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MusicianMaker An App for Teaching Musicality to Beginners

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A Capstone Project Submitted in Partial Fulfillment of the
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Honors Capstone Project in Music Education

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Abstract

The purpose of this paper is to support and defend my senior capstone project, which takes the form of an educational app for iPad called *MusicianMaker.* The paper is split into two main sections: a rationale for the necessity of the app, and a justification for the educational benefits it provides. Over the course of my undergraduate career I have studied available resources for music education and found a disappointing majority that make no attempt to teach musicality. Teachers and scholars debate that music learning is either absolute or relativistic, but regardless of their opinion I have found no pedagogy that focuses on musicality and self-expression in beginner instrumental music. Instead, technical proficiency is the frequent concern for musicians and their teachers. *MusicianMaker* was conceived as a fun way to fill the gap in a young musician's education through the use of technology; the app allows young students who have not attained technical proficiency to work on their musicianship by giving them control over a character's musical decisions. I chose to use recordings from the public domain that represent 20th-century American cities in order to teach players the history of performance traditions in this nation in addition to the musical skills they display so clearly. I defend my music selections through in-depth research on each composition that explains its historical and musical significance. Finally, I address possible uses for *MusicianMaker* in a variety of settings in hopes of inspiring other music teachers like myself to use the app or at least to see the importance of teaching musicality to their beginner students.

Executive Summary

Project Significance

This capstone project is in the form of an app for the iPad, entitled *MusicanMaker,* along with an accompanying text detailing the rationale for the project, how it was constructed, and suggestions for implementation. From an educational standpoint, the goal of *MusicianMaker* is to begin the process of making musicians out of the players. The app is designed to develop musicianship in the beginner instrumentalist—the knowledge and practice of musical expression and sensitivity. Music education is divided between teaching technique, or which notes to play, and musicality, or how to turn those notes into music. Typically public school and studio teachers introduce concepts of musicality to beginner musicians, but do not develop them heavily until late middle or even high school; my target age range is 9-13. My goal is to expose the user to pieces of American music, while teaching them terms and ideas central to musical literacy, all while using relevant modern technology through this game.

MusicianMaker is a fantastic way to get kids interested in learning about music. Beginner musicians are often forced to focus on meeting the technical challenges of playing an instrument, rather than presented with opportunities to grow musically—our version of "teaching to the test", so to speak. This game offers students a chance to build their musical vocabulary and take ownership over how their performances sound. The app store has a handful of games or activities for teaching note-reading skills, but nothing like this app yet exists. The idea that musicianship can be taught to young children has not reached the field of

independent learning through technology. The main appeal and educational value of this app come from developing what is currently a deficit in beginner music education and turning it into a strength. As adults, we experience music through the emotional response it evokes in us, whether performing or listening. This app is meant to teach children the skills to do the same.

Project Description

MusicianMaker is an app that encourages beginner musicians to explore musicality by controlling aspects of a character's performance at venues across the United States. Although I hope to develop additional songs, locations, characters, instruments, and aesthetic details for the app in graduate school and beyond, the scope of my capstone project is limited to a more basic product. The current prototype contains sample songs played by a singular character on his trumpet; my reflective essay details more extensive plans that will be developed after the submission of the project and supports the prototype with research and explanation.

Thus, the concept for *MusicianMaker* has been fully developed for my capstone project: I have detailed the musical requirements for five songs representing five cities across the United States.[1] Each city is represented by a different type of music, which users must perform with accuracy and musicality in order to earn money and move to the next location. As they travel on the tour, players earn money to upgrade their character, vehicle, and instrument. The goal

[1] See Image 8 in Appendix C for an example map.

for the player is to perform the song with one of five musicality skills (form, dynamics, rhythm, articulation, or phrasing) through some kind of player interaction with the iPad. Players might blow into the microphone on the device, shake it, or tap on screen to produce the desired effect.[2] In the basic prototype, the details are more limited; I am working with a developer who can upload content only at his own pace, so there are fewer songs and features than in my plans.

To meet my capstone requirements, I am submitting not only a storyboard and prototype of the app, but also a reflective essay containing the bulk of my research, explanation, and justification for *MusicianMaker*. The playability of my app prototype is made possible entirely by the team of staff and students from SU's Information and Technology Services (ITS) who assisted me with technological aspects of constructing the app that are beyond the scope of this project; however, the concept, game flow, musical selections, and every other aspect of the app's rationale is a product of my own creativity. To best understand *MusicianMaker* and how to use it, one should consult both my reflective-research essay and the suggested unit plans it contains.

Methods Used

For this Capstone project, I sought to construct an app in a short time-frame and on a manageable budget. I selected only recordings manufactured by Thomas Edison, from the collection held in the Belfer Audio Archive, because they are among the few commercially produced recordings that are freely

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[2] See Image 6 in Appendix C for screen shot of player instructions.

available for use in the public domain. This adds an amazing historical element to the game, by exposing players to recording technologies and performance aesthetics from 100 years ago, as the Edison recordings date from the 1890s to the late 1920s. I have partnered with Dr. Jenny Doctor, the Belfer's Director, on her initiative to make the Belfer recordings more accessible to public school teachers and students by highlighting them in my project. This collaboration between the Belfer Archive and my app employs the current trend in public education for cross-curricular unit plans, the demand for educational games and activities in the app store, and Syracuse University's commitment to public school education. The app is a testament to the kinds of communication and collaboration favored in American businesses and schools, as it required the input of multiple content-area experts to create a cross-curricular project.

In my individual portion of the project, research intertwined with my own existing content-area knowledge. I started with a broad approach to addressing beginner musicianship and narrowed my focus to the skills I thought were most important and appropriate to teach young students. Because the app is meant to serve as one tool in a teacher's arsenal, it was a lesser priority to support my decisions with research from pedagogues—no one will be forced to use *MusicianMaker*, so the main market of teachers adopting it will already agree with my educational views and have enough background knowledge to understand the program. My main concern was that I supplied ample research on the validity of the recordings I selected and provided a strong justification for the app in a variety of educational settings. In this way, the essay that accompanies

MusicianMaker is user-friendly; it is designed to assist the educator in finding a way to adapt the program to fit the needs of her classroom, and it explains the significance of early 20th-century recordings for developing musicianship.

Educational Goals

MusicianMaker, when used alone, meets three National Standards for Arts Education[3] and two New York State Learning Standards;[4] used in a lesson plan, it meets many more, which makes it extremely applicable to both classroom and private educational settings. Classroom music teachers could use the game as the basis for a unit plan that studies musical origins around the country; or, private teachers could use it simply to get kids excited about participating in music. The accompanying suggestions for implementation outline basic unit plans that incorporate *MusicianMaker* in project-based learning objectives, both for the traditional music classroom and for alternative classes. American schools are increasing their focus on literacy and comprehension, and *MusicianMaker* addresses that concern through the introduction of musical vocabulary, syntax, and discourse concepts. Users learn about staff navigation, the rehearsal and performance processes, musical sentences, and more through the app. In addition, it provides an authentic opportunity to use technology in the classroom. As our school systems shift toward learning objectives that span multiple areas of study, *MusicianMaker* was designed as an interdisciplinary teaching tool that can be

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[3] *6.Listening to, analyzing, and describing music, 7. Evaluating music and music performances,* and *9. Understanding music in relation to history and culture: National Standards for Arts Education.*

[4] *1. Creating, Performing, and Participating in the Arts,* and *3.Responding to and Analyzing works of Art: New York State Learning Standards for the Arts.*

used to connect music to history, social studies, and technology. The possibilities for the app go far beyond the limitations of my capstone project, and it is something I will continue to improve and publish after graduation. My goal is to appeal to the widest possible market of teachers, learners, and music lovers.

Conclusion

My hope is that *MusicianMaker* will acquaint beginner musicians with an important skill set and inspire music programs around the country to incorporate musicality in their curricula. It is a teaching tool that could easily impact the musical growth of our students and supplement traditional instrumental teaching practices. It is a sad reality that many school music programs have unintentionally separated musically gifted students from the rest of the class by favoring their advanced performance so heavily that the 'average' students quit their instruments. I believe that musicality is a skill that can be learned by all students, and it is the music teacher's responsibility to ensure musical success for each student. I created *MusicianMaker* as an alternative method to teaching musicality, in which students who have been unsuccessful on instruments can still learn to engage with expressive qualities and begin to make musical decisions of their own. Regardless of the popularity of the app in the future, I know it is a tool that I will use with my own students one day; if *MusicianMaker* can help even one student to better enjoy his musical experience, then I will consider it a success.

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Acknowledgements

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Completing a capstone project is never an individual effort, and I have been so fortunate to be able to work with talented students and faculty across this campus to be able to present this paper and my app. Without their hard work, along with the encouragement from my friends, family, and school, *MusicianMaker* would never have been possible.

Introduction

Picking a capstone topic was a short and sweet process for me that began in the beginning of my freshman year of college at Syracuse University; I knew I wanted to study the components of a comprehensive music education program and examine how public school music programs incorporate musicality in that program. The very first reason I became interested in studying musicality came from a personal experiences with the primary text for public school music classrooms—the method book. I progressed through Suzuki, Essential Elements, Rubank, and more; I learned scales, modes, and positions in the quest for flawless technique and luxurious tone. I played in regional groups, pit orchestras, and solo festivals thanks to my hard work in the practice room. But until my enrollment at Syracuse University as a Music Education major, I was never required to learn musicality, theory, history, or ear training to progress as an instrumentalist. Thankfully, I had the foresight to take theory and composition classes offered by my high school in addition to serious private lessons that taught me to play with expression and interpretation; but the point remains that my instrumental success in my public school career was attributed solely to technical proficiency. Starting college and watching peers struggle with the aforementioned topics was a wake up call for me. I asked around, collected informal data to satisfy my own curiosity: did anyone learn musicality in school? In the uncomfortable silence that followed my inquiries from that first semester on campus, I had found the focus for my capstone project.

Defining Musicality in the Context of Public School Education

Musicality has always been an exclusive term, reserved for the most accomplished musicians and magical performances; it differentiates students from teachers, novices from experts, and mediocrity from superiority. It is the goal we strive for as musicians—to hear that our interpretations of Bach were especially moving, or that our cadenzas were expressive and passionate. Despite its unmistakable value, the definition of musicality is completely unstandardized and often extremely subjective. *The New Grove Dictionary of Music*, one of the most reputable and frequently used resources for musicians, does not list a definition for musicality, and even definitions provided by non-musically affiliated sources are sparse. In the absence of a clear definition, individuals have paraphrased their own renditions of the term across the globe with connotations that range from "tasteful performance" to "talent in music." Perhaps due to the inconsistency in meaning, or perhaps as a result of our own timid understanding of it, the concept of musicality has developed an elevated reputation among musicians and audiences alike.

Music teachers around the country, and the world, struggle with incorporating musicality into our curricula, not only because of the ambiguous definition, but also due to the controversy concerning its origins in students. There are two schools of thought on musicality in students: either that it is biologically inherent or that it is a product of a student's environment. One study published in the Summer 1999 issue of the *Bulletin of the Council for Research in Music*

Education found that these two viewpoints represent *absolute* or *relativistic* theories; the former is categorized by innate, measurable musical achievement while the latter denotes acquired, creative musical experiences. Most music teachers in the study believed that musicality consists of a combination of absolute and relativistic views, which gives naturally talented or musically fostered children an advantage in the classroom.[5] With children coming to our classrooms from diverse backgrounds and at various stages of musical development, Brändström points out that it is all too easy to acknowledge the inherent musicality in gifted children without bothering to nurture the learning environment in which to create musicality for all students. Brändström shows that teachers are willing to acknowledge the musical potential in students, but the study does not specify whether the teachers actually followed a relativistic approach in their classrooms at the time of this study. Regardless of the results, Brändström shed light on the fact that musicality was not being taught effectively in schools during the 1990s due to controversial beliefs and general ignorance on the matter.

Don Coffman, head of music education at the University of Iowa, published an article in the Spring 1999 issue of the same journal in which he addressed a similar concern with lack of musicality in standard music curricula. He claimed, there is a "discontinuity between pre-formal and formal music learning (school music)" that interrupts the development of musicality in

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[5] Brändström, 22-3.

children.[6] When students learn music at home or in private educational contexts, musicality is often recognized and praised. In public school education, the focus shifts and teachers seek to impart knowledge on their students in the form of facts. Coffman explained that when musicians are asked to perform with emotion, they "rely on virtually all musical elements [including] tempo, dynamics, intonation, and timbre."[7] By isolating the elements that make up musicality, Coffman asserted that we have all the tools and knowledge necessary to teach it. If this is true, then Coffman proved that teaching students to break down components of musical knowledge in order to create, manipulate, analyze and evaluate musical products is teaching musicality. His work, though published a few months earlier, adds on to assertions made in Brändström's study: not only is it possible to teach musicality to anyone according to the relativistic theory, but there are concrete elements of music that should be standardized in public education in order to do so.

