

The Impact of Blended Learning on Student Achievement in an
Elementary Strings Program

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Statement of Purpose

The purpose of this empirical study is to investigate the implementation of blended learning in an elementary strings classroom and document its effects on student achievement. This investigation will be conducted by examining three areas of skill: instrument position and posture, bow hold, and note reading. Two classes will receive beginning strings instruction; however, one will receive instruction using traditional string teaching techniques, while the other will receive instruction based on the blended learning model. Various assessments will be given to both classes to measure student growth.

Rationale

Today's students are digital natives who regularly use technology in their every day lives. The world of education needs to evolve with changing technologies in order to best serve our students. Blended learning allows students to utilize technology both in and out of the classroom in order to enhance understanding of any topic. This project will specifically examine the station-rotation model of blended learning, where students rotate to three stations during the lesson period – a technology station, a teacher-guided station, and a peer collaboration station. Students will also have access to selected technological content to use in home practice.

While many studies have been done on blended learning in the regular education classroom, very few have been executed in the field of instrumental music education at the elementary level. This study hopes to uncover a link between blended learning and improved musical skills of beginner strings students.

An empirical study will be put into action with two groups of first-year strings students at Gwyn Nor Elementary School from October to December in 2014, and six blended lessons will be implemented with one test lesson group during that time period. The control group will receive traditional strings instruction without the use of blended learning. Both groups will be assessed throughout the experiment on instrument position/posture, bow hold, and note reading. The instructor will use video recordings, photos, and assessments in order to document and gauge student achievement.

Table of Contents

Chapter 1: Introduction	1
• Statement of Purpose	1
• Rationale	1
• Expected Findings.....	2
Chapter 2: Blended Learning in a Musical Environment	3
• Defining Blended Learning.....	3
• Benefits of Blended Learning	4
• Oppositions to Blended Learning	6
• Benefits of Music Technology.....	7
Chapter 3: Project Design and Findings	9
• Participants.....	9
• Study Design.....	9
• Technological Resources	10
• Classroom Activities.....	12
• Assessments	14
Chapter 4: Results.....	16
• Discussion of Results.....	17
• Study Limitations.....	18

• Impact on the teacher	19
Appendix A: Comparative Evaluation Data	21
Appendix B: Unit Plans	24
Appendix C: Student Assessments	25
Works Cited	28

Chapter 1:

Introduction

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control group will receive traditional strings instruction without the use of blended learning. Both groups will be assessed throughout the experiment on instrument position/posture, bow hold, and note reading. The instructor will use video recordings, photos, surveys, and assessments in order to document and gauge student achievement.

Expected Findings

While many studies have been done on blended learning in general education, very few have been executed in the field of instrumental music education. In non-musical education, blended learning “can bring impressive accomplishment to children previously mired in stagnation” (Vanderkam and Zinmeister). Utilizing technology in the music classroom has produced many benefits in areas such as communication, assessment, and motivation. Chapter 2 will further explore the benefits of both blended learning and music technology.

This project hopes to find that the implementation of blended learning produces increased student achievement in the elementary strings class. Students using the technology during lessons will be encouraged to access it at home, thus increasing practice time. Many students already use computers or tablets to do homework, watch videos, and play games. This study anticipates that students will be engaged in the technology portion because of its similarity to what students already do on their own and students will be able to use technology to aid in their home practice. Additionally, part of the blended learning station-rotation model is one-on-one or small group time with the teacher. It is expected that this close attention to students’ progress will lead to greater understanding and better performance of musical concepts.

Chapter 2:

Blended Learning in a Musical Environment

Defining Blended Learning

In its simplest form, the term ‘blended learning’ involves “using technology and human teachers in combination to achieve better results than either could produce on their own” (Vanderkam and Zinsmeister). Heather Staker and Micheal B. Horn, two leaders in the field of blended learning at the Clayton Christensen Institute, describe blended learning as a formal education program in which students learn partially through online instruction and have some element of control over time, place, path, and/or pace. Students should be able to access the content both at school and at home (“Classifying Blended Learning” 3).

