn. He described it as a positive atmosphere. He stated that the student "knew he wasn't good at it, but he didn't quit."

Other Relevant Comments

Only three parents took the opportunity to respond to the question on the consent form. The following are the three comments:

My student really enjoys her music class. She always comes home talking

about the new songs they are learning in class. She has a passion for music

and I hope she continues this.

(Girl's name) loves music class!

(Girl's name) loved music when she was in elementary school. It helped

prepare her for band. She excels in band class.

The individual survey answers were coded for emergent themes for

students who enjoyed music class more using Quaver than before its

implementation. In Grade 6, six of the 16 students who took the survey fit into

this category. One emergent theme in the Grade 6 surveys was that 100% of the

students said they always participated in music class with Quaver. There was also

100% of the students that said that they could remember better what they learned

when using Quaver. Most of the students felt they were okay to very good at

music, and most felt their friends thought they were good to very good at music.

The emergent themes for Grade 5 were very similar for students who

enjoyed class using Quaver more than they enjoyed class before Quaver was

implemented. In Grade 5, nine of the 17 students who took the survey fit into this

category. All students but one said that Quaver helped them remember what they

learned in class. All of the students but two said that they always participated in

music class when using Quaver while those two stated that they sometimes

participated in music class when using Quaver. Like the Grade 6 class, the

majority of Grade 5 students felt that they were okay or very good at music (7)

while only 2 felt that they were not good at music. The same group said they thought their friends felt they were okay (6), good (2), or very good (1) at music.

Students in Grade 4 who fit into the same category of enjoying music class more with Quaver than before its implementation were 15 of the 21 surveyed. Looking at the same themes, 11 students said they always participated in music class with Quaver, 3 said they participated most of the time, and 1 said they participated sometimes. All but one said that Quaver helped them remember what they learned in class. When asked the question of how they felt they were at music, 8 said they thought they were okay and seven thought they were very good. The responses to how they felt their friends viewed how good they were at music showed that all but one thought their friends thought they were pretty good. The one student left had the view that their friends felt they were not very good at music. The following figures combine Grade 4, Grade 5, and Grade 6 responses to show the proportion of students' answers for each question.

Considered as well were the students that liked music class better before Quaver than after its implementation. Of the 54 students in the survey, eight students enjoyed music class better before they started using Quaver. It is interesting to note that of the eight students that stated that they enjoyed music class better before Quaver, two stated in a later question that they liked music class better with Quaver. Looking at the same emergent themes as the students who liked class better with Quaver, the answers for this group of students were interesting. When asked if they thought using Quaver helped them remember

what they learned, seven students said "no" while one student answered "yes." All the students answered that they participated in music class when using Quaver. Five answered that they "always participated" while the other three answered "sometimes." The students felt that they were okay at music, with five answering "okay" and two answering "very good." When asked how they perceived how their classmates thought that they were at music, one student said "not very well" while five said "okay" and two said "really good."

There were several emergent themes that presented themselves while coding the focus group interviews. The four main themes were that music class was fun and enjoyable with Quaver; singing was one of the students' favorite activities in class; students liked Quaver because it was engaging, kept them involved, and helped them remember the things they had learned; and Quaver helped the students feel more musical self-efficacy in music class.

During the focus group interviews, there were 21 discussions or references about how Quaver made music class fun and enjoyable. Some of those talked about how the main character and the videos were funny. Others talked about how music class was simply more fun using Quaver. The remainder of the conversations were examples of how learning recorders, rhythms, and notes were fun with Quaver.

One of the favorite parts of music class was when the students sang. There were six conversations about singing, some quite substantial. One discussion was about singing with Quaver videos and songs but many of the examples the

students gave were in other situations. Students mentioned that they did a spring fling and got to sing in front of an audience. They also talked about doing karaoke at Christmas. Another singing activity was when they did a musical play, that year's play being Cinderella, where they got to sing and dance.

There were 20 references or conversations about how Quaver was engaging, involving, or how Quaver helped students with retention of information. Students talked about how Quaver was engaging because of the variety of activities. They also talked about how the involvement and engagement worked together. Students had to be involved in class to be able to answer the questions at any time, which also required them to be really engaged in the lessons. The students believed that this, plus the content such as the videos, helped them remember the information. They could recall things they had learned the previous year because they remembered the song or the video that taught them the information. They also believed that they remembered the information because Quaver made it fun to learn.