Bennett Reimer, an established and respected philosopher, added to the discussion by differentiating musicality from musical intelligence; he used the phrase *musical intelligence* to represent innate talent, while musicality applies to teachable skill. Reimer was a well-known advocate of music education who believed that the two possible methods of teaching music are to teach "the technique as a means for achieving expressive performance [or to teach] technique as an end;" of the two, he heavily prefers the former.[8] His definition of

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[6] Coffman, 2.
[7] Coffman, 2.
[8] Reimer, 169.

musicality is a compilation of exposure to music history, criticism, and aesthetics; one component alone does not constitute musicality, but rather engaging with them together will "enhance the breadth and depth of musical perception and therefore the power and subtlety of [the] musical affect" for which we strive.[9] Reimer supports Coffman in identifying the aspects of musicality that will make them accessible to students of all levels in public school.

The interesting thing about my research on musicality is that the aforementioned studies are some of the only accessible texts that directly address the subject—and they were all written in the 1990s. The end of the 20th century was a time of economic and social stability, allowing specialists in each field to focus on growing their industries (even public education) into the best possible products for both workers and consumers. As the 21st century began and international competition was on the upswing, 'testing and assessment' became the hot new phrase in education; the enactment of *No Child Left Behind* in 2001 that expanded state-mandated testing, the increased popularity of advanced level tests such as the AP or SAT II, and the recent adoption of *Common Core Learning Standards* are just a few examples of the assessment-based trends in American education.

As schools narrowed their focus and started to 'teach to the tests,' music programs suffered drastic changes; in the past decade especially, music programs struggled to find funding to meet the increasing demands of parent groups and government standards. The music programs that survive a district's cuts and

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[9] Reimer, 31.

reductions are now forced to adopt the same standards as ‘core’ classes by administering tests and assessments frequently in the classroom. In New York, the Annual Professional Performance Review (APPR) teacher evaluation system enacted in 2010 assesses teacher performance in part based on their students’ growth on state assessments.[10] For music teachers, this means cutting down on “unnecessary” content—content that is immeasurable or subjective—to make room for knowledge-based facts that can be assessed on paper every few months. Musicality, the expression and passion that turns notation into art, has been replaced in the curricula by a more vigorous study and rote memorization of the details of that notation. As a result, there is not only a shortage of research conducted in this decade that concerns musicality, but also a shortage of school music programs that are still including it in their curricula.

Consuming Musicality

As we continue to push for more testing and measurable growth and we remove our students further and further from acquiring musicality, we limit their ability to appreciate and understand high-quality music, as well as their ability to create it. It is no secret that classical music declines in popularity every year; dozens of professional performing ensembles have declared bankruptcy in the past few years alone. Popular music today includes hip-hop, electronica, country, rock, jazz, and everything in between. Each genre has a unique set of characteristics and draws in a diverse audience; but despite their differences, the current trend is to edit recorded music extensively before releasing it to the public.

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[10] “Annual Professional Performance Review (APPR).”

While these 'processed' forms of music are artistic in their own right, they are often made of unrealistic components—they cannot be performed in real time. It can be hard enough for young musicians to develop their own artistic sensibilities, but it becomes nearly impossible without appropriate role models in the music industry recording live, imperfect tracks. Learning a skill like musicality requires exposure to modeling, guided practice, independent practice, and finally the transfer of skills.[11] A musician's rehearsal process is rarely documented, and professional quality, live performances are a rare treat for anyone. Without suitable modeling or a supportive public school program, it seems we are leaving the development of musicality in beginners up to chance.

Despite the absence of educational programs that attempt to teach musicality, the 21st century has brought with it an outpouring of music-related products in the media. In the late 1990s, MTV and VH1 were among the most popular channels on American television and the music video industry was worth millions of dollars. Making mix tapes and collecting CDs was a common teenage pastime, and eventually the video game industry took advantage of the trends with music-related games like *Just Dance, Rock Band, Guitar Hero, Karaoke Revolution, Wii Music* and *DJMax*. Talent competitions soared to the top of the charts when *American Idol* premiered in 2002; by its second season on the air, 38 million viewers tuned in for the live finale.[12] Similar shows emerged soon after, from *The Voice* and *The X Factor,* which focused on raw vocal talent, to the more

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[11] Fisher and Frey, "Better Learning Through Structured Teaching."

[12] "Top 20 Most-Watched TV Programs in 2002-03."

loosely related concepts of *Dancing with the Stars* and *America's Got Talent.* In theaters, audiences have been enthralled with the music of *August Rush, Rent, Pitch Perfect, Wicked, Les Miserables* ... the list goes on and on. No matter where you look in the media, music is frequently a focal point.

Apple alone has propelled America's consumption of music tremendously through their release of iTunes and the original iPod in 2001. Since then, a plethora of mp3 players, music downloading software, and even new creations called 'apps' have taken our culture by storm. Today, sound recording and mixing technologies are wildly popular with everyone, from aspiring DJs to casual users of the built-in Garageband program on any Mac computer. The invention and popularity of Youtube continues to inspire singers and songwriters to post their music and to listen to peer performances. There are dozens of musical influences in the life of every American citizen on a daily basis, and this short summary barely scratches the surface. Simply stated, music has always been at the heart of American culture, but now more than ever music and music-related products are accessible to us with only the touch of a button.

Literature Review

With so many products competing for an audience, it may seem redundant to come up with another musical game-type app; but my observations and research into the deficits of music education were not the only motivating factor to create an app. After an extensive review of current products, I could find very few sources with a focus on teaching the player a musical concept, let alone on teaching him musicality. Throughout the development of this project, I was able

to create a list of music-related programs as I hunted for those that addressed musicality (see Appendix A). It may be hard to believe that the list I assembled is not a full summary of every music-related program available, but only a compilation of technology-based tools in which the main focus is to teach or explore music. I chose to filter out the programs designed as music players, organizers for music libraries, lyric generators, track and artist information finders, and the multitude of other programs without an interactive component. The internet is full of products aimed at casual listeners; in order to condense the list and have the time to look into the details of each program on it, I needed to narrow my focus.

After I collected any program for which I felt the main audience consisted of musicians or future musicians, I categorized the apps, games, websites, and other technological programs based on the musical content they contain. I found that most music technologies are aimed at either extremely young children with no musical experience or advanced/expert musicians.[13] There are a small number of exceptions to the trend, and consequently I consider these to be the most notable technology-based resources in music education. These few programs are representative of the market for which I aimed my project, because they fit the following criteria:

- They are meant to be used in conjunction with another form of music education as a tool or supplement, not only as a tool for independent learning.
- They provide more than one function and/or can be used more than once by the same student.

[13] See Appendix A.

- They can be used in a variety of learning environments and can be educational for a variety of learners.
- They are accurate in depicting music both aurally and visually: they model accurate musical notation, vocabulary, pitches, instrument sounds, rhythms, etc.

By no coincidence, the programs that fit my criteria are the most popular and widely used on the list; none of the other programs I discovered in my literary review even came close to providing the opportunities for learning in the way that these programs do. They are listed in order of importance, and represent nearly every category of music education technology available.

Notation Software

In my opinion, the absolute best and most versatile tool for teaching music is a good piece of composition software: Sibelius, Finale, and Noteflight are all good choices. These programs can be used to create, transpose, arrange, and print out music for any specific notation needs in the classroom, and they can even be used to create worksheets. These programs serve as a composition tool, but can also teach theory with the assistance of a teacher. My favorite part of using any music notation software is that it allows students to input notes and listen to them in real time; students can hear their creations come to life and listen to the effects of changing tempo, key, instrumentation, or any other aspect of the performance.

Ear Training Software

Next on my list of great pieces of music technology would be ear training software, such as Auralia. I like Auralia because it is easy to use and comprehensive; there are easy exercises and incredibly difficult ones, and

students can adjust the variables to make a course that fits their needs. I prioritize ear training above other skills because I think it is the most difficult to teach and the most distinctive in terms of student progress and comprehension. Covering intervals, chords, intonation, and more, I think Auralia is the perfect way to diversify an instrumental or choral rehearsal class if there are enough computers for each child. It teaches skills within the program, but can be easily adapted to a lesson in which full class involvement leads the group to learn together. Being a good listener is essential to being a good musician, and I really feel Auralia would improve my students' listening skills in a way that is easy to use and fun.

Music Exploration Software

Garageband is a wonderful tool for incorporating technology in music education, and one that I would use to promote creativity and composition. The benefits of the program are its price (free on apple computers), versatility, and initial ease of use. I love that you can sit down and just start moving tracks together to create a song! However, creating something specific on Garageband can be very difficult; not all tracks will play, loops are in different keys that do not sound good together, and there are no instructions within the program.

I include Garageband on this list because it is a free app and there are dozens of possibilities for using it in the classroom, but I am hesitant to recommend it too strongly; to teach with it most effectively, teachers would need to take a course on using Garageband, available in the app store, online, or in person. If the program can be so complicated that the teacher needs a class on

how to use it, kids are sure to struggle with the program. I think for the right teacher and an intelligent, mature group of students, Garageband could be a powerful teaching tool. For everyone else, the purpose of using it would be limited to exploration and simple song construction.

Musical Accompaniment & Assessment Software

SmartMusic is perhaps the biggest name in music technology today, earning it the final spot on my list of favorite educational technologies; it is a program for a computer, SMART board, or iPad that focuses on providing immediate feedback for student performance. Students can perform assessments that SmartMusic will grade and record, look up information or new music, and hear their part in context with a full accompaniment. It is compatible with Finale, making it highly customizable and cohesive if the teacher uses both programs. MakeMusic, Inc. is the company that produced both programs, and it consistently receives recognition and awards; this year, it was the winner of the *2014 TI:ME Award for Outstanding Contributions to Technology in Music Education.*

SmartMusic is an excellent option for a school with a strong technology department and a high budget, but I recommend using it only in moderation. The purpose of SmartMusic is to score a student's performance objectively by comparing the audio recording of his performance to a file in the program. Because it disregards visual evidence of good playing and often deducts points for the performer's musical decisions (ornamentation, changes in tempo, dynamics) the program alone disregards musicality. For this reason, I would only purchase a

subscription to SmartMusic if I knew I would have the time to use the program during the school day in addition to my standard means of teaching and assessment. If SmartMusic is not an option for a school or its students, Cadenza is a less expensive app with similar benefits. Since it gives students a chance to hear their solo work with a responsive orchestral accompaniment, the app is great as a practice motivator or a solution for students who cannot find an accompanist, but really needs to be used in a private studio or in the home to be effective. There are limited repertoire choices, and as a violist I was less than impressed to see only one concerto available for my instrument. But Cadenza is a new app, and something to keep an eye on as a potential must-have for the music classroom in the future.

Programs on Musicality

The aforementioned programs are at the height of popularity in music technology right now, and rightfully so—they all provide something different and exciting for students in the classroom. But in my research, I found no programs whose main focus is to teach musicality, let alone teach it to beginners. Teachers can use notation software to insert dynamics or phrase marks, but the program does not teach the importance of these aspects of music making. SmartMusic actually works against the goal of musicality; it deducts points from the total score for unanticipated pauses, extreme dynamics, or pitch alterations such as vibrato or slides. An app that teaches musicality and the role it plays in live performance would fill an unexpected gap in the field of educational technology.

Project Description

MusicianMaker is the program I designed to fill that gap. It is an app that teaches musicality concepts to beginner musicians by allowing them to determine the musical qualities of an on-screen instrumentalist who is performing at venues across the United States. Though the prototype is a simple version of the game, the concept for *MusicianMaker* has been fully developed for my capstone project: the game-type app allows players to choose a character, a tour bus, and a primary instrument that they use to travel the United States and perform concerts in major cities. Each city is represented by a different type of music: a Broadway show tune in New York, a traditional march in Chicago, blues in St. Louis, a waltz in Atlanta, and a folk song in Hawaii. Each city is represented by one song, which players must perform with accuracy and musicality in order to earn money and move to the next location. As they travel on the tour, players earn money to upgrade their character, vehicle, and instrument. The goal for the player is to complete the song for each city with a near-perfect score and to purchase as many additional songs, characters, and instruments, and other variables as are available in the finished app. In the basic prototype, the details are more limited; the goal is to pass each city by correctly performing each song.[14]

As the player arrives in each city, she goes straight to band practice. This is where she first hears the song selection for the city and is presented with a musical task for the song. The five possible tasks are derived from the musical elements of form, rhythm, dynamics, articulations, and phrasing. For example, the

[14] Refer to Appendix C for screen shots from the *MusicianMaker* prototype.

player may have to blow into the microphone at the beginning of each phrase to simulate the articulation of blowing into an instrument, tap an ostinato throughout a particularly rhythmic piece, or shake the iPad to crescendo. As the tour increases in difficulty, she may be required to do more than one task at a time. The player will earn money for each performance based on how well she completed the task at hand. If she does exceptionally well, she may even be asked to play an encore!