While there are several different types of blended learning environments, a station-rotation model will be utilized in an elementary instrumental music classroom for the purposes of this study. In this model, students rotate through stations in the classroom during the lesson period. One station includes online learning and other stations can include activities for small group instruction, group or partner projects, individual tutoring, and pencil and paper activities (Horn and Staker 8). I chose the station rotation model for this study due to the confines of my classroom, time limits, and age range of my students. Many elementary students are already familiar with “centers” or stations in their regular classrooms. Transferring these centers to a music classroom is a logical step towards technology integration for my program and can “create something that performs better along the initial definition of what a good classroom is meant to do” (“Blended Learning in the K-12 Education Sector” 14).

The roles of teachers and schools are in a state of evolution. As we examine our current educational climate and look towards the future of schooling, we can see a transformative shift from simply sharing information to designing communities of inquiry where participants are actively engaged in deep and meaningful learning (Cleveland-Innes, Garrison, and Vaughan 2). The teacher in a blended learning environment is seen as a facilitator, collaborator, and director, rather than the “sage-on-the-stage” lecturer or “guide-on-the-side” online instructor. The Clayton Christensen Institute, a leader in the educational technology field, predicts that “hybrid schools, which combine existing schools with new classroom models, will be the dominant model of schooling in the United States in the future” (Christensen, Horn, and Staker 4).

Benefits of Blended Learning

The benefits of blended learning are best outlined by Heather Staker and Michael B Horn:

Learning is no longer restricted to the school day or the school year. Learning is no longer restricted to the walls of the classroom. Learning is no longer restricted to the pedagogy of the teacher. Learning is no longer restricted to the pace of an entire classroom (“Classifying Blended Learning” 6).

With content available wherever there is an Internet connection, students can continue their studies anywhere and at any time. Students can experiment with different learning styles and realize the method that produces the best results. Regarding traditional education, Vanderkam and Zinsmeister state that “the era of one-size-fits-all learning is over” (*Blended Learning*). Personally, I found blended learning so appealing in my situation because lessons can easily be

differentiated. Students who quickly understand a topic can be given enrichment or move on to the next skill or technique, while those who need more time to fully grasp a concept can receive additional support from both the teacher and an online resource or computer program.

As teachers, “we are given the task of preparing [students] for their future in a world driven by more advanced technology than we can imagine” (“Engage Your Students”). Effective music teaching, “supported by technology, can help prepare students to be musicians in a digital, electronic age” (Forest 37). Teaching with technology can also train students in the twenty-first century skills employers desire, including problem solving, communication, and collaboration. A blended educational approach will allow students to “exhibit a range of functional and critical thinking skills related to information, media, and technology” (“P21 Framework Definitions” 5). Technological skills can include how to efficiently search for information, how to collaborate with others online, and how to responsibly and safely use the Internet.

Another advantage of blended learning is that portions of a student’s experience can be self-guided; this directly relates to the twenty-first century skills of initiative and self-direction. Employers seek to hire those who are able to balance short-term and long-term goals, utilize time efficiently, and complete tasks without direct oversight (“P21 Framework Definitions” 6). While some activities in blended learning are differentiated for each student and completed independently, many blended classrooms (especially the station-rotation model employed in this study) plan partner or small group assignments to develop proficiency in collaboration, yet another twenty-century skill. Students must communicate with others and “exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal” (“P21 Framework Definitions” 7). Learning to work as part of a team is a skill that will last students a lifetime.

Oppositions to Blended Learning

“The problem with [blended learning] is that the term is amorphous, lacking any kind of clarity” (Oliver and Trigwell 18). My blended classroom will most likely look different from another teacher’s classroom. Although a few models exist, it is ultimately up to each individual teacher and administrator to determine what works best for his or her school district, school, and students. While one teacher may embrace blended learning, another teacher may be opposed, creating inequalities within the same school. Blended learning has yet to become standardized because it is a fairly new educational innovation, and many administrators and teachers are fearful of adopting a new approach when the processes and outcomes are still nebulous. Equally so, many argue that there is really no clear definition of so-called “traditional learning,” which usually refers to face-to-face education (Vanderkam and Zinsmeister). Young teachers who have grown up in the age of the Internet may use e-learning in their “traditional” methods, thus creating their own blended program (Oliver and Trigwell 19). It is therefore possible that many teachers are already teaching in a blended style, but might not realize that they are doing so.