Musical self-efficacy is the concept of having a positive attitude of being able to learn new musical content easily because you feel confident through past experiences of learning musical content. Nine different comments or conversations spoke to this point. Students said they felt like they would be able to learn new things in music class that their teacher or Quaver asked them to learn. They also said that they felt that Quaver had helped them feel more

comfortable with music. Another statement was that students felt like they were pretty good musicians because they had learned a lot with Quaver.

The coding of the teacher interview revealed very similar themes to the focus group interviews. In answering the questions presented to her, the following themes emerged. Quaver helped to build student musical self-efficacy. Quaver helped student retention of materials taught. Behavior was better since the implementation of Quaver. Students were more engaged with Quaver than without. Quaver is interactive. Quaver was fun and enjoyable.

The emergent theme that Quaver helped to build student musical self-efficacy surfaced 19 times during the interview. Students gaining confidence through experience was mentioned six different times. The teacher talked about how Quaver uses scaffolding in the presentation of materials twice and talked about how Quaver uses building blocks four times. Also, in a description of how a lesson goes with Quaver, the teacher described the scaffolding process of how the lesson reviews the last lesson, students make application of the lesson, then the lesson expands upon what the students already know. She talked about how they get it because it makes sense four times.

Retention of materials is an area to which the teacher referred 16 times. She talked about how the students remembered things throughout the year and were able successfully to complete the end-of-the-year review. She talked about how the students remembered things from year to year, making a connection from the past year to new material being taught in the current year. She also talked

about how the students made connections because of retention and how the retention improved their understanding of music and musical concepts.

Behavior, engagement, and interaction are closely related, but the researcher of the current study chose to divide them into three different themes. Although they were split up, they fit very closely together as well. In the interview, the teacher talked about how the students' behavior was better since using Quaver. In all four of the places she mentioned the better behavior, it was attributed to the fact that the students were engaged in the lesson, and their interaction in the lesson did not give them the opportunity to misbehave. She also said that she would use Quaver activities as an incentive for better behavior. She said that the students loved the activities and videos so much that she would use them as an incentive to get through portions that they might not like as much, and since they loved it so much they complied.

Engagement with Quaver was a strong emergent theme. The teacher talked about how the students paid attention during the lessons because the content of the lesson engaged them. She also explained multiple times that the reason that the students were engaged was that it made sense to them. She said "they get it." She also talked about how the students were engaged because the program involved them in the lesson. They were drawn into the lessons as active participants rather than outside observers.

According to the interview with the teacher, Quaver is also very interactive. She gave multiple examples of how the students had to go to the

whiteboard to answer questions, or how the program had them get up and move around or act out different things. The reviews in each lesson are very interactive, and the continuity of the lesson from review to application to expansion is done in a very interactive way. The program keeps them "busy" in a very interactive and engaging way.

Fun or enjoyment was the last of the emergent themes. At least 16 times during interview conversations the teacher mentioned that the students enjoyed class, had fun in class, or loved Quaver. She shared how the students would tell her that they loved Quaver. She could tell that they were having fun in class. She gave examples of students who had "come out of their shell" since using Quaver. They became more active participants partly because it was so much fun and interactive, and partly because they felt more confident in their musical abilities. The students showed signs of being increasingly bold in their willingness to participate.

There was one emergent theme in the principal interview. The theme identified here was the word *more*. The principal, in the interview, was very complementary of the music teacher both before and after the implementation of Quaver. He said that her class had always been interactive and engaging. Time and time again he said that he thought Quaver was more engaging and more interactive. He thought that there was a higher number of students engaged in class with Quaver. He mentioned that the games in Quaver were interactive and not just for fun but for their teaching and learning qualities. He believed that there

were more opportunities for engagement with Quaver because the teacher had more resources available to them when creating the lesson. Several times he mentioned how students could recall and remember the information much better because of how Quaver is formatted.

CHAPTER 5

CONCLUSIONS AND DISCUSSION

The purpose of this case study was to determine the effect of Quaver's Marvelous World of Music curriculum on students' musical self-efficacy, interactive engagement, enjoyment of music class, and retention of knowledge by exploring the implementation of Quaver's curriculum in the music program of a private elementary school in the Southeast United States.