Music Selection Factors

Selecting the music that would represent each city on this musical tour of 1920s America was a process based on six main factors: historical accuracy, recording authenticity, instrumentation, clarity, variety, and player appeal. From the earliest conception of the final product, I knew that each of these concerns would need to be in perfect balance to achieve a game that is educational and fun.

Historical accuracy was the easiest of these to address due to the amazing resources available to me in the Belfer Audio Archive. My advisors and I chose to exclusively use the Thomas Edison Recordings because they are in the public domain, which avoids issues of copyright and saves funding. They portray an extremely accurate picture of American music between the 1890s and 1929. Edison's phonograph was invented in 1877 as a business device to record the spoken word, but later became one of the precursors to today's immense American music industry; his earliest cylinder recordings were the first

commercially distributed forms of recorded music.[15] From early forms of blues and traditional parade marches to folk tunes and popular music, the recordings span all genres that shaped early 20th century American music.

In addition to being historically accurate, the Edison recordings provide a profoundly genuine performance quality that modern forms of recording are seriously lacking. Early 20th century musical aesthetics replace the common usage of auto tune and MIDI instrument tracks favored by today's recording artists; you can hear the musicians breathing, counting, and even making mistakes. One of my purposes in creating an app was to teach musicality to students who often overlook it in favor of inhumanly perfect performance; exposing kids to the 20th-century recording aesthetic validates that imperfections are all part of the music-making experience and teaches them that musicality is more important than a flawless performance in the eyes of both performers and audiences. All of the recordings I chose for this app highlight at least one aspect of genuine musicality—performed and recorded in only one take.

Upon confirming that the accuracy of the Edison recordings met my standards, I began searching the Belfer Audio Archive for digitized recordings that featured the trumpet. Because I only have the time and resources to make a prototype for my capstone project, I was limited to selecting only one instrument for the game's character to perform on. I chose the trumpet because of its versatility and popularity in comparison with other instruments of the time. As

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15 Paradis, 1.

Alan Howard Levy explains in the 1984 issue of *American Music*, music in the early 20th century was divided into two categories: art music and vernacular music. Of the two, the latter is more commonly labeled the defining music of the time period; it paves the way for most genres of music that exist today.[16] As nationalism was developing in the world of classical art music throughout the 19th and 20th centuries through composers like Chopin, Sibelius, and Dvořák, the United States began to develop a musical voice of its own. This is not to say that classical American composers could not flourish at this time—certainly Joplin, Copland, and Gershwin had immensely successful careers. However, the identity of American culture was shifting away from European influences; jazz and its forerunners became the face of American music.

Though they had little in common, there is one instrument that was prevalent in the development of both art and vernacular musics—the trumpet. Its popularity has not diminished in the past century, as it is still an instrument used in classical compositions and vernacular music, such as jazz, funk, and ska. It is also one of the most popular school instrument choices available. The trumpet has resisted most forms of gender stereotyping in schools and professional settings; I definitely wanted to pick an instrument that would appeal to kids regardless of gender identification. My intention was to have all five of the compositions I selected as potential candidates for the prototype to feature trumpet in some way, and I found plenty of qualified songs to choose from. At first I thought it best to limit my selections to instrumental tracks, but listening to a few tracks with vocals

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16 Levy, "The Search for Identity in American Music, 1890-1920."

persuaded me to include them in my search. I decided that as long as the track featured trumpet in some way, it would be suitable for use. Whether playing melody or accompaniment lines, the trumpet's clear, cutting tone is easy for kids to identify in each selection; this will make the game easier to play and eliminate the need for any editing of the authentic recordings I worked so hard to select. Student familiarity with the trumpet in conjunction with its timeless relevance made it the most appropriate choice for creating my capstone app.

With an abundance of recordings from which to choose, I was able to get picky and apply three more criteria to my search, the first being clarity of recording. The Edison recordings are fabulous resources, but are unfortunately not all in the best condition. During my search, I listened to a few options that sounded scratchy, far away, or otherwise undesirable. Because the player has to respond to small details in the music, a clearer recording is preferable. The next requirement I put in place was that each city should have completely unique song selections. While there were dozens of marches and fox trots that were catchy and musically executed, I really feel that a varied representation of American music from the time period is essential to comprehensive music education. In the event that the app is expanded in the future, it could perhaps incorporate some repeated genres; but for now, the five-song sampling consists of one march, one folk song, one fox trot, one blues, and one waltz. Finally, it was important to remember throughout the conception of this project that the focus should be on the players—the students who would be playing this game as part of their music class

curriculum or at home on the couch. I picked the most kid-friendly music available from the Edison recordings, carefully listening for melodies or instruments that would appeal to them. I picked a certain recording because it quoted popular children's tunes today, and another because of the interesting lyrics. My goal was to make learning as fun as possible, and hopefully the song selection will play a big part in making the app an enjoyable learning experience for kids of all ages.

New York City, New York- "I'm Goin' South- Fox Trot"

The first stop in the player's musical journey is in New York City, the cultural center of the nation. The player will perform "I'm Goin South," a composition featured in the 1921 Broadway musical *Bombo*. Abner Silver and Harry Woods wrote the music and lyrics to this catchy song as an addition to Sigmund Romberg's original score to the show, which ran for 218 performances between October 6, 1921 and April 8, 1922, before going on a two year national tour.[17] *Bombo* featured legendary Tin Pan Alley-member Al Jolson; the performance helped him to solidify his reputation as one of the most influential and memorable singers of the early twentieth century.[18] Besides representing Broadway and Tin Pan Alley, "I'm Goin South" serves as a sobering reminder of America's heavy tradition of performing in blackface throughout the nineteenth and early twentieth centuries—Bombo is actually the name of Jolson's character, a servant who accompanies Christopher Columbus on his expedition to

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[17] "Bombo."

[18] Garofalo and Waksman, 31.

America.[19] Because the content of this musical is wildly inappropriate for children when taken out of historical context, I selected an instrumental version of the composition. It retains historical value without sending the wrong message. This catchy tune, which I originally selected because of the rich musicality and integration of familiar melodies, also holds the potential to teach important aspects of America's musical history and performance tradition.

In addition to its fascinating history, the musical features of "I'm Goin' South" are extremely representative of New York City's developing musical style in the 1920s. It may be associated with sold-out rock concerts and hip-hop blaring nightclubs today, but New York used to be a city characterized by the glamour of vaudeville—theatrical performances were the popular genre of the time. "I'm Goin' South" follows compositional trends of this period by quoting popular melodies such as "Arkansas Traveler," and "My Old Kentucky Home" throughout the new composition. These melodies, particular those of Stephen Foster, are still popular with children today; when playing this game, they will be able to pick out familiar tunes and feel a sense of connection with the music of a prior century. The song is a foxtrot, a type of dance introduced in the 1910s that is played in common time with a syncopated rhythm or swing time.[20] Because the foxtrot was widely accepted as the most popular form of dance throughout 1910-40s, I knew I had to include at least one in my project. It represents both the city in which the dance originated and the fashionable taste for which New Yorkers have become so famous.

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[19] Hischak, 84.

[20] Conyers, "Foxtrot," and Editors of the Encyclopedia Britannica, "Fox-trot."

In the 1920s, the foxtrot and other dance genres were traditionally performed by a ballroom orchestra that could be as large as a full orchestra or as small as a group of six performers. String, woodwind, brass, and percussion instruments were all represented. The banjo used in this performance is a predecessor to the guitar's modern role in rock groups, in addition to a full brass band.[21] The melody is played by the trumpet throughout most of the piece, which allows me to have the player focus on authentic melodic content that is notated exactly as it is played in the original recording. The musical skill I highlight in this work is phrasing; the player must blow into the device to mark the beginning of each new phrase. In the music, we notate phrasing through the use of breath marks (commas floating in the air above the music). As they perform this piece in the game, players are learning to breathe where it makes sense musically—not to blow until you run out of air and then interrupt phrases with quick breaths. The trumpet melody has a considerable number of pauses that allow for the easy demarcation of phrases; it is a beginner-level task, making it an ideal starting point for the game. Players will start in America's most iconic city with the most basic aspect of musicality before continuing on to build on their skills—both in the game and on their musical journey.

Chicago, Illinois- "Chicago Tribune March"

The next stop on the musical tour is Chicago, another iconic American city with a self-titled composition to represent it. This famous piece is one of the nearly 90 marches by trumpet virtuoso/composer William Paris Chambers and is

[21] Shepherd, 5.

often hailed as one of the "finest and most difficult works in the American march repertoire."[22] Chambers wrote this piece in 1892 as a tribute to the popular newspaper, the *Chicago Tribune,* and it became an instant classic when it was performed at "Music Day" at the 1892 Illinois State Fair. Some of Chicago's finest bands represented France, Germany, Great Britain and the United States in a "March of the Nations," which consisted of compositions representing each nation, a full group performance of "America" and an encore of the "Chicago Tribune March" to end the event.[23] This march remains one of America's most popular compositions for wind band and perhaps the most important to the city of Chicago.

Traditional military marches dominated America's popular music trends from the late 1800s to the early 1900s, losing popularity between 1930-40 when jazz became the dominating full-fledged genre we enjoy today. March music played an important part in military history, from simple tunes written for Revolutionary War fife and drum corps to the technically demanding patriotic tunes written for the prestigious United States Marine Band. Some of the most celebrated American composers wrote marches exclusively, the most prominent example being John Phillip Sousa. Any comprehensive sampling of the early 20th century must include at least one march, and I chose this one because I think it combines historical significance with an impressive display of musicianship. Because Chambers was such a gifted musician, his compositions are simultaneously challenging and fun to listen to. I think it is important to highlight

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[22] "W Paris Chambers."

[23] Chambers, "Program Notes."

difficult music for beginning musicians—it captivates and inspires them, particularly the children for whom this app is designed. The chromatic motives are exciting, the low voices and high voices have a balanced amount of melody and harmony, and the 6/8 time signature exposes players to compound meter for the first time in the game.

Marches are notorious for sounding monotonous when played without musicality; I take advantage of that fact by making dynamics the highlighted skill for the "Chicago Tribune March." Studying the score confirmed my own opinions about dynamic usage: the piece uses primarily terraced dynamics and relies on chromatic motion to create natural crescendos and decrescendos in the music.[24] I inserted dynamic markings into the trumpet notation that will scroll on the screen; when performed correctly, the song will be much more entertaining to listen to and play. Playing with dynamics will also help show the form of the piece that defines it as a march: multiple melodies, different sections (strains), and a trio section at the end. This march has two strains and a trio, all of which would be repeated if I had not shortened the song for the purpose of the app. It is one of the longer songs in the app, but I think the "Chicago Tribune March" is the perfect example of the "March Music Era" to represent the city of Chicago.

Atlanta, Georgia- "Moon River Medley Waltz"

"Moon River" is a lovely vocal work intended to introduce the popular parlour song "Colorado and You," by Charles Leslie Johnson and Carson J.

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[24] Chambers, "Chicago Tribune March."

Robison, in a short songbook of the same name. Composed by Lee David in 1922, this love song is short and sweet—the perfect opening tune for a book of songs for piano and one voice.[25] The recording of "Moon River" used in the game is not the original, but a medley arranged and performed by the Green Brothers' Novelty Band in the same year. The band consisted of Nebraskan brothers George Hamilton Green and Joe Green, playing marimbas and other percussion instruments. Younger brother Lewis Green joined the band later in its career on the banjo and guitar, in addition to many other instruments used in various recordings. Many records show inconsistencies in the personnel for each performance, so it is hard to be sure who exactly is playing in this recording other than at least one of the Green brothers.