Other arguments exist against the implementation of blended learning for elementary school students. Lack of funds, lack of teacher training, and lack of updated technology remain top issues for schools. Many schools apply for grants to obtain the latest technological equipment, but lack the funds for proper training and utilization, so the equipment sits unused until it becomes obsolete. Students and parents may dislike or be confused by one online learning platform, but may excel in another (Dziuban, Hartman, and Mehaffy 2), leaving student success in the hands of the administrators who decide which programs to use. Furthermore, teachers and parents “are often concerned about extending their students’ time using technology since they already seem to spend countless hours outside of school plugged in” (“Engage Your Students”).

For those students who do not have computer or Internet access at home, a blended learning environment may be inconvenient or could leave them academically and socially behind their peers who are able to complete assignments online outside of school hours.

The Benefits of Music Technology

The practice of utilizing technology in music education has been evolving with advances of the twenty-first century. Computers, tablets, and musical software programs have revolutionized the way that some teachers plan each lesson. Entire music technology classes and impressive musical computer labs have been built around these relatively recent developments, displaying the value that music teachers and administrators see in technology integration. Studies have shown that students who learn with music technology demonstrate rhythmic reading and pitch accuracy at earlier ages (Forest 38). More importantly, “students are having fun as they are becoming better musicians” (Forest 48). While “technology is not a panacea, and does not eliminate the need for skilled teachers and energetic administrators” (Venderkam and Zinsmeister), blended learning has the potential to combine skilled teachers with music technology and quality online resources in order to create a successful, innovative music program.

Applying technology in the music classroom can greatly enhance a student’s ability to create and perform music. One evident advantage is displayed in assessment; technology can make assessing students consistent, easier, and faster. Amy M. Burns, a leader in utilizing technology in the elementary music classroom, states,

a simple microphone can easily assist in assessment and create an environment in which your students enjoy feeling like famous singers...Students love to hear themselves when

a recording is played back, [and] you have a file saved on your computer that can be listened to later to assess your students (“Technology Motivates” 2).

When a parent or administrator inquires about a child’s progress, a file can be easily emailed or played for the parent as evidence. Additionally, musical computer games and websites can help students as they see, hear, sing, and play the desired pitch to earn points in a game to study note reading and ear training (Forest 37). Music technology also “allows shy students to engage in [classroom] activity” without having to sing or play their instrument as a solo in front of their peers (“Technology Motivates” 1).

Through music technology, “communication is almost instant [and] classrooms can collaborate with other classrooms in the same school or create communication platforms at the global level for enrichment, understanding, and development” (Pisano). Never has it been easier to connect with a composer, a performing group, or musical artist; students can interact with musicians on social media or speak face-to-face to music professionals in a video chat. Furthermore, partners can collaborate on a project (either in person or via the Internet) and then post it online for instant feedback from people all over the world.

Chapter 3

Project Design and Findings

Participants

Participants in this study were third grade students at Gwyn Nor Elementary School in North Wales, Pennsylvania during the 2014-2015 school year. According to the Pennsylvania Department of Education (2013-2014 school year), Gwyn Nor Elementary School is a suburban school with 85.7% of students scoring proficient or advanced in reading and 78.4% proficient or advanced in math. 15.6% of students are considered economically disadvantaged and 13.5% of students receive support in special education (Pennsylvania School Performance Profile).

Strings lessons are optional and free of charge, but students must lease or purchase an instrument for class. Economically disadvantaged students may borrow an instrument from the school to use for their first year of instruction. Students in this study received instruction on violin or viola for thirty minutes twice per week. None of the students had previous experience on a string instrument, but all students had participated in general music class for a range of one to three years. All students in both groups stated they had Internet access at home on a computer or mobile device.

Study Design

Ten students in this study participated in strings lessons in a traditional fashion, that is, without the use of websites, videos, or software (hereafter called the “traditional group”). Instructional methods included the “typical” way one learns an instrument: modeling, drill and practice, written assignments, and playing exercises from the strings method book *Essential Elements 2000 for Strings*. Blended learning was not utilized in this setting.

Another group of ten students received strings lessons aided by technology in a blended learning environment with the station rotation-model (hereafter called the “blended learning group”). Students watched online tutorials, collaborated with partners, visited music theory websites, and performed exercises with the SmartMusic computer program. Homework assignments encouraged students to access online videos as part of the learning process. Class time was divided between computer/online tasks, partner assignments, and small group or one-on-one work with the teacher.