The school studied was in the second year of Quaver implementation. Participants of the study had to have been enrolled in the school for the 2 previous years and participated in the music class to be eligible to participate. This requirement ensured that each student had participated in the class at least 1 year before the implementation of Quaver and 1 year with Quaver.

The music teacher was in her fifth year at the school. The first year she used an outdated printed curriculum of classroom textbooks. The second year she developed her own curriculum using state and national standards. Her curriculum was enhanced with multimedia materials from the Internet. The third year she began using the Quaver curriculum in her classes. This is her fourth year at this school, and she was still using Quaver. This study took place around spring break in the second year of implementation. Quaver was used for Pre-Kindergarten through Grade 5 at this particular school. Study participants were from Grades 4-6. Grade 6 students who participated in this study had

been in music class for 1 year before Quaver and 1 year with Quaver. They were not participating in general music class the year the study was conducted.

Conclusions

This case study sought to determine if the implementation of the Quaver's Marvelous World of Music curriculum made an impact on the school music program by impacting students' engagement, enjoyment, and interaction in music class. The study also aimed to determine if the implementation also made an impact on their retention of musical knowledge and their musical self-efficacy. In reflecting on the comments and answers of those involved in the study, the researcher concluded that Quaver had made a positive impact on all these factors.

The clear majority of students, the teacher, and the administration agreed that students are much more engaged since the implementation of Quaver. Part of that engagement was because of the videos and activities that were used in the daily lessons. Part of the engagement happened because the students loved the British accent of the Quaver character. Another part of the program that kept the students engaged was the way the lessons were presented on a smart board with which the students interacted. Each student would get to go up to the smart board and touch the screen to manipulate the program during the lesson. The students were eager to be chosen to interact with Quaver and stayed engaged throughout the lesson as they awaited their opportunity to have a turn. Students also exhibited positive peer pressure by keeping other students in the classroom on task, because if someone beside them was talking or playing around it

distracted them from the lesson or video. This spoke strongly to engagement in the lesson, when a student would ask another to be quiet, so they would not miss anything.

This leads into how Quaver had impacted interaction in the music classroom. The music classroom was interactive before Quaver was implemented. The music teacher would have the students do a lot of movement, and she would use a lot of recordings and videos in class. Using Quaver gave her the opportunity to increase the amount of student interaction because of the way the lesson was presented. As the students interacted with the lesson she led them through the lesson, but not by modeling every single activity. This gave her the ability to be more attentive to the students and more aware of whether they understand the lesson or not. They still received modeling but it came from the program itself. The program has similar types of activities throughout the grades as well. When students saw a certain symbol on the whiteboard, they knew that it was going to be a certain kind of activity. They knew approximately what they were going to be doing even before it was explained to them. During a recorder lesson, for example, a student might play a line of music then be asked to stand up and do a movement then set back down and play again. As one student said, we "learn better instead of straight up."

Only two students out of the sample of 54 did not like music class with Quaver. Three did not like music class before Quaver. The great majority thought music class was fun. The focus groups talked about how much fun they had with Quaver and also about how funny they found a lot of the games and videos in Quaver. Most students had liked music class before Quaver was implemented as well, but 40 of the 54 stated that they like it better with Quaver. The teacher repeatedly stated that the students loved it and that they

got excited about class. She told the story of the Kindergarten class learning high and low. They would have to get as tall as they could for high and get as short as they could for low. She said they loved getting up and going through the activities.

One important area of interest was to see if there was an impact of retention of musical knowledge. Students admitted that they felt they could remember things better with Quaver. In the focus groups, they thought it was probably because when they learned it, they were having fun. The example they gave me was about learning to play recorders. Before Quaver they found learning to play recorders hard. Part of the reason was that they were trying to learn to play a series of songs and earn recognition by earning karate belts based on their completion of a song. With Quaver they learned with a video. The video played along with them and showed them what to do. They played for a while and then did a short rhythmic activity with the same music, or maybe sang, then played again. They could remember the songs that they learned with Quaver because they had memorized them without even realizing they were doing so. The teacher also talked about how the K-4 and K-5 students had taken the end-of-the-year review on Quaver and had answered all 30 of the questions correctly. This was true for all 4 of the Kindergarten classes at the school. She also talked about how Quaver scaffolds the lessons so that what she taught in Grade 2 would be built upon information they learned in Grade 1. An example would be that they learned what dynamics are in one grade. The letter *p* stands for piano and means soft. The letter *f* stands for forte and means loud. When they get to the next grade, and they talk about dynamics they remember what piano and forte are, so

in this grade, they learn about crescendo and decrescendo. This goes throughout the Quaver curriculum.