Besides representing the southern United States and a unique type of music that features the percussion section, the Green Brothers' Novelty Band is a notable ensemble in American musical history for one large reason: their music was used to score the first three films ever created by Walt Disney. The brothers helped create and perform a score for "Skeleton Dance," "The Opry House," and the infamous "Steamboat Willie," before moving on to play for other passions in the visual arts. In his solo career, George Hamilton Green wrote many method books for marimba and was inducted into the Percussive Arts Society; he and his brothers were instrumental in bringing mallet percussion instruments into

[25] Grainger, "Colorado and You (1922)."

mainstream popular music and influencing percussion pedagogy that still stands today.[26]

Choosing to feature performers who are well known for their contributions to Disney Animations is particularly exciting when working with children. So much of America's spirit is represented by Walt Disney, and the Green Brothers were his equivalent pioneers in the world of early recordings. Because this tune is a waltz, it teaches most successfully the rhythmic skill associated with musicality. At this stage of the game, which is intended to be early on, the rhythm components are easy but educational. The waltz is a genre that always has three beats that sound strong-weak-weak; to teach this characteristic, players must tap an ostinato (repeated) pattern on the weak beats. This pattern, programmed to line up with the correct beats in the music and marked by a change in color on the screen, mimics the feet of those who would historically dance the waltz; it is easily the most essential knowledge a musician would need to know concerning this genre of music. Teaching such a well-defined genre by well-known American performers makes the player's stop in Atlanta a playful, but crucially instructive, stop on the road trip.

St. Louis, Missouri- "St. Louis Blues"

The most famous song featured in the app, the "St. Louis Blues," is extremely significant to the history of the city, as well as to the blues genre. Written as early as 1909 and published in 1914, the "St. Louis Blues" was

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[26] Gerhardt, "Green Brothers Novelty."

composed by W.C Handy, a prominent trumpeter and all around musician. Though he did not invent the blues, Handy is credited with establishing the 12-bar form that we still use today; for this he earned the nickname "Father of the Blues." Along with the "Memphis Blues," the "St. Louis Blues" was one of his most popular compositions. In his autobiography, Handy explains that the "St. Louis Blues" was written at a time when the tango was popular, which inspired the dramatic introduction that listeners hear before the 12-bar form begins.[27] Handy's idea to use a succession of the tonic, subdominant, and dominant seventh chords gives the 12-bar blues a transparent form that is easy to listen to and compose.

Handy's original recording secured his reputation as one of the first African American men to earn a living through composing and publishing music. The song's immense popularity not only earned him money, but also the attention of other musicians who wanted to collaborate with him. Multiple artists have covered the "St. Louis Blues" since its composition, but Handy gave a special permission to Al Bernard, a "young white man" with a "soft southern accent," with whom he would work closely throughout his career.[28] Handy's original recording was an instrumental track, but he opted for a vocal arrangement when he sent Bernard to Thomas Edison to record the piece. Bernard's recording is the one featured in *MusicianMaker* for this reason.

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[27] Handy, 99-100.
[28] Handy, 196-197.

The "St. Louis Blues" is a phenomenal example of the ways in which the soul of a city influences the types of music it produces. Following the Civil War, the population of St. Louis doubled as immigrants and free African Americans flooded the city; by 1870, it became the fourth largest city and boasted the third largest urban black community in the nation.[29] Residents were drawn to the commercial and industrial opportunities it provided in addition to its reputation for some of the best ragtime and piano bars in the country. St. Louis became the home to prominent composers such as Scott Joplin, Gertrude "Ma" Rainey, and W.C Handy, all drawing influences from their different hometowns and making the city an instrumental area for the development of the blues. In 1904, "the first scored 12-bar blues was published in St. Louis as the A section of a ragtime" and soon after, Handy solidified the form in American history with his compositions.[30] The "St. Louis Blues" represents the community of the city as it entered the 20th century, the development of a predominant form of jazz, and the identity of American culture as a melting pot of people, but also a collaborative environment in which anyone could create exciting new music.

The obvious choice for a musical skill to teach through the "St. Louis Blues" is form; if it introduced the world to the 12-bar blues in 1914, it could easily introduce it to players using *MusicianMaker*. Following the tango introduction, players will have to identify the form of the piece by playing the bass note of each chord change using three icons on the bottom of the screen. Each icon will be labeled using the chord symbols (I, IV, V) and the note letter

[29] Ottenheimer, 135-136.
[30] Ottenheimer, 138.

names (G, C, D respectively). Players can tap the icon as many times and in any rhythm that they see fit, as long as the icon is hit at least once during the period of time in which the chord is being played. Blues are defined by the chord progression, which gives us the form. At the end of the performance, players will be able to see the form that they assigned while playing and compare it to the original score.[31] On the rehearsal screen, players can experiment with changing the chords around by inserting extra I, IV, or V chords in between the accurate changes. Improvisation is a big part of jazz music, so the added feature makes this stop in St. Louis extra special. Between its rich history, the catchiness of the tune, and the excellent introduction to 12-bar blues that it provides, the "St. Louis Blues" represents this city in the best possible way.

Honolulu, Hawaii- "Dark Hawaiian Eyes"

In the early 1900s, Hawaiian music was gaining acknowledgement from the American mainland population for the first time. Richard Walton Tully's Broadway play, *Birds of Paradise,* sparked society's interest in Hawaiian music in 1912, followed by the appearance of Keoki Awai's Royal Hawaiian Quartette at the Panama-Pacific International Exhibition in San Francisco only three years later. By the time that *Edison Phonograph Monthly* published the 1916 article titled "Hawaiian Music Universally Popular," America was hooked. Soon record

[31] Another viable teaching point for this section could have been syncopation, as the music is written 'straight' but played in swing time, but I felt it was too difficult to explain using only the app.

companies were begging for authentic Hawaiian songs and even faked pseudo-Hawaiian works to meet high demands for the genre.[32]

The most famous musician to surface during this trend was ukulele and steel guitar[33] virtuoso, Frank "Palaliko" Ferera. Ferera is credited with being the first Hawaiian to bring these instruments to the mainland United States; he performed them on records and in vaudeville, collaborating with other artists and genres as well as supplying "Americanized" music played on his Hawaiian instruments. Ferera eventually managed the Waikiki Hawaiian Orchestra, using them to accompany his records, primarily from 1917 to 1919. His work brought Hawaiian music and instruments to national attention and inspired new generations of steel guitarists to continue Hawaiian traditions in American music.

This is the only recording used so far that does not feature the trumpet, which was a conscious decision based on multiple factors. First, Hawaii was meant to serve as a bonus location, a type of surprise vacation for the character. He will be taking a break from his trumpet-playing gig to enjoy some Hawaiian music. As the app nears completion, I will be able to adjust the character and instrument for this location to reflect that idea—but for now, I only have a concept of what the gameplay will look like in Honolulu. Part of the reason I wanted to use Hawaiian music was because of the extreme variation in articulations, and the importance they play in performance. Steel guitar music is characterized as "sliding glissandos punctuated by staccato melody lines" that are

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[32] Gracyk, "Frank Ferera – Hawaiian Guitar Pioneer."

[33] The steel guitar is a guitar that lays across the lap of the musician and played with a steel bar to produce sliding sounds in addition to staccato pitches.

meant to project musical nuances before the invention of the microphone.[34] I wanted to allow the player to take control of the steel bar used to play the instrument, and the best way to do this was create a location to tap on bars of differing lengths that scroll across the screen. Shorter staccato articulations will look like dots that need to be tapped, while longer glissandos appear as lines that should be held down. Using "Dark Hawaiian Eyes" exemplifies the addition of Hawaiian music to American culture and the importance of playing the differences in staccato and legato/glissando attacks in a fun and surprising way.

Suggestions for Implementation

Part of the appeal for *MusicianMaker* is the fact that players with any amount of musical experience or skill can enjoy the game and learn from it in a variety of settings. It functions independently as a game-type app that will eventually be available for download from the app store or online; in this way, it is accessible to the entire population of iPad owners. In the case that someone stumbles upon the app and wants to download it, the in-game instructions are fully responsible for explaining the premise of the game, the instructions, and the educational value. In this situation the player would learn the names and tunes of a few American songs and the cities associated with them, in addition to the music vocabulary explained in the app. She would learn how to tap an ostinato, how to read dynamic levels, and what it means to phrase a piece of music through playing the game and evaluating her success in completing the assigned tasks. There is certainly educational value in this approach, but for recreational players

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[34] Gracyk, "Frank Ferera – Hawaiian Guitar Pioneer."

that educational value is outweighed by the entertainment value of the game.

Parents around the country will be drawn to *MusicianMaker* for two main reasons: first, parents are constantly looking for games that are not only fun, but also educational. Secondly, more and more parents are using technology time as a reward and a pastime for children during their free time. Though educational games are becoming more popular every year, many of them rely on simple memorization and regurgitation of knowledge as the teaching tool; there is a serious lack of games that engage children in higher-order thinking skills the way that *MusicianMaker* does. In fact, *MusicianMaker* could teach most parents new musical content knowledge alongside their children. Playing games and learning together is an invaluable experience for families, and by delivering that experience, this app stands out from competition. Musical parents will love the authenticity of the app—nothing is watered down or oversimplified, just put into beginner-friendly language and an exciting game format. Whether parents download *MusicianMaker* for their children or themselves, anyone who plays the game will have a great time engaging with music and learning more about its role in American history.

When used under the guidance of a more experienced mentor, the educational value of the game increases. Private music teachers could easily incorporate the game into their supplemental activities for beginning players. The teacher could use it as an educational reward that she plays with the child, a suggestion for at-home practice, or an extra activity for children who miss a lesson due to vacation or sickness. If a teacher notices that her student is

struggling with the waltz, she can use *MusicianMaker* to help him practice ostinato patterns in the game's waltz. If she is teaching a march and wants to expose students to more examples at home, they can practice the "Chicago Tribune March." The private teacher can even use the recordings from the game to show the inherent imperfections of live performances that are recorded to ease the worries of a nervous performer. There are many ways to use this app as a tool in addition to a game that has educational value.

Perhaps the most obvious implementation of *MusicianMaker* is in a school curriculum, and this is the medium for which I created the app. The classroom provides a perfect opportunity for students to debrief the musical concepts and decisions explored in the app through group conversation. Teachers can choose to play the game as a full class using a classroom iPad hooked up to a projector, assign the game as an in-class activity on individual iPads, suggest it for use at home, or pick and choose which songs to use. There are dozens of ways to tie in general music or choral/instrumental curricula with the app through components such as melody, form, rhythm, instrumentation, and of course musicality. Going beyond the surface level, teachers can explore more in-depth areas of music history, recording technology, performance practices, or music theory using *MusicianMaker* as an exemplar. The possibilities for this app are endless, especially as the library of songs, instruments, and musical skills included in the game expands. Because this is my target scenario, I have included a list of five of my favorite ideas for units in various types of music classrooms that utilize *MusicianMaker*.

Prospective Unit Plans

Planning the units that would allow *MusicianMaker* to reach the maximum number of students and would showcase the benefits it has among students of all ages and levels of involvement was the most rewarding part of this project. During a time when budget cuts are frequent, creating units that teach cross-curricular themes, that use higher order thinking skills, and that employ elastic frameworks is essential to the survival of music education programs across the nation. The iPad is gaining popularity in American schools, but music curricula have been slow to adapt to the increased expectations of technology use in the classroom. *MusicianMaker* is specifically geared for the school music program that includes general music and rehearsal-based classes; it emulates the experience of performing on an instrument through the medium of the device while teaching skills that will transfer to instruments eventually. Using this unique quality of the game in addition to studying the musical components it contains offers plenty of material for a cohesive classroom unit plan. Listed below are a few ideas for each stage of a child's public school career. Appendix B includes three fully detailed lesson plans for my favorite lessons in each unit.

Using MusicianMaker in Grades K-2

For the very youngest musicians-to-be, studying melody is an age-appropriate goal that can be supplemented through the use of *MusicianMaker*. Though it is broadly intended for an older audience for individual use, the teacher can easily use aspects of the app to enhance his or her lessons in the general music classroom. As the app expands, the teacher can pick one musicality skill and

choose only the songs that feature that skill: for example, dynamics. Students could learn the difference between terraced dynamics (used in the app) and gradual dynamics that include crescendos, decrescendos, and other continuous changes. The teacher can allow students time to play the game as a reward for good behavior or use it to show how different parts of the country have different musics. As useful as *MusicianMaker* could be for the general music teacher working in a primary elementary school, it would be unfair to create a whole unit based around the app for two reasons: first, the children are not typically able to read at the level required to understand the app. Secondly, trusting a room full of young children with individual iPads can lead to many behavioral issues. For this reason, I would suggest that *MusicianMaker* be used only as a supplement for teachers until at least grade 3.

Unit Overview: History of American Musical Culture (Grades 3-5)

Students in these grades are just beginning to learn about American history and culture, which transfers beautifully to a musical unit covering the history of American musics and how they have represented the growth of our country. According to the New York State Core Curriculum for Social Studies, children in grades three through five are focused on the main concepts of *Communities Around the World, Local History and Government,* and *The United States, Canada and Latin America*.[35] Learning about the different musical communities in cities across the United States fits in to all three of these grade level achievement goals; kids can study the history of their own town or city and

[35] "Social Studies Core Curriculum."

the kind of music that was most popular there in the 20th century, or learn how American popular music was influenced by communities around the world and relate their findings to the musical examples from the app.