Technological Resources

During this study, both groups had similar homework assignments with regards to playing exercises in the method book. Blended learning students were given additional assignments to watch instructional videos, visit music education websites, or play musical games online. Parents were encouraged to access the online content with their children and were asked to sign the homework when complete.

Students in the blended learning group were assigned one video each week to watch during class time or as homework. At the first lesson in the blended learning group, students watched an introductory care and maintenance video from www.schooltube.com, a video database similar to Youtube. Schooltube proudly calls itself “the nation’s largest K-12 moderated video sharing platform, specifically designed for students and educators” (Schooltube, Inc.). The video presented how to take the instrument out of the case and set it up to be played (Ceakley). Students later watched Youtube videos on reading musical notation (Dave Conservatoire and Nhjazzguitar) and proper bow hold (FMS Orchestra). Students in the traditional group were taught the same skills that were demonstrated in the videos, but accomplished their learning

through following written and verbal instructions and modeling. Traditional students were not encouraged to watch videos on any string instrument skills during this study.

Most elementary students are familiar with Youtube and are adept at searching and viewing videos. Watching videos can be helpful to students throughout the instrument learning process, as the teacher is not present when the children are practicing at home. The teacher in a video can often explain a topic in a way that makes more sense to the child, thus accounting for differentiated instruction. A video clip could remind students of something they had forgotten from class or even introduce a new skill. Additionally, students are able to pause or repeat any sections that need clarification or practice along with the video with their own instrument (which was highly encouraged in this study). Parents, who do not attend the strings class at school, remain informed about their child's lessons and skills through viewing the videos with their child.

One useful website employed in this study is www.musictheory.net. This site has animated lessons, exercises, and tools for musicians and music students. Many other musical websites offer similar activities, but one excellent feature of this site not found on many others is the ability to save note identification exercises to a permanent web link. The teacher can input the desired clef sign and note range on the staff and save the exercise for later use in class. This way, lessons can focus only on the notes students are expected to know and not overcomplicate note reading for young beginners. Notes are randomly generated on the staff and students receive one point for each correct answer. Study participants were able to practice the exercises at home and in class, thus increasing their note identification skills.

SmartMusic is a subscription-based software program used by students, musicians, and music educators around the world. Ultimately, the software can act as an accompanist, a practice

guide, and an assessment tool (Wetherill 3). While students play their instruments, the program assesses the performance by displaying correct notes in green and incorrect notes in red. David Wetherill, a middle school band teacher in Abington, Pennsylvania, has extensively studied and utilized SmartMusic in his classroom. He states, “by providing visual and aural feedback, the program enhances student learning (Wetherill 3). The program also allows the teacher or student to change the tempo, include a set accompaniment, or use an “Intelligent Accompaniment” feature that adjusts to the player’s speed in real time. If a student is unsure how to play a certain note, he or she can click on it for a fingering chart. According to their website, “SmartMusic features more than 30,000 solo and ensemble titles and over 50,000 exercises for woodwind, brass, string, and vocal musicians” (SmartMusic). Students in the blended learning group were able to use SmartMusic in correlation with their *Essential Elements 2000 for Strings* method book.

SmartMusic requires a paid yearly subscription. After the program is installed on a computer or tablet, students and teachers register with a username and password. The only other equipment needed is a microphone, which comes built into most laptop computers and tablets. For the purposes of this study, students were not required or encouraged to purchase SmartMusic to use at home. Instead, SmartMusic was used in the classroom as both a fun activity and an assessment tool.

Classroom Activities

Please see Appendix B for a comparison of unit lessons plans for each area of skill.

Students in both groups completed many of the same activities, but while the traditional instruction was teacher-centered, the blended learning instruction was student-centered. Students in the blended learning group rotated to stations in the classroom for small group activities with the teacher and with their peers. When participating in individual or small group time with the teacher, students reviewed a range of techniques including unpacking the instrument, drilling with flash cards, writing musical notation, and writing a checklist for appropriate playing position. Each student in the blended learning group was able to receive individualized instruction in holding the instrument, holding the bow, and playing with a beautiful tone.