Musical self-efficacy is when a student believes they can do something in music based on their successes in previous musical activities. Quaver impacted musical self-efficacy in a positive way. A majority of the students felt that they were good at music and most felt like their friends thought they were good at music. Most felt that they were able to do new activities in Quaver successfully. One of the parents even commented that her child was now in Grade 6 and taking Band class. She stated that her child was doing well in band class and thought that it was because of her experience in elementary music.

There were a few areas that were identified as perceived shortcomings. The first was that Quaver was limited in the different types of instruments that the students played in class to rhythm instruments and the recorder. Quaver does have lessons to teach recorder, and there are many lessons in Quaver where the students will clap rhythms and do rhythm games. It is also important to note that many schools would not have other instruments for the students to learn. This particular school used Quaver through Grade 5 and the last half of Grade 5 was used to learn and present a musical play.

The second perceived shortcoming was that Quaver does not contain musical plays or programs that can be used for the students to perform for school events. All musical plays and programs that the school uses were in addition to what Quaver programs. Many schools present programs for parents throughout the year. Quaver musicals might be a great addition to the curriculum.

An issue that was not a concern or shortcoming, but presented itself as a suggestion based on the focus group discussions, was how much the students loved to sing. This was especially true in the upper grades. The Grade 5 and Grade 6 focus groups repeatedly talked about how much they enjoyed singing. They spoke of how this was their favorite part of music class. Quaver has a lot of singing already in the curriculum. Additional songs that are more current might help to increase engagement and involvement in the lessons of older music students.

Recommendations

This case study was conducted at a private school in the southern United States. The participants in the study had been in the music program for at least three years. They had experienced music class before and after the implementation of the Quaver curriculum. The music teacher had taught music at the school before and after the Quaver implementation as well.

The school system should continue using the Quaver curriculum. The students were engaged in their music lessons and student interaction in music class increased after Quaver implementation. The teacher believed that students' retention of musical knowledge was increased, and the students clearly were enjoying music class.

Teacher in-service sessions should be planned to introduce the classroom teachers to the Quaver program. Understanding of how the curriculum is structured will increase cross-curricular integration. Classroom teachers can coordinate their history, math, science, and language lessons with the music teacher in order for the students to realize the connections that exist.

School administrators should look at Quaver's Marvelous World of Music curriculum as a possible supplement to their current elementary and middle school general music programs. Administrators should also consider this program as the possibility of standardized music testing is on the horizon. Improved retention of materials learned with Quaver would help students to be successful on standardized exams.

Implications

More is being asked of educational professionals including music specialists than ever before. One requirement is that teachers' produce detailed yearly, unit, and daily lesson plans. Additionally, music specialists often teach six to seven different grade levels every day. Many school systems are also reducing spending on music programs and music classes. Quaver is a relatively inexpensive program that provides full curriculum plans and maps that meet state and national standards for music education.

Recommendations for Future Research

Since this study was conducted in a private school setting, it is recommended that the study be done in other settings with a variety of subjects to determine if the results of this study would hold true under differing situations. It is also recommended that the study be conducted with music specialist of differing experience and education levels. Another recommendation is to do a comparative study between a school that uses Quaver and a similar school that does not use Quaver to examine gains in pretest/posttest scores over the period of one, two, and three years.