As an exercise in diversity, students could study the various types of music used in *MusicianMaker* and match each style to a particular community or heritage. No matter which way the app is used, it provides real examples from the century that students of this age are studying in their other classes; using them as a teaching tool breeds a strong cross-curricular unit that is sure to engage students in transferring their learning across subjects and gaining a more in-depth understanding of the time periods that they are studying. My favorite unit idea for this age level is to make a musical passport, in which students can reflect on the musical genres represented in this country and the cities that they represent. As they play through *MusicianMaker*, they can earn stamps in their passport and eventually use them as a cumulative project. Detailed further in Appendix B, the unit is versatile and has the potential to be turned into a massive project that students can really be proud to complete.

Unit Overview: Expressive Qualities in American Music (Grades 6-8)

Students in middle school music courses could benefit from using *MusicianMaker* to teach them how expressive qualities affect musical recordings on a professional level. They could study the scores to the songs featured in the app, play them without adding musical qualities, and compare their performances to those in the app. One cool feature of the game is that it allows you to make the

"wrong" musical decisions; if you want to add dynamics in a totally different way than is suggested, the game still lets you hear what that sounds like. Students can explore the differences between how the musician in the app responds to stylistic changes and how real, live performers respond to the same differences. They can work on evaluating the quality of different recordings and hopefully find some value in the 20th-century examples used in *MusicianMaker*. The goal is that kids would be able to use the musician from this app as an exemplar and aim to play their own concert repertoire with the same amount of thought and direction.

Middle school is the time in which beginning musicians truly begin to develop their own musical identities. They have a few years of playing experience and can start to add higher level techniques, such as dynamics, phrasing, and advanced articulations. *MusicianMaker* is designed to teach these skills primarily to students who have not yet achieved this level of technical proficiency, but it can be used in conjunction with performance as a supplement in instrumental rehearsal classes. Playing the game reminds students of the importance of adding musicality to their repertoire and builds a personal connection with both knowledge and execution of music vocabulary. The lesson plan included in Appendix B can break up a monotonous routine of rehearsing the same music in each class without compromising student learning and exploration.

Unit Overview: Sound Quality and Recording Technology (High School)

Studying recording technology over the past century and the dimensions of sound that it can record would make a fabulous non-traditional unit to supplement the use of *MusicianMaker*. Creating any app requires the use of small

sound files—in this case, mp3 files. Unfortunately, small files like these provide an extremely poor quality of sound. To compress the recording to a usable size, sound editors take out all of the "inessential" information; this creates what we call a "lossy" format, because there is so much critical information *lost* in the editing process. The original recordings of songs used in this app are called analog recordings: cylinder recordings used before digital wave formats. Analog recordings maintain a high spectrum of sound, which give them a richer, deeper, and more precise musical quality. Though there are few cylinder players available in public schools, the FLAC format is a "lossless" digital file that is most comparable to the quality of analog recordings and can be played on any computer.[36] Using FLAC recordings can expose students to a richer, lossless recording of the same pieces used in *MusicianMaker* and provide content for a number of thought-provoking lessons.

It would be a great learning experience to compare and contrast high quality FLAC recordings with the mp3 versions used in the app and discuss the differences in musical aesthetics and sound quality. Besides offering a chance to collaborate with science, history, and technology classes in a cross-curricular unit, comparing recordings offers students a chance for critical thinking and reflection in a verbal or written facet. This is a unit that could be used in a variety of classes on a high school level that would utilize the recordings in the app in combination with the musical skills featured in them. Students could meet rising literacy goals by writing comparative evaluations of the same song in FLAC and mp3 format or

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[36] Doctor, "Capstone Progress Meeting."

engaging in a debate about the benefits and drawbacks of modern recording technology as opposed to the cylinder recordings used in *MusicianMaker*. The best part of this unit is that it does not only appeal to musicians—any high school student could find something in common with the goals of this unit, from a love of current popular music to an aptitude for comparative thinking.

Conclusion

MusicianMaker was designed to address a specific deficit in the world of music education and educational technology, and I truly believe that it will serve that purpose upon its release to the public. Teaching musicality to beginning musicians is an essential skill that is necessary to attract and retain students and to help them learn to play music that is meaningful and aesthetically pleasing. The game can be used in a multitude of ways, from public school classroom supplement to private individual pastime, and will only expand its audience as it is further developed.

As *MusicianMaker* expands, I will be able to add more and more songs to represent American cities over multiple time periods. I have not decided whether or not I intend the app to have a cost, but I do know that expanding my song choices would require me to explore options for funding. Right now, the next step for *MusicianMaker* is to finish the development of the content I already have and look into the process of testing it with a sample audience. The goal is to continue to collaborate with the Belfer Audio Archive to produce an accompanimental website detailing the history of the Archive and recording technology, complete with pictures and sound files. I am excited to start my graduate career at Syracuse

University so I can continue to work on this addition and produce the complete app. Whether *MusicianMaker* becomes a best-selling program for music educators or an asset to my own small music program in the future, I am extremely proud of the work that went in to this project and cannot wait to start using it in my teaching.

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Appendices

List of Reviewed Existing Technologies

Theory/Note Reading
○ ChordFinder (Codelle, 2011) ○ Chords Note Player (Jiri Markalous, 2013) ○ Common Keys Finder (Robert Attanasio, 2013) ○ Course for Music Theory Series (Askvideo.com, 2013) ○ Cubase (Steinberg Media Technologies 2014) ○ Dolce Music Flash Cards (Fast Rabbit Software, LLC, 2011) ○ Drawn to Keys (The Music Interactive, 2014) ○ Ebony&Ivory (Didier VENOT, 2011) ○ Flashnote Derby (Luke D. Bartolomeo, 2011) ○ Harmonia (Board of Trustees of the University of Illinois, 2013) ○ Krank & Lucy (The Music Interactive, 2014) ○ Melody Cats (LMuse Limited, 2014) ○ Mozart ME (RoGame Software, 2011) ○ MPV's Music Theory Series (Nonlinear Educating Inc., 2012) ○ The Music Interactive Series (2014) ○ Music Keys (Marek Ledvina, 2013) ○ Music Notes, Music Tones (Marek Ledvina, 2012) ○ Music Theory Pro (Joel Clifft, 2012) ○ Music Tutor (JSplash, 2012) ○ Musition (Rising Software, 1994-2014) ○ Note-A-Lator (Electric Peel, LLC 2012) ○ NoteCoach (RINIK, 2013) ○ Note Lookup! (Visions Encoded 2013) ○ Notes! Learn to Read Music (Visions Encoded Inc. 2011) ○ Rhythm Adding & Rhythm Blocks (The Music Interactive, 2014) ○ Scale Finder (Robert Attanasio, 2013) ○ Solfeggio Studio (Jamtower, 2014) ○ Staff Wars (The Music Interactive, 2014) ○ Tabular (Chromatic Labs Inc., 2013-4)
Ear Training/Dictation
○ Accompanist (Ruben Zilibowitz, 2012-3) ○ Animal melody MA (mintmomeg.com, 2011) ○ Auralia (Rising Software, 1994-2014) ○ Better Ears (appsolute GmbH, 2013) ○ Dolce Ear Training (Fast Rabbit Software, LLC, 2011)

- EarMaster Series (EarMaster ApS, 2012)
- JamaMambo (The Music Interactive, 2014)
- Music Cubes & Music Intervals (Marek Ledvina, 2012)
- Phobia Series (majorthird.com, 2013)
- Rhythmic Dictation (The Music Interactive, 2014)
- Vocal Lab (Laidman & Katsura, 2012)

Music Exploration

- Beamz (Beamz Interactive, Inc., 2013)
- Beatbuddy (Threaks GmbH, 2013)
- Beats Series (AppHappy Studios LLC, 2013)
- Boom (The Music Interactive, 2014)
- Chiptune Runner (Evil Indie Games, 2013)
- DoReMi Piano for Kids (Mapi Games, 2013)
- Dr. Octo Rex (Nonlinear Educating Inc., 2013)
- Drums Around The World (The Music Interactive, 2014)
- Elemental (Nooskewl, 2012)
- Frederic- Resurrection of Music (Forever Entertainment S.A., 2012)
- Garritan (MakeMusic Inc., 2014)
- Graph Arpeggiator 3 (Brainstorm Co, Ltd., 2013)
- HexaSawyer (panaeoluspress, 2013)
- i Play My Hawaian Drums (Alessandro Benedettini, 2012)
- iXyloPhone Fun (Alessandro Benedettini, 2012)
- JAZZ: Trump's Journey (Eggball Games, 2011)
- Kid Songs Piano! (Visions Encoded Inc., 2013)
- Kids Xylophone (Rec Masters LLC, 2011)
- Little Mozart (Imagina, 2011)
- MidiKey (Supertintin, 2013)
- Musical Fireworks (webgames3d.com, 2011)
- Musical Instruments (Breek, 2011)
- MusicComposer (BLab SA, 2011)
- Musician's Little Helper (Marco A. Ferraguti, 2011)
- MyJamz (The Music Interactive, 2014)
- NodeBeat (Affinity Blue, 2013)
- Paint Me A Song (Benbenbob Software, 2012)
- Peekaboo Orchestra (Touch & Learn/James Lewis Design Ltd., 2012)
- Piano Prodigy (Crazzy Works, 2011-2013)
- Quavermusic.com Website and Apps (Quavermusic.com LLC, 2011)
- Real Violin (Phyar Studio, 2012)
- Strings (The Music Interactive, 2014)
- Tunepad (GearSprout LLC., 2012)
- UVI Wurli (UVI.net, 2011)

Learn to Play an Instrument
○ 120 Chords Series (Neonway, 2014) ○ Banjo Rolls Trainer (Jiri Markalous, 2013) ○ Complete Idiot's Guide Series (Alfred Music Publishing, Inc., 2011) ○ Easy Drums Beginner Tips and Techniques (Selectsoft, 2013) ○ eMedia Method Series (eMedia Music Corp, 2013) ○ Guitar Made Easy (Selectsoft, 2013) ○ HarpNinja (Sonicviz, 2013) ○ I Learn Guitar (italApp.com, 2013) ○ Learn to Play Banjo (Pinewood Apps, 2013) ○ Learn to Play Sax (Thunderhill Apps, 2013) ○ Music Keys Pro (Marek Ledvina, 2013) ○ Piano Professor (Selectsoft, 2013) ○ PLAY Series (Alfred Music Publishing, Inc., 2011) ○ Recorder Interactive (Singing Beagle Productions, 2014) ○ Recorder Pad (The Music Interactive, 2014) ○ Riffstation (Sonic Ladder Ltd., 2013) ○ Syntheremin (Concentric Sky, 2014) ○ Teach Yourself Series (Alfred Music Publishing Inc., 2011) ○ _____ for Dummies Series (eMedia Music Corp, 2013)
Composition/Audio Editing
○ Ableton Live 8 (Sweetwater Sound, Inc., 2014) ○ ACOUSTBL (Carlos D. Perales & Inigo Ibaibarriaga, 2013) ○ Amplify (ADBAND, 2013) ○ Art of Audio Recording Series (macProVideo.com, 2012) ○ AudioScore (Avid Technology Inc., 2014) ○ Audulus (W. Taylor Holliday, 2013) ○ ChordPro Buddy (Gerald Flossmann, 2012) ○ Clover Chord Systems (Clover Japon, 2013) ○ Designing Timbres (ASK Video, 2013) ○ Eye Synth OSC (Dustin O'Connor, 2011) ○ Finale (MakeMusic, Inc., 2014) ○ FL Studio (Image-Line Software, 1998-2014) ○ Garageband (Apple Inc., 2004-2014) ○ Logic Pro X (Nonlinear Educating Inc., 2013) ○ Mixtikl (Intermorphic Ltd, 2004-2013) ○ MUTANT (Crypton Future Media Inc., 2013) ○ Nodal (CEMA, Monash University, 2007-2013) ○ OscilloScoop (Scott Snibbe Studio, Inc., 2013) ○ PhotoScore (Avid Technology Inc., 2014) ○ ProTools (Avid Technology Inc., 2014) ○ Reason 6 (macProVideo.com, 2011)

- Renzoku Drums (Kreuz45, 2012)
- Rousseau (Norman Schmidt, 2012)
- Rubber Band Audio (Breakfast Quay, 2011)
- Sibelius (Avid Technology Inc., 2014)
- Songivity Songwriter (David Leigh Christy, 2013)
- Tonalis (Ruben Zilbowitz, 2011-2013)