When students collaborated with their peers, they worked together to help each other learn and improve. First, small groups documented the steps to unpacking the instrument by taking photos and then narrated their photos with verbal instructions. Students played the “Posture Police” game – one student in the group is the police officer and is responsible for giving tickets to students with errors in their playing position and posture. (Of course, the police officer also needs to help the student improve the position). Later, students helped a partner create the correct bow hold and playing position, then took a picture so that the teacher could give an assessment. Students also practiced saying note names and fingering in small groups, then played exercises together from the method book.

Students in the traditional group performed many of the same exercises, but with the teacher as the leader. For example, the teacher served as the Posture Police Officer rather than a student. Also, the teacher modeled proper bow hold and playing position for students as a class instead of being able to individually assist each student as in the blended learning setting. Students practiced most exercises as a whole class with the teacher leading the group of ten, rather than working on activities with small groups or a partner.

Assessments

Three identical evaluations were given to both groups from October to December in 2014:

- 1) Posture and instrument position
- 2) Bow hold
- 3) Playing exam

Students were graded with a point rubric for most of their evaluations, a method that is somewhat subjective and a possible limitation of this study.

While the teacher evaluated the students in the traditional group one by one, students in the blended learning group used collaborative time to take pictures of a partner's bow hold and playing position. The pictures were then sent electronically to the teacher, who evaluated each one according to a rubric (Appendix C).

In the area of playing position, students were awarded up to four points in four areas: Posture, left hand position, scroll position, and instrument position on the shoulder. The four skill areas were chosen for evaluation due to their importance to proper string instrument playing and body alignment. For example, if a student learns to play the violin with the wrist collapsed inward, spine curved, and scroll pointing down, the fingers are usually placed on the string incorrectly, creating out of tune notes. Holding the instrument correctly will also allow students to eliminate tension and focus on ease of playing, which can help students avoid the pain and soreness that sometimes occur when studying a new instrument (Horvath 4). Instrument position later affects proper tone production, vibrato, and bowing techniques, so it is vital that new players first master the correct posture before moving on to more difficult skills.

Students were next tested on using and maintaining a correct bow hold. Students were awarded up to four points in three areas: curvature of fingers, thumb position, and pinky placed on top of bow. Similar to the posture exam, these three areas were chosen for evaluation in order to promote proper tone production, flexibility, and freedom of movement. A proper bow hold can also eliminate future tension and pain from incorrect positioning (Horvath 41).

As a final culmination of their study, both groups played the piece “Morning Dance” for a playing examination from the Essential Elements for Strings method book series. Through playing this piece, students were able to display mastery of note reading on the D string and independent fingering.



“Morning Dance” (*Essential Elements 2000 for Strings, Volume 1; Pg. 8, #18*)

Students in the traditional group were graded on a four-point rubric in the areas of note accuracy, steady beat, tone, and intonation (Appendix C). The students in the blended learning group were graded on the same exercise using SmartMusic.

Chapter 4

Results

Please see Appendix A for full assessment data.

A pre-test was not necessary for this study, as all students were beginners to violin or viola at the start of the class. In the area of playing position, students were awarded up to four points in four areas: General posture (i.e. back straight with feet on the floor), left hand position, scroll position, and instrument position on shoulder. Each blended learning student scored an average of two points higher than a traditional student on his or her position evaluation. An increase of two points per student is marginal, but when comparing the classes as a whole, the blended learning group significantly outperformed the traditional group in the areas of general posture and scroll position.

Results in the bow hold examination were quite similar – each student in the blended learning group scored an average of 2.1 points higher than traditional students. Two significant areas of achievement in the blended learning group were proper thumb position and curvature of the fingers. Only 3/10 students in the traditional group succeeded in reaching the proper thumb position (earning a three or four on a four point rubric), compared to 8/10 students in the blended learning group. Likewise, 9/10 blended learning students achieved the proper curvature of the fingers needed for flexibility in contrast to 5/10 traditional students.

Interestingly, both groups scored similarly on the final playing exam, “Morning Dance.” Students in the blended learning group averaged 86.4% while students in the traditional group scored slightly higher at 93.8%. This was the only assessment where traditional students outperformed blended learning students, but the difference in scores is not significant enough to

discredit the blended learning approach. Students were also tested in two different ways, with the traditional students scored on a rubric (then converted to a percentage) and the blended learning students scored by SmartMusic. The variation in assessment methods could also account for the difference in scores.