Discussion

Yarbrough and Price (1981) found that 81.38% of the variance for off-task behavior in the classroom was accounted for by nonperformance activities and lack of teacher eye contact. Studies by Forsythe (1977), Wagner and Strul (1979), Orman (2002), and Brendall (1996) show that a large amount of classroom time is spent in nonperformance activities, much of the time accounted for by teacher talking. McLean, Sparapani, Toste, and Conner (2016) found that classes that decreased their off task transitional time between activities could predict increases in student literacy gains. Descriptions of classroom activities by student participants in this current study indicate there is very little nonperformance activity in their Quaver classroom. The teacher revealed that she would use students to control the smartboard during the lesson which allowed the lesson to flow continuously. The teacher would move about the classroom during activities to observe and interact with the students. Activities in Quaver are coded with symbols. When students viewed the symbol displayed by Quaver they understood what was expected of them for that activity. The teacher did not have to explain or give directions for each activity so there was less time taken out of class to explain activity directions. The teacher and students alike felt they learned better and retained knowledge better since the implementation of the Quaver curriculum.

Engagement and enjoyment of music class increased since the implementation of Quaver. Skinner et al. (2008) found that students work harder and pay better attention when they find activities fun, enjoyable, and interesting. Moore (2002) found the more involved a student is in an activity the greater their enjoyment and engagement in that

activity. Student participants in this current study described music class as fun. They explained that it was fun because they were able to be successful in class, they enjoyed the activities and lessons, and the classroom environment was better because everyone payed attention and made an effort to participate. The administrator commented on how the music class under the present teacher has always been interactive, but much more now with the Quaver curriculum.

Sagayadevan and Jeyaraj (2012) found a significant correlation between student-teacher interaction, emotional engagement, achievement, and perceived learning. They found that emotional engagement significantly predicted perceived learning and that emotional engagement such as positive attitude toward learning was a significant predictor of intrinsic learning outcomes. Participants in the current study were very complimentary of their teacher. Some stated that music was their favorite part of the school day. Students who answered the survey question that they were good at music also answered more positively about their attitude towards music class in general. The teacher described how students got excited when they learned and accomplished goals.

The Quaver curriculum had a variety of activities that were educational and entertaining. The main character spoke with a British accent. Many of the songs were original to Quaver. Each lesson involved kinesthetic activity and required the student to be creative and involved. The students, the teacher, and the administrator all commented that these elements of the Quaver program were what made it effective. Roberts (2015) noted that novelty, kinesthetic activity and challenge, and creativity lead to situational interest in music class.

The teacher in this study pointed to how Quaver used scaffolding. Concepts were taught at a level where the student could be successful, then they were taught at a higher degree of understanding and detail. This continued until the concept was fully developed. The design of the Quaver curriculum mirrors the idea of self-efficacy development. Prior experiences and aptitude are factors that affect initial self-efficacy (Shunk, 1991). Stevens, Anderson, O'Dwyer, and Williams (2011) stated that greater self-efficacy was developed through successful completion of tasks. Higher success on an easier version of a task was associated with higher self-efficacy whereas unsuccessful completion at a more difficult level resulted in lower self-efficacy for the task.

In summary, this case study investigated the effect of Quaver's Marvelous World of Music curriculum on students' musical self-efficacy, interactive engagement, enjoyment of music class, and retention of knowledge at a private elementary school in the Southeast United States. Most students, the teacher, and the administrator believed that interaction and engagement were increased using the Quaver curriculum. Most students agreed that music class was more enjoyable with Quaver than before the implementation of Quaver. The teacher expressed her belief that the students enjoyed music class more with Quaver. The students felt that Quaver helped them to be better musicians and helped them remember what they learned in music class. The teacher gave examples of improved student retention of knowledge using the Quaver curriculum. There was a positive connection between Quaver's Marvelous World of Music curriculum and the participants in this study.

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APPENDICES

APPENDIX A

QUAVER SURVEY GRADE 4

APPENDIX A

QUAVER SURVEY GRADE 4

1. **Thank you for your participation in this study.**
   Mark only one oval.

   ( ) I agree to be part of this study

2. **How much did you enjoy music class before you started using Quaver?** *
   Mark only one oval.

   ( ) A lot
   ( ) Some
   ( ) A little
   ( ) Not at all

3. **How much do you enjoy music class now that you are using Quaver?** *
   Mark only one oval.

   ( ) A lot
   ( ) Some
   ( ) A little
   Not at all

4. **Do you ever get on the Quaver website when you are not in music class?** *
   Mark only one oval.

   ( ) I visit the Quaver website every week
   ( ) I visit the Quaver website about once a month
   ( ) I have visited the Quaver website 1 or 2 times
   ( ) I have never visited the Quaver website outside of class

5. **Do you like the activities when using Quaver?** *
   Mark only one oval.