Musician's Tools

- Anytune (Anystone Technologies, 2011-2013)
- Balalaika Tuner (Neonway, 2013)
- BandMaster (RoGame Software, 2013)
- Beat Counter (Cubic Carrot Software, 1999-2012)
- Cadenza (Sonation Inc., 2013)
- Capo 3 (SuperMegaUltraGroovy, 2013)
- Chops (Mike Eggar, 2011)
- Chord Dictionary (ipSoft Ltd., 2013)
- Chromatic Instrument Tuner (EFRAC, 2009-2013)
- DrumTime (badrabbit v.o.f., 2012)
- EasyGuitarTuner (Neonway, 2013)
- iRehearse (RJV Media, 2010)
- iTempo Tap (H2 Apps, 2012)
- Mapping Tonal Harmony (mDecks Music, 2013)
- Metronome Plus (Alexander Knapp, 2011)
- MusicEase Traditional Songbook (Gary M. Rader, 2011)
- Music Resources (Beau Young & Sarah Reichelt, 2012)
- Mus2 (Data-Soft Ltd., 2014)
- Note Tuner (Interappa Software, 2014)
- Quaver (Ross Flint, 2012)
- Real Metronome (Zeus Electronics LLP, 2013)
- RK Series (Laidman & Katsura, 2012)
- Scorch (Avid Technology Inc., 2014)
- SmartMusic (MakeMusic Inc., 2014)
- Virtual Piano (Sovamo, LLC, 2013)

MusicianMaker Lesson Plan Example: 3-5

Common Core State Standards for Grade 4: *Speaking & Listening* CCSS.ELA-LITERACY.SL.4.1.D CCSS.ELA-LITERACY.SL.4.4 *Language* CCSS.ELA-LITERACY.L.4.6 **National Music Standards:** 6. Listening to, analyzing, and describing music 8. Understanding relationships between music & disciplines outside the arts 9. Understanding music in relation to history & culture **New York State Standards for the Arts:** 3.Responding to & analyzing works of art 4. Understanding the cultural contributions of the arts **MATERIALS:** • T iPad/ school iPad for T/S • Projector and audio hookup for iPad • *MusicianMaker* app for each iPad • 1 handout per S • Giant USA map on a thumbtack safe backing • Thumb tacks with musical genres attached on a laminated card • Whiteboard & markers • Pencils/ list paper for S **Student Owned Materials:** personal or school iPads, if available	**Grade Level:** 3-5 General Music **Length:** 40 minutes **Lesson:** Introduction to Musical Communities **CENTRAL FOCUS:** Students will **synthesize** information on musical genres across 20th century America with social studies knowledge from their homeroom class to understand how music represents the community in which it is made. **LEARNER OBJECTIVES:** 1. Students will be able to **explain** why Broadway show tunes are representative of the community of New York City during the 20th Century. 2. Students will be able to **define** the musical term *phrasing* and how it is denoted in musical symbolism. **INSTRUCTIONAL CONTEXT:** This is the first lesson in a unit of at least 5 lessons on Musical Communities across the USA. Today's lesson requires a lot of set-up time, from brainstorming a list of genres to guessing where they might fit in on a map of America. *MusicianMaker* is introduced in this lesson and S do a lot of thinking and hypothesizing as T lays a foundation for the rest of the unit. In each of the following classes, T will introduce a new musical skill based on the course of *MusicianMaker* and explore a new musical genre with the S. Through a variety of activities ranging from small group research to using classroom instruments to reflecting on listening examples, S will explore one genre per day and use the class period to figure out which city it represents and why. In each lesson, T can review the city and explain how musical communities today have not changed much since the 20th Century. T can make S a "USA Musical Passport" booklet with graphic organizers and a spot for a stamp; S can fill out information on the musical communities each day in class and earn a stamp for the completion of the city on *MusicianMaker*. The map will eventually be filled out completely, and T can add additional cities that are not featured in the app and insert musicality skills from *MusicianMaker* into musical examples that fit with each location or genre. The unit will be successful, whether it is as large as the T can imagine or limited to only the skills introduced in *MusicianMaker*.

Learner Objective	Assessment
Students will be able to **explain** why Broadway show tunes are representative of the community of New York City during the 20th Century.	T will assess S through discussion in step 7 and 8 of the procedure in today's lesson. The material will be reviewed in the next lesson and can be recorded independently in the S musical passports, which T can then grade or assess on an individual level. For today, the class will be assessed primarily as a whole group.
Students will be able to **define** the musical definition of *phrasing* and how it is denoted in musical symbolism.	S will be assessed as an exit slip to leave the classroom; they must recall the word phrasing to leave in the very last step of the procedure. If T has to remind a S of the word, he or she will receive a lower participation grade for the class.

ACADEMIC LANGUAGE DEMANDS: Since this is the first lesson in the unit, the academic language demands for S are primarily reliant on prior knowledge. S will be introduced to the term *phrasing* and begin to discuss the idea of a musical community. They will be responsible for having intelligent, on-task conversations about musical communities today and throughout the unit with minimal side chatter and respectful mannerisms all around. We will be using vocabulary words by way of musical genres today based on the list that the S can come up with. S must have a basic understanding of technology vocabulary words in addition to written proficiency on their grade level standards to achieve the most success in today's lesson and the unit.

LAUNCH/HOOK (3 minutes):

1. S will enter the music room to find a gigantic poster or projection of a map of the United States on the wall. As they come in and find their seats, T will ask them to do a quick write in which they list every different type of music that they have heard of. **(3 minutes)**

PROCEDURE (32 minutes):

2. After S are finished writing, T will ask for volunteers to read some types of music that they have heard about and compile a class list on the board. Continue to use guiding questions until the list is substantial and most of the categories used in *MusicianMaker* are listed (right now, that would include a march, blues, show tune, waltz, and folk song). **(3 minutes)**

3. Using thumbtacks attached to laminated papers with different genres written on them, have S come to the board and guess where each genre originated or what part of the country it represents. Include a box on the side of the map for "outside of the USA" for genres such as classical music, reggae, religious chants, etc. T must have either researched the origins of many types of music in previous classes or bring a list with him or her. If a S guesses wrong, his or her peers can help adjust the tack. Continue the activity until all of the tacks have been placed on the map. **(5 minutes)**

4. T will record the class's guesses and take down the tacks. He or she will reveal the answers by moving the tacks to the correct locations on the map as we

introduce them; he or she should explain that we will be studying the role of many of these genres in American communities, and that the map will stay up on the wall as we continue to study this. **(2 minutes)**

5. Turn S attention now to a projected image of the home screen of *MusicianMaker*. Pass out a paper showing the parameters of the project, entitled "Examining Musical Styles Across America" and a schedule. On their school owned personal iPads, S will be completing the game *MusicianMaker* and learning about one musical community each week in music class for the next month and a half. Today we will start by making our accounts for the game and selecting our character and instrument. Allow S a few minutes to do this before stopping them for a T demonstration. **(7 minutes)**

6. At this point T will show S how to get from the home screen to band rehearsal and eventually to performance in New York City on his or her own iPad, projected for the class to view. Explaining along the way, T will model how to complete the first level and talk about how to phrase music through the separation of musical ideas (breaths, bow strokes, etc.). T will play through the level again and this time, have everyone blow out air onto an invisible iPad to practice together as a class. After this guided practice, S should be able to easily complete the level at home or in the next class. **(5 minutes)**

7. Following the guided practice, T will play a series of musical clips for S, starting with "I'm Goin' South" and including various other Broadway hits played in chronological order. S will be asked to think about 3 focus questions while they listen: *Where do you think you might hear this music played? What do these songs have in common?* and *What city in America might these songs represent?* T should play at least 4 musical snippets, and be sure to make the final piece a popular Broadway tune that the kids will be able to identify with. Familiar songs from Wicked, Les Miserables, The Lion King, or Mary Poppins would most likely elicit the correct response from S. **(5 minutes)**

8. Allow S to share their ideas about the 3 focus questions before revealing that all of the musical examples were Broadway show tunes! Ask S if they know where Broadway is, and briefly talk about the importance of Broadway in the 20th Century when "I'm Goin South" was popular—it was like going to the movies back then! Have a S volunteer pin the Show Tunes genre up on NYC on the map at the end of the discussion. **(5 minutes)**

CLOSURE (5 minutes):

9. For the last few minutes of class, S can work on iPads individually or in pairs to try to complete Level 1 of *MusicianMaker*. As they finish, S can replay the level or use the time to pack up the iPads and get ready to leave the classroom. **(4 minutes)**

10. As S line up to leave the classroom, T will ask for the magical password. Ask the question "What word do we use in music to talk about the musical sentences that make it sound connected?" As S leave, they can whisper the answer (phrasing) to T to earn their way back to homeroom. **(1 minute)**

DISCUSSION OF INSTRUCTIONAL SUPPORTS:

- S who struggle with writing can use assistive technology or specialized paper (colored, bullets already drawn, etc.) to create their list of music genres in the quick write at the beginning of class if necessary. S who are bilingual can be encouraged to use their native language(s) to help them come up with more diverse genres of music, and are free to write the entire list in whichever language makes them feel most comfortable.

- S with physical disabilities can be assisted by the T or another S to pin the genres on to the map in the room. Alternatively, if the room has more than one board to write on the map can be placed on a magnetic surface. Velcro can also be used; if T puts little pieces of Velcro on the map, S will have an easier time matching up the genres with locations and moving them as they learn more about musical communities across the country.

- The exact procedure will vary depending on the number of iPads available in the classroom and the owners of the technology; I tried to write the lesson for a class that had access to an iPad cart or personal iPads assigned by the school to each S. Of course, S who own their own iPads could easily use them. If the number of iPads was more limited, S could work in pairs or small groups with each child taking a turn on the game in each class period. Another idea is that the T could demonstrate on the T iPad and allow S to use it over the course of the unit; kids with iPads at home could download the app and play in their own free time, but in class everyone could share. These decisions will be made by the availability of iPads and under T discretion of what would work best for his or her classes.

- This unit plan works fabulously for the traveling music teacher, who has no classroom of his/her own but instead uses a cart and goes from class to class to teach music each week. The map could easily be utilized in other classroom activities, so it could stay up in each individual classroom. S could use classroom iPads from their homerooms and the projector from that classroom as well. Even if the music T had a classroom space, this unit might work better in the context of the homeroom with desks and chairs, so it is certainly something to consider.

MusicianMaker Lesson Plan Example: 6-8

Common Core State Standards for Grade 7: *Speaking & Listening* CCSS.ELA-LITERACY.SL.7.2 CCSS.ELA-LITERACY.SL.7.4 *Writing* CCSS.ELA-LITERACY.W.7.4 CCSS.ELA-LITERACY.W.7.10 *Language* CCSS.ELA-LITERACY.L.7.6 **National Music Standards:** 1. Performing on instruments 6. Listening to, analyzing, and describing music (Obj. 1) 7. Evaluating music & music performances **New York State Standards for the Arts:** 1.Creating, performing, and participating in the arts 3.Responding to & analyzing works of art 4. Understanding the cultural contributions of the arts **MATERIALS:** • T iPad and/or school owned iPad(s) • T demonstration instruments • Projector and audio hookup for iPad • *MusicianMaker* app • 1 graphic organizer per S **Student Owned Materials:** personal instruments (or voices), copies of all music, notebooks and pencils for note taking	**Grade Level:** 6-8 Rehearsal Class **Length:** 40 minutes **Lesson:** Exploring Phrasing in "I'm Goin' South" **CENTRAL FOCUS:** Students will **identify and perform** several musical qualities introduced in *MusicanMaker* in their current solo and ensemble repertoire. **LEARNER OBJECTIVES:** 1. Students will be able to **evaluate** performances of specific songs from *MusicianMaker* through various musical decisions inserted into the game and performed on their own instruments. **INSTRUCTIONAL CONTEXT:** This lesson is intended to be the second or third in the unit; students would have already been introduced to *MusicianMaker* and the various musical vocabulary terms that it discusses. Students should have had the opportunity to experiment with the game and learn to play so that they can accurately manipulate their musical decisions in this lesson. This lesson introduces the idea that musicality is not set in stone and that it is interpreted by the performer—not everyone likes the same musical decisions in a piece. Today students will make personal connections with musical decisions by reflecting on what they like and do not like, which sets the stage for the creative project at the end of the unit. In the next few lessons, students will apply musical decisions of their choice to their current repertoire and in small groups. They will eventually give a presentation that could include a visual component, a live performance, or an activity that helps their classmates see how inserting musicality changed the repertoire. Students in the audience will evaluate each presentation by writing a reflective journal entry and filling out a rubric; after all the groups have presented, the class can debrief by discussing their rubrics and reflections and making decisions together that could affect their concert performances. The teacher can decide how much or how little to do with this project, but it could culminate with a presentation at the final concert detailing how the students worked together to interpret their music and practiced hard to perform it the way they decided they wanted to.