Discussion of Results

It is believed this positive outcome of the blended learning group in playing position and bow hold can be attributed to the availability of correct modeling in the video homework assignments, close attention from the teacher in the one-on-one sessions, and activities in the partner collaboration rotation. Students in the traditional group were not encouraged to watch videos to help them perfect playing position or bow hold, thus relying on their memories from class and photos in the method book. While traditional students often received close attention from the teacher during class time, the comment was usually pointing out a missed skill, such as “Johnny, straighten your wrist” or “Suzy, feet on the floor.” Students in the blended learning group received support from the teacher regularly, so many missed skills were caught early before they became permanently ingrained bad habits. Additionally, lessons were easily differentiated for each student’s needs.

In general, I believe that SmartMusic graded more critically than a normal teacher would evaluate first-year students on the “Morning Dance” playing exam. Many students tested with SmartMusic played at an incorrect tempo, causing the program to count out-of-tempo notes as incorrect even though the tone and pitch were correct. Students in the traditional group did not have to play along with the computer program and were therefore not made to conform to the same tempo standard. While blended learning students scored slightly lower on the final

assessment, their playing position and bow hold was the superior of the two groups. It can be predicted that the increased performance of correct foundation techniques would cause the blended learning students to have better long-term success if this study were extended.

Finally, blended lessons seemed more fun and engaging for both the students and the teacher. Students in the blended learning group always appeared excited when they were chosen to use technology or work with their classmates. At least one student would ask to use SmartMusic or the iPad during almost every class. Students smiled and laughed more in the blended learning class as they worked with their peers. One unexpected result was that I developed a better relationship with these students as I worked with them one-on-one.

Study Limitations

One major restriction in this study was the size. Only twenty students were chosen for comparison. One would have to complete a much larger study to obtain more accurate results. This experiment also took place over a relatively short amount of time. It would be interesting to see the effect on students after a year or two of blended learning in the strings classroom.

As previously stated, another limitation was the somewhat subjective nature of the evaluation rubrics. SmartMusic, which I had originally hoped would remove subjectivity for the blended learning playing exam, sometimes picked up background noise (such as children walking in the hall or a rattling heating system) and graded it as an incorrect sound, which falsely lowered a child's score and forced the child to retake the test for accuracy.

Impact on the Teacher

As the instructor, I enjoyed teaching in the blended learning environment. The variety of classroom activities during the blended lessons revived my teaching and allowed me to be more creative in lesson planning. I had been getting bored with some of the traditional methods that I had been using throughout my career and it was energizing to research new techniques and technologies to help my students.

Assessments were much easier to complete in the blended setting. In my past teaching and in this year's traditional group, I had to take valuable class time to evaluate each student individually, which sometimes created discipline issues from the other unsupervised students. Conversely, every student was actively engaged during the bow hold and playing position exams of the blended learning group. Once students were able to operate the iPad camera and electronically send the photos of their partner's playing position and bow hold, I was even able to evaluate the photos at my leisure outside of class. Although the students and I had a few problems with extraneous noise and correct tempi on the SmartMusic program recordings, I still support the use of SmartMusic for practice and assessment. In my future research, I plan to recommend SmartMusic to students for their home practice assignments.

While I enjoyed teaching in the blended style overall, organizing the blended lessons each week took a great deal of preparation and planning. Technology equipment had to be signed out, partners and groups needed to be assigned, and students had to be instructed on how to use the technology, all which took longer than expected. Our school district limits strings to two thirty-minute lessons per week, but I believe that forty-five minutes would have been a more manageable amount of time to fit in the blended learning rotations.

It was also difficult to conference with students one-on-one while other students needed assistance with technology or had a question about partner work. Classroom management was a challenge partially due to the station rotation model, but partially due to the classroom dynamic. All students in the blended learning group came from the same homeroom teacher, who admitted that her class was talkative and had many behavior issues. It is possible that my results could have been even better with a different selection of participants. Most research on blended learning has been done at the secondary or collegiate level for good reason; elementary students usually need more guidance than their older peers. A co-teacher to assist with supervision and student questions would make it easier to implement blended learning at the elementary level.