   ( ) A lot
   ( ) Some
   A little

6. **How do you feel when music class is over and your time with Quaver comes to an end? ***
Mark only one oval.

◯ Very sad

◯ Sad

◯ Happy

◯ Very happy

7. **How excited are you when you use Quaver in music class? ***
Mark only one oval.

◯ Very sad

◯ Sad

◯ Happy

◯ Very happy

8. **Do you feel that you are good at music? ***
Mark only one oval.

◯ I feel like I am very good at music

◯ I feel like I do okay at music

◯ I don't feel like I am very good at music

9. **How do you think that you do on the quizzes in Quaver? ***
Mark only one oval.

I know almost all of the answers to the Quaver quizzes

◯ I know most of the answers to the Quaver quizzes

◯ I know some of the answers to the Quaver quizzes

◯ I don't know any of the answers to the Quaver quizzes

10. **Do you have an easy time learning new things with Quaver? ***
Mark only one oval.

◯ Yes

◯ Sometimes

◯ No

11. **Does using Quaver help you remember what you learn? ***
Mark only one oval.

Yes

◯ Sometimes

◯ No

12. Do your friends think you are good in music class? *

Mark only one oval.

◯ Yes, really good

◯ Yes, pretty good

◯ No, not very well

13. Do you partcipate in music class when using Quaver? *

Mark only one oval.

◯ Always

◯ Most of the time

◯ Sometimes

14. Do you know the answers to the quizzes in Quaver? *

Mark only one oval.

◯ Always

◯ Most of the time

◯ Sometimes

15. Do you get bored when using Quaver in class? *

Mark only one oval.

◯ Always

◯ Most of the time

Sometimes

16. Do you like learning new things with Quaver? *

Mark only one oval.

◯ Always

◯ Sometimes

◯ Never

17. Are you eager to answer the questions in the Quaver quizzes? *

Mark only one oval.

◯ I always want to answer the questions in the Quaver quizzes

◯ I usually want to answer the questions in the Quaver quizzes

◯ I sometimes want to answer the questions in the Quaver quizzes

I never want to answer the questions in the Quaver quizzes

18. Did you like music class better with or without Quaver? *

Mark only one oval.

◯ I like music class better without Quaver

◯ I like music class better with Quaver

APPENDIX B

SAMPLE INTERVIEW QUESTIONS

APPENDIX B-1

FOCUS GROUP INTERVIEW QUESTIONS

1. Do you enjoy music class? Why? Give an example.

2. Did you enjoy music class as much before using Quaver? Explain why.

3. What is your favorite part of music class? Give an example.

4. Can you remember what you are taught in music class using Quaver better than you did before using Quaver?

5. Do others in the class pay attention better with Quaver than before? Give an example.

6. Do you feel like you have the ability to do the things that you are asked to do in music class?

APPENDIX B-2

TEACHER INTERVIEW QUESTIONS

1. Tell me about a typical class using Quaver.

2. How does that compare to the way you taught the class before using Quaver?

3. Do you see any difference in students' behavior since using Quaver? Please go into detail about what the differences are.

4. How engaged are the students with Quaver? Give an example.

5. Do the students have better retention of the materials learned with Quaver?

6. Is Quaver a cross-curricular curriculum? Give an example.

7. Can you tell a difference in students' attitude toward music class with Quaver? Give an example.

8. Is the Quaver classroom more interactive than your regular classroom would be? Give an example.

9. Does the Quaver curriculum cover the National and State Standards for Elementary Music?

10. Tell me about an Ah-Ha moment you witnessed with Quaver.

11. Do you have any examples of students who, by using Quaver, are more engaged and involved with music class?

APPENDIX B-3

ADMINISTRATOR INTERVIEW QUESTIONS

1. What differences have you observed in the music classroom since the

   implementation of Quaver?

2. Can you cite any examples of changes in student attitudes towards music class?

3. Have you observed student interaction in music class?

4. Will you describe that interaction?

5. Have you observed student engagement in music class?

6. Will you describe that engagement?

7. Is the interaction different than before Quaver?

8. In what way?

9. Is the engagement different than before Quaver?

10. In what way?