Learner Objective	Assessment
Students will be able to **evaluate** performances of specific songs from *MusicianMaker* through various musical decisions inserted into the game and performed on their own instruments.	S will be assessed on the completion of their graphic organizer in addition to the quality of classroom discussion and collaboration throughout the lesson. T can take notes when S are working together and add it to the grades for the graphic organizers, which would total the grade that students receive for each rehearsal or lesson period. Alternatively, T could add the graphic organizer and participation scores to a total portfolio for the unit.

ACADEMIC LANGUAGE DEMANDS: In this lesson, S are primarily responsible for knowing the meaning and context of the word "phrasing." They need a basic understanding of using a graphic organizer, forming complete sentences to express their opinions, and etiquette (discourse) for class wide conversations in which people are bound to disagree. They must be able to read musical notation and understand content-specific vocabulary (words and symbols!) including articulation, breath marks, dynamics, style, and tempo, among others. They must also be familiar with basic iPad commands, which should have been covered in technology classes but may need to be specified specifically for *MusicianMaker*.

LAUNCH/HOOK (5 minutes):

1. S will enter the rehearsal room to find the iPad hooked up with *MusicianMaker* projected on the board. T will explain that we will be looking at musical decision making using the game today, and we will be starting by reviewing what musicality means. T can use a free write, a brief discussion, or any other strategy that works in the classroom to review material from the last few lessons (definition of musicality, review of vocabulary terms introduced in game, the fact that musicality is subjective). T should also use this time to hand out a graphic organizer used to compare and contrast the sounds from the next exercise. **(5 minutes)**

PROCEDURE (33 minutes):

2. T will pick a song that is most applicable to S in this class—for example, "I'm Goin' South." Review which musicality skill is being taught in this song (phrasing), and invite one S up to the iPad to play the song the way the game wants you to play it. S should blow in to the iPad on each breath mark through the short song; while this is occurring, other S should listen. Once he/she finishes, ask S to write for 3 minutes on the graphic organizer about how the song sounded. T can write prompts on the board such as "What did you like? What sounded good to you? Did it sound professional or amateur? Do you think you could play like this on your instrument?" S will write silently for 3 minutes on these topics. **(5 minutes)**

3. After the silent writing break, S will briefly share a few opinions about how the song sounded to them. Invite another S to the iPad who has a different interpretation of the song, and ask him or her to purposefully play it in a different way. Ask S to observe the character on screen and listen to the differences in sound. W will reflect silently for another 3 minutes, then share opinions. Repeat this process 2-3 more times or until all options have been exhausted. **(10 minutes)**

4. Moving on to the second part of the graphic organizer or a new sheet, T can play examples of 1-2 other performances of "I'm Goin' South" found on YouTube or another online source. Have S reflect while the music is playing, and then evaluate, compare, and contrast them in a discussion of the same nature as before. **(6 minutes)**

5. Ask S to take out their instruments and hand out a copy of "I'm Goin' South" transposed for each instrument. S will sight-read the simplified melody and discuss where they would like to add phrase marks. Each instrument will want to phrase in a different spot due to breathing/bow concerns, but S will have to work together to come up with a solution that works for everyone and still sounds good. S should continue to experiment with different combinations of phrases until they find the perfect one! **(12 minutes)**

CLOSURE (2 minutes):

6. At the end of class, S will pack up their instruments and supplies and cast a vote for their favorite version of "I'm Goin' South" that was played in class today. Kids can vote for their own performance, the original, or any other version! Next class T can reveal the final tally in the opening activity. **(2 minutes)**

DISCUSSION OF INSTRUCTIONAL SUPPORTS:

- Learners who struggle with independent writing skills can use assistive technology to record their ideas or an alternative graphic organizer/worksheet for opening prompt that may include circling, drawing pictures or symbols, or choosing words from a word bank.

- S who have trouble in social situations may choose to participate in the classroom discussions through written comments, snaps (for agreeing with an idea), or with the help of a friend or classroom aide.

- S who are nonverbal or have limited conversational skills should be allowed to express their ideas using the classroom iPad or their own iPad.

- If the class does not need to or cannot work on phrasing, another song or musicality skill can be substituted. Classes that have a vocal emphasis (or general music) can use the same lesson plan by singing "la" on the melody of "I'm Goin' South" in step 5 of the procedure instead of playing on instruments.

MusicianMaker Lesson Plan Example: 9-12

Common Core State Standards for Grade 11-12:
Speaking & Listening
CCSS.ELA-LITERACY.SL.11-12.1.B
CCSS.ELA-LITERACY.SL.11-12.1.D

Writing
CCSS.ELA-LITERACY.W.11-12.2
CCSS.ELA-LITERACY.W.11-12.2.E

Language
CCSS.ELA-LITERACY.L.11-12.6

History/Social Studies
CCSS.ELA-LITERACY.RH.11-12.7

National Music Standards:
6. Listening to, analyzing, & describing music
7. Evaluating music & music performance
8. Understanding relationships between music & disciplines outside the arts
9. Understanding music in relation to history & culture

New York State Standards for the Arts:
2. Knowing and using arts materials
3.Responding to & analyzing works of art
4. Understanding the cultural contributions of the arts

MATERIALS:
- Classroom audio speaker system
- T musical examples
- T presentation on modern recording technology

Student Owned Materials:
notebooks, writing utensils

Grade Level: 9-12 Music History/Appreciation
Length: 80 minutes
Lesson: The Relationship between Performance Aesthetics & Recording Technology

CENTRAL FOCUS: Students will **summarize** the evolution of recording technology and its impact on performance aesthetics across the past century of popular music.

LEARNER OBJECTIVES:

1. Students will be able to **compare and contrast** the musical decisions made in multiple recordings representing different time periods.

INSTRUCTIONAL CONTEXT: This is the 3rd lesson in the unit, which deals with examining the differences in audio recordings and the musicianship needed to create them. The unit begins by asking students to play through *MusicianMaker* in pairs and take notes on a few key ideas, including reflecting on how the quality of the recordings impacted the difficulty level of the game and/or the player's enjoyment of the music. The app itself is meant to review the musicality skills with students, but the teacher will review them again the next lesson and give a brief history of where the recordings used in the game come from. After learning about cylinder recordings in lesson 2, the students will come in to today's class ready to learn about the next step in the history of recording technology. Following this lesson, students will explore more ways that modern recording technology skews the listener's perception of the live performance that was recorded in 1-2 more lessons, depending on the teacher's time frame and intentions. To culminate the unit, students will be presented with a project opportunity: pick any 2 songs and compare their use of at least one musicality skill from *MusicianMaker*. Students will give a presentation explaining the type of recording used and how it allows/limits the transmission of the artist's musical decisions. Students will have 2 full class periods to work on the project and 1-2 classes for the presentation and submission of the projects.

Learner Objective	Assessment
Students will be able to **compare and contrast** the musical decisions made in multiple recordings representing different time periods.	S will be assessed on the quality of discussion they produce as a class and each person's individual commitment to creating an engaging and intellectual discussion. T can choose to collect or visually check S notes, and T will collect the hypotheses at the end of the lesson as a supplement to the established participation grade.

ACADEMIC LANGUAGE DEMANDS: The demands of this lesson are fairly advanced to fit the high school audience and difficulty of the unit itself. S are already familiar with the musical skill words that apply to *MusicianMaker* and should know a variety of other music-specific vocabulary from the course. Because it is formatted for non-musicians and as a general education requirement for high school S, they are expected to only know the vocabulary and discourse from previous units. S are not required to read musical notation, but must understand how to follow the progression of a song along a page of written music. S have already learned about analog recordings, but are introduced today to the new vocabulary terms mp3, FLAC, lossy, and lossless. Other applicable terms may emerge in discussion, but they are not necessary for this lesson and S will not be held responsible for them until they are taught in the appropriate lesson.

LAUNCH/HOOK (5 minutes):

1. S will come to class to find a Do-Now activity on the board: in your notes, write down the 5 musicality skills used in *MusicianMaker* and a short definition for each. On the following pages, draw a chart that lists these 5 skills for Songs 1-8. (Show an example of the chart on the board for S to look at if they need to). As all of the S file in to class, they should have enough time to complete this task. **(5 minutes)**

PROCEDURE (67 minutes):

2. T will review the 5 musicality skills and definitions for any S who missed the information and then move on to the first activity. Explain that T will be playing excerpts of songs from the last 100 years in American history. While the songs are playing, S should jot down notes about the 5 musicality skills in the music: can you hear them? Do they sound authentic? Note differences and similarities in the chart. Proceed to play each of the 8 musical examples, which can vary by classroom but might look something like this:
    - Song 1: example from *MusicianMaker*
    - Song 2: recent FLAC jazz recording (Diana Krall)
    - Song 3: extremely current popular mp3 (Pharrel Williams)
    - Song 4: 1920s hit on scratchy recording (Irving Berlin)
    - Song 5: extremely current popular FLAC (Adele)
    - Song 6: example from *MusicianMaker*
    - Song 7: popular tune from the 1950s (Frank Sinatra)
    - Song 8: popular modern tune with heavy editing (Ke$ha)

    (20 minutes)

3. Following the listening and note-taking periods, T can pull up a presentation in which each song name is given, along with other information that will appear as

T clicks or otherwise allows it to appear. Ask S to reflect a little bit on the sound quality of the recordings and the musicality skills in them as T takes notes on the board or presentation itself. Before switching slides, T will click to reveal the type of recording for each song (digitized analog, mp3, FLAC). **(25 minutes)**

4. After presenting and discussing each slide (8 in total), ask S to reflect on which type of recordings sounded the best. T will listen to S opinions and note the quality of discussion before moving on to a short lecture on the history of mp3 and FLAC technologies. Explain the "lossless" and "lossy" formats, and use clips of Songs 1-8 in multiple formats to compare and contrast the sound quality. T can engage S by asking them to take a blind vote on which recording is which, and show how superior the FLAC recordings are in comparison to mp3s. **(10 minutes)**

5. Bring the discussion back to the musical qualities, and ask S to listen to some clips again for specific reasons. Compare songs of different qualities and listen for a clear form, rhythmic interest, indication and separation of phrases, dynamic levels, and articulation/diction. Divide S into groups, 1 for each musicality skill, and play parts of the recordings. Ask S in each group to explain how the skill was or was not present in the recording and why. **(12 minutes)**

CLOSURE (8 minutes):

6. Ask S to use the last few minutes of class to formulate a hypothesis about why current musical artists do or do not focus on the same musicality skills as artists from earlier decades and centuries. What has changed about recording technology to encourage musicians to adapt their stylistic choices? **(8 minutes)**

DISCUSSION OF INSTRUCTIONAL SUPPORTS:

- S who are unable to write or struggle with quick-paced writing assignments can use a typing device or any other form of assistive technology necessary to take notes and complete work.

- S can record the lecture portion and submit notes at a later date if extra time is needed.

- Songs 1-8 can be modified as T sees fit; they can be completely different, given out as CDs or on individual laptops with headphones for listening independently, shortened or elongated to include as few or as many songs as the T would like to use.

- S can receive a printed copy of all T resources from class to be used during the class or afterwards for studying purposes.

- The entirety of the lesson can be reformatted for use in a non-music classroom; musical skills can be taken out of the lesson and instead basic characteristics of the sound quality could take center stage. Alternatively, the technological terms and knowledge could be removed for a more educated musical audience. 2 examples from *MusicianMaker* are used here, but more can be added if time allows.

Screenshots from the App

The following screen shots are shown in approximate order of appearance to give an idea of gameplay, flow, and storyboarding.

Image 1, Title Screen

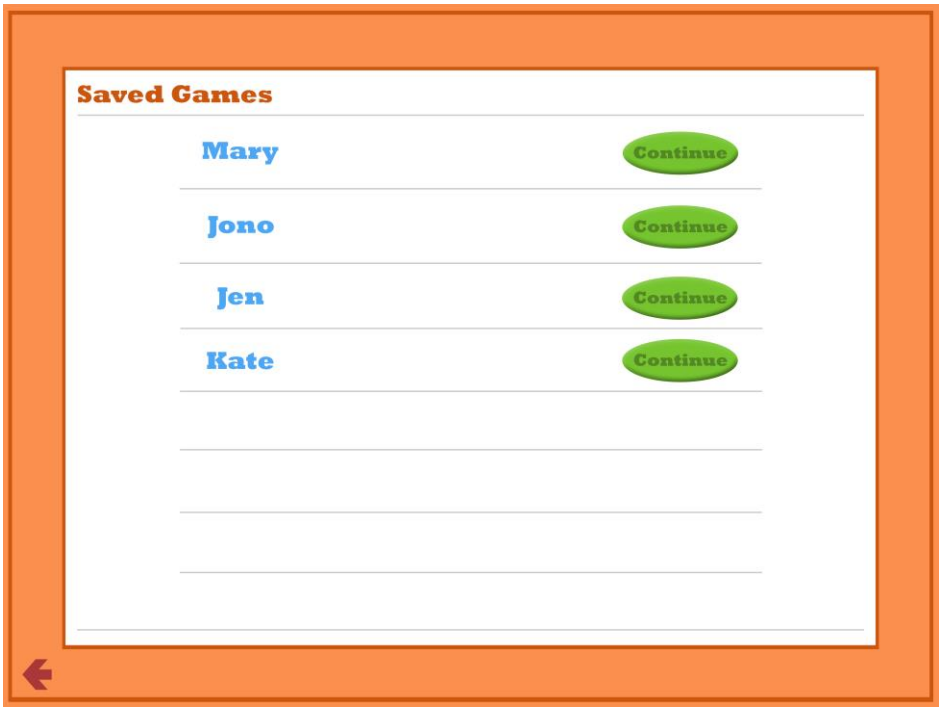

Image 2, Saved Games

Image 3, Credit Page

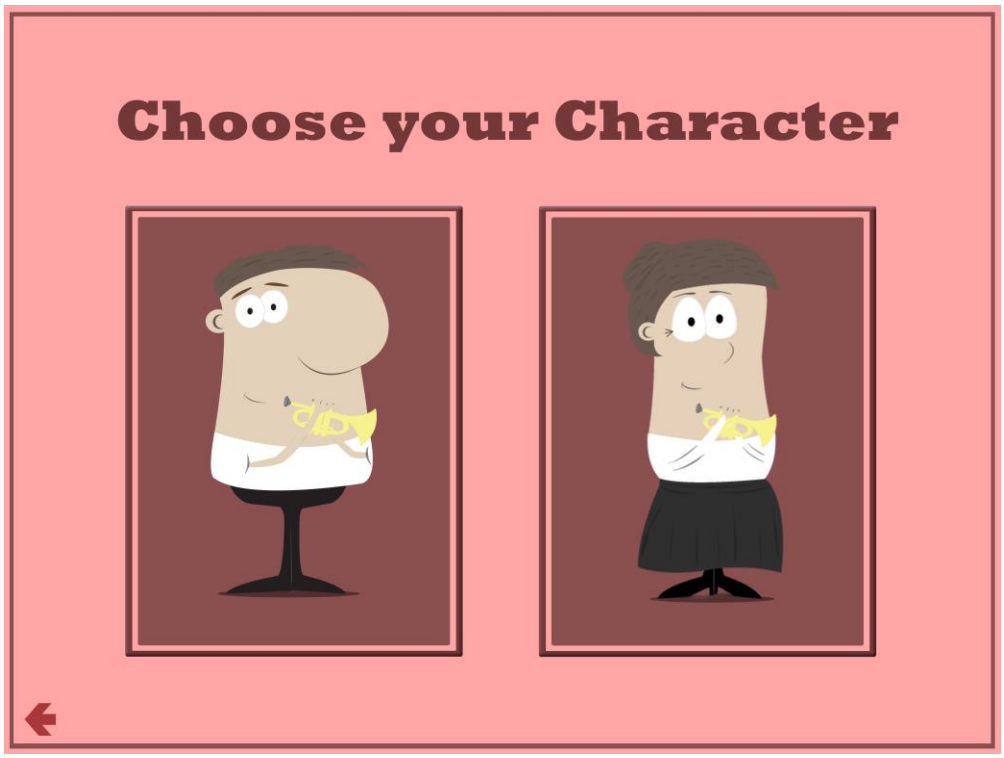

Image 4, Character Choice Screen

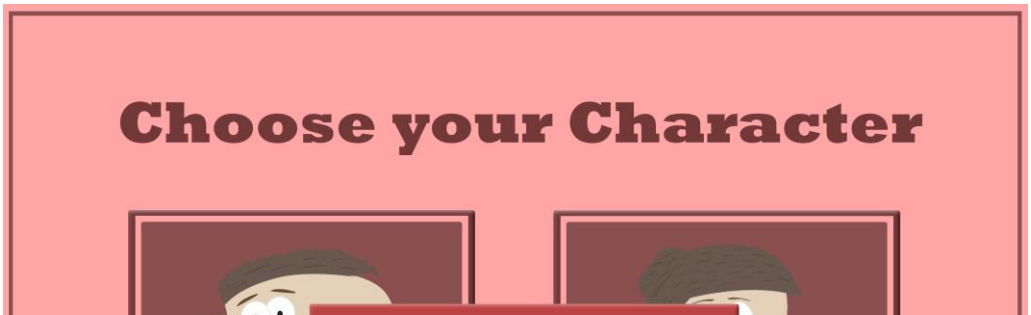

Image 5, Name Input Screen

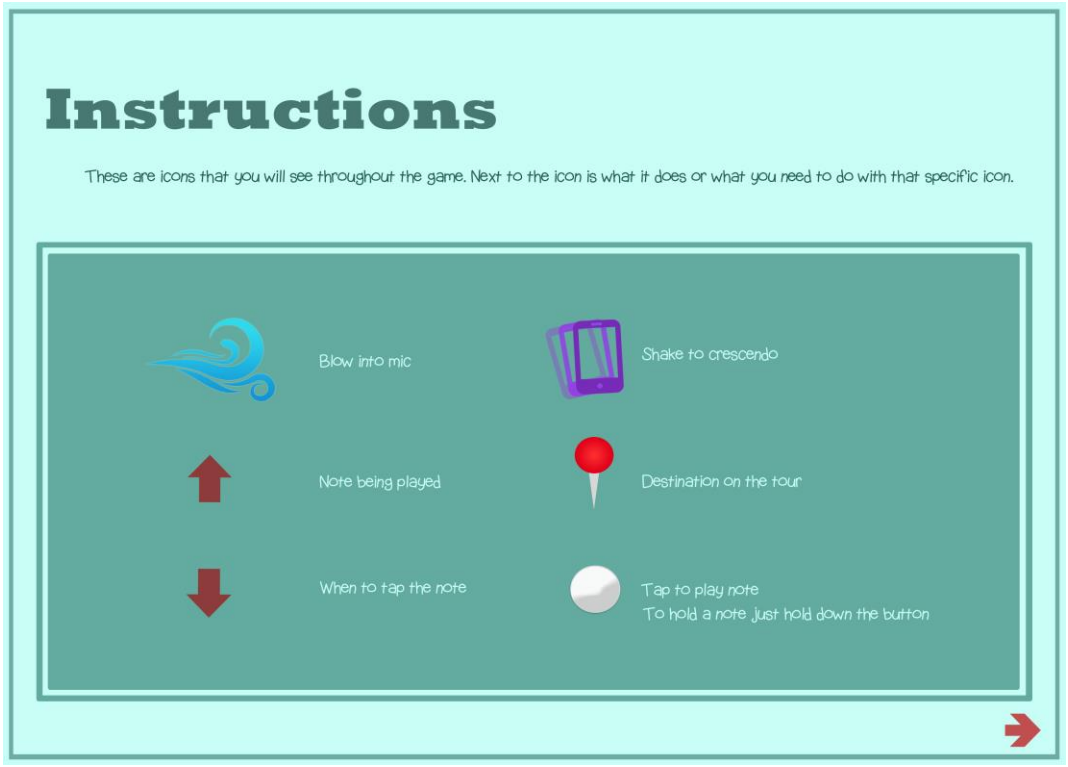

Image 6, Basic Instruction Screen

Image 7, Character Face Instructions Screen

Image 8, Game Map

Note: This map does not reflect current city choices in the app, but shows the possibilities of traveling across the country using the bus icon in different patterns. Wyoming and Louisiana are not in the prototype design or concept.

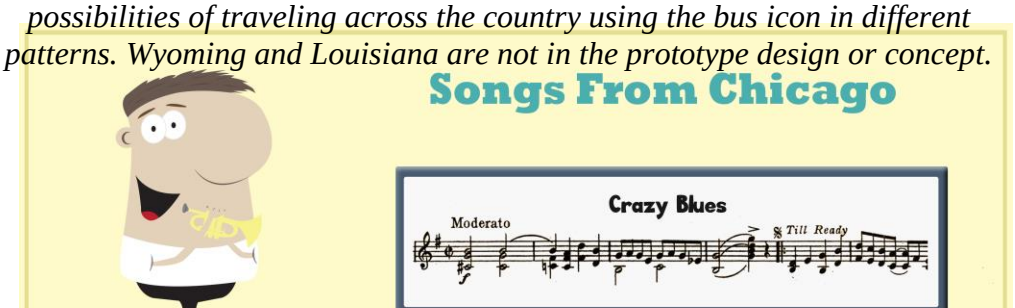

Image 9, Individual City Song Selection Screen
Note: This screen is another instance of showcasing design possibilities, but is not a reflection of the current concepts discussed in my essay.

Image 10, Performance Selection Screen

Image 11, Performance Goal Screen (example for NYC)

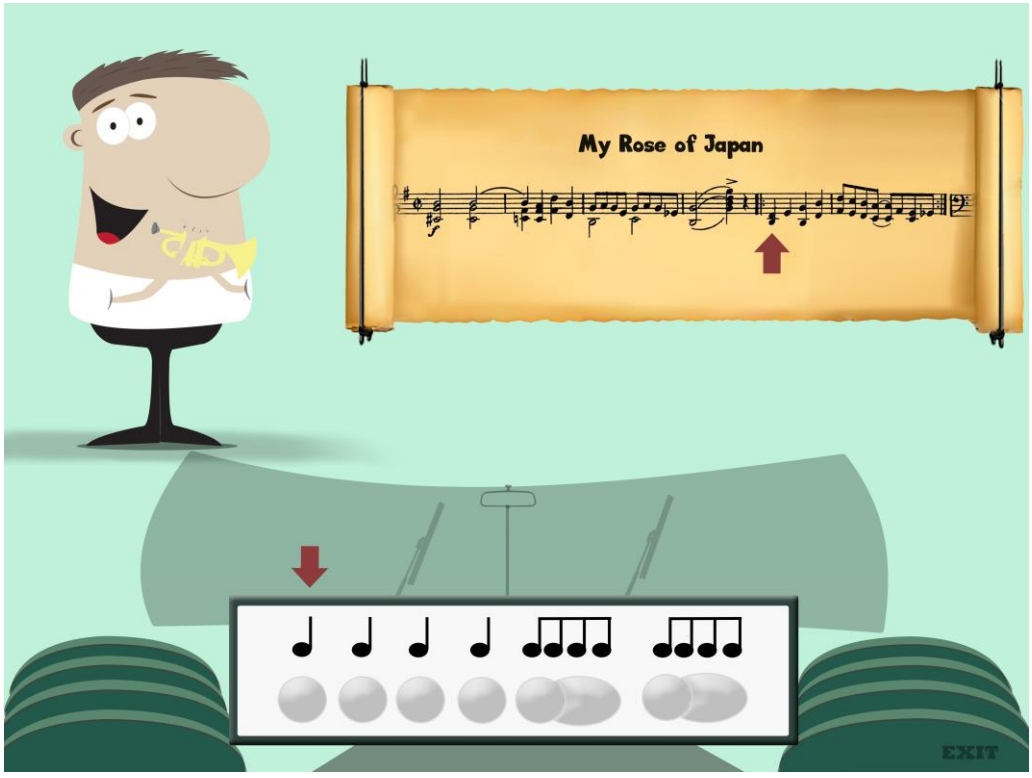

Image 12, Practice Session Screen (reflecting possible rhythmic skill)

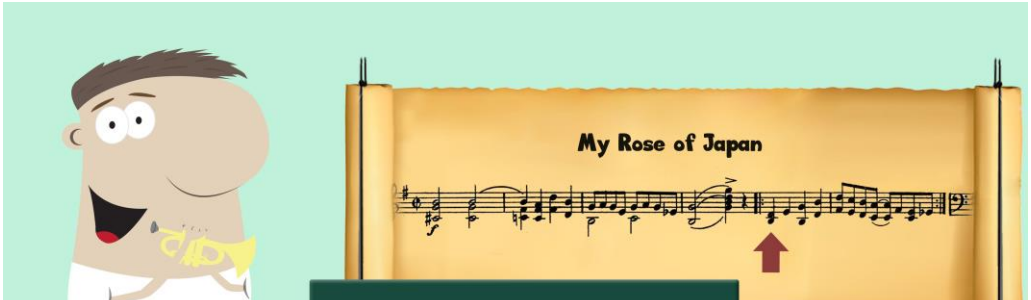

Image 13, Example Exit/Restart Pop Up

Image 14, Post-Rehearsal Screen

Image 15, Example Female Character Outfits by Decade