The results of this study were favorable as expected – students in the blended environment performed better on two out of three assessments. Blended learning assisted the students in making a deeper connection to the material and kept them engaged throughout the lessons, leading to increased student achievement. For these reasons, I definitely plan to utilize blended learning in my future teaching, but not as frequently as during this study due to the aforementioned constraints in my current position. As Oliver and Trigwell point out, many teachers use e-learning in combination with traditional methods, thus creating their own blended program (19). I hope to find a balance of traditional and blended teaching styles in order to best serve my students in the future.

Appendix A: Comparative Evaluation Data

Evaluation #1: Posture

Blended Learning Group

Student Number	Posture	Left Hand Position	Scroll Position	Instrument on shoulder	Total (___/16)
1	4	3	4	4	15
2	4	3	4	4	15
3	4	2	4	4	14
4	2	2	4	1	9
5	4	1	3	2	10
6	4	1	4	4	13
7	3	1	3	2	9
8	4	2	4	3	13
9	4	3	4	4	15
10	4	2	4	2	12
Total	37/40	20/40	38/40	30/40	125/160
Average individual score					12.5/16

Traditional Group

Student Number	Posture	Left Hand Position	Scroll Position	Instrument on Shoulder	Total (___/16)
11	4	4	4	4	16
12	4	4	4	4	16
13	1	1	3	4	9
14	4	2	4	1	11
15	4	1	2	2	9
16	1	1	2	1	5
17	4	2	2	1	9
18	1	2	2	4	9
19	3	2	3	1	9
20	2	2	4	4	12
Total	28/40	21/40	30/40	26/40	105/160
Average individual score					10.5/16

Evaluation #2: Bow Hold

Blended Learning Group

Student number	Curvature of fingers	Pinky placed on top of bow	Thumb position	Total (___/12)
1	4	4	3	11
2	4	4	4	12
3	4	4	4	12
4	4	1	1	6
5	4	2	4	10
6	4	4	4	12
7	4	4	4	12
8	2	2	1	5
9	4	4	3	11
10	4	3	3	10
Total	38/40	32/40	30/40	100/120
Average individual score				10/12

Traditional Group

Student number	Curvature of fingers	Pinky on top of bow	Thumb position	Total (___/12)
11	1	1	4	6
12	4	4	4	12
13	4	2	2	8
14	3	1	1	5
15	2	4	1	7
16	1	1	1	3
17	4	4	4	12
18	4	4	1	9
19	4	3	1	8
20	4	4	1	9
Total	31/40	28/40	20/40	79/120
Average individual score				7.9/12

Evaluation #3: Playing Exam

Blended Learning Group

Student Number	Score
1	84%
2	100%
3	100%
4	78%
5	88%
6	73%
7	91%
8	68%
9	93%
10	89%
Average Score	86.4%

Traditional Group

Student Number	Score
11	94%
12	100%
13	100%
14	94%
15	75%
16	81%
17	94%
18	100%
19	100%
20	100%
Average Score	93.8%

Appendix B: Unit Plan Outline

	Blended Learning Group			Traditional Group
	Peer-to-peer collaboration	Individual time with teacher	Use of Technology	Classroom Activities
Care of Instrument	<ul style="list-style-type: none"> • Document steps with a partner (photos) • Teach a partner how to unpack the instrument 	<ul style="list-style-type: none"> • Practice unpacking with teacher • Rest position • Walking with instrument 	<ul style="list-style-type: none"> • Video • Students take photos on iPad 	<ul style="list-style-type: none"> • Modeling • Practice with teacher • Directions in method book
Playing Position	<ul style="list-style-type: none"> • Posture Police game with partner • Document playing position with a partner (photos) 	<ul style="list-style-type: none"> • Practice with teacher • Create position checklist 	<ul style="list-style-type: none"> • Video • Students take photos on iPad – send to teacher for eval. 	<ul style="list-style-type: none"> • Modeling • Posture Police game • Pictures in method book
Notes A and D	With a partner: <ul style="list-style-type: none"> • Say note names • Say fingering • Pizzicato 	<ul style="list-style-type: none"> • Write notation on staff • Play A and D with teacher supervision • Review flash cards 	<ul style="list-style-type: none"> • www.musictheory.net note reading game 	<ul style="list-style-type: none"> • Read notation from method book • Point and say note names and fingering • Drill and practice
Notes E, F#, G	With a partner: <ul style="list-style-type: none"> • Say note names • Say fingering • Pizzicato • Play <i>for</i> a partner while partner evaluates 	<ul style="list-style-type: none"> • Write notation on staff • Play E, F#, G with teacher supervision • Review flash cards 	<ul style="list-style-type: none"> • SmartMusic 	<ul style="list-style-type: none"> • Read notation from method book • Point and say note names and fingering • Drill and practice
Bow Hold	<ul style="list-style-type: none"> • Compare bow holds with a group • Assist group members in correct bow hold if necessary • Document bow hold with a partner (photos) 	<ul style="list-style-type: none"> • Practice with teacher • Create bow hold checklist 	<ul style="list-style-type: none"> • Video • Students take photos on iPad – send to teacher for eval. 	<ul style="list-style-type: none"> • Modeling • Pictures in method book
Tone Production	<ul style="list-style-type: none"> • Help a partner achieve a good tone 	<ul style="list-style-type: none"> • Practice with teacher 	<ul style="list-style-type: none"> • Smart Music 	<ul style="list-style-type: none"> • Modeling • Trial and error

Appendix C: Student Assessments

Playing Position Rubric

Assessment Category	4	3	2	1
Posture	Seated on edge of chair with feet on floor and spine aligned	Performs with one error in posture – seat, feet, or spine	Performs with two errors in posture – seat, feet, or spine	Performs with disregard for proper posture
Left Hand Position	Wrist is away from neck of instrument; thumb is placed in line with first tape	Wrist is slightly collapsed due to incorrect thumb position	Wrist is collapsed almost to the point of touching the instrument due to incorrect thumb position	Wrist is collapsed inward to the point of touching instrument; disregard for thumb position
Scroll Position	Scroll is parallel to the floor over left knee	Scroll is slightly positioned to the left or right	Scroll is positioned slightly too high or too low	Scroll points towards floor
Instrument on Shoulder	Instrument is fully supported between jaw and shoulder	Instrument is partially supported between jaw and shoulder	Instrument is played slightly off the shoulder and is not supported by the jaw	Instrument is played on the chest and is unsupported while playing
Score				

Scores:**15 – 16 Advanced****11 – 14 Proficient****7 – 10 Basic****4 – 6 Below Basic****Final Score: _____****Recommendations/Comments:**

Parent's Signature: _____

Bow Hold Rubric

Assessment Category	4	3	2	1
Curvature of fingers	Fingers are flexibly curved and angled toward bow tip	Fingers are slightly curved and angled towards bow tip	Fingers are rigid and may or may not be angled toward bow tip	Fingers curvature is awkward or non-existent
Pinky on top of bow	Pinky is rounded and placed on top of bow stick	Pinky is straight or flexed, but is placed on top of bow stick	Pinky reaches over or under bow stick	Pinky is not placed near bow stick
Thumb position	Thumb is placed between bow stick and horse hair, next to frog with bent thumb	Thumb is placed between bow stick and horse hair, next to frog with straight thumb	Thumb is placed between bow stick and horse hair, next to frog with flexed thumb	Thumb is not placed between bow stick and horse hair, or is not placed next to the frog
Score				

Scores:
11 – 12 Advanced
9 – 10 Proficient
6 – 8 Basic
3 – 5 Below Basic
Final Score: _____
Recommendations/Comments:

Parent's Signature: _____

Beginning Strings Performance Rubric

(Used by traditional group; Blended learning group was evaluated using Smart Music)

Assessment Category	4	3	2	1
Note Accuracy	Performs all notes as written	Performs with very few notation mistakes	Performs with several notation mistakes	Performs with many incorrect notes
Steady Beat	Performs at exact tempo marking with a consistent steady beat	Performs at approximate tempo marking with a mostly consistent steady beat	Performs with several deviations in steady beat	Performs with many stops and starts demonstrating no steady beat
Tone	Always performs with a full tone	Performs mostly with a full tone	Occasionally performs with a full tone	Rarely performs with a full tone
Intonation	Performs all notes with accurate pitch placement	Performs most notes with accurate pitch placement	Performs several notes with inaccurate pitch placement	Performs with a lack of regard for pitch placement
Score				

Scores:

15 – 16 Advanced

11 – 14 Proficient

7 – 10 Basic

4 – 6 Below Basic

Final Score: _____

Recommendations/Comments:

Parent Signature: _____

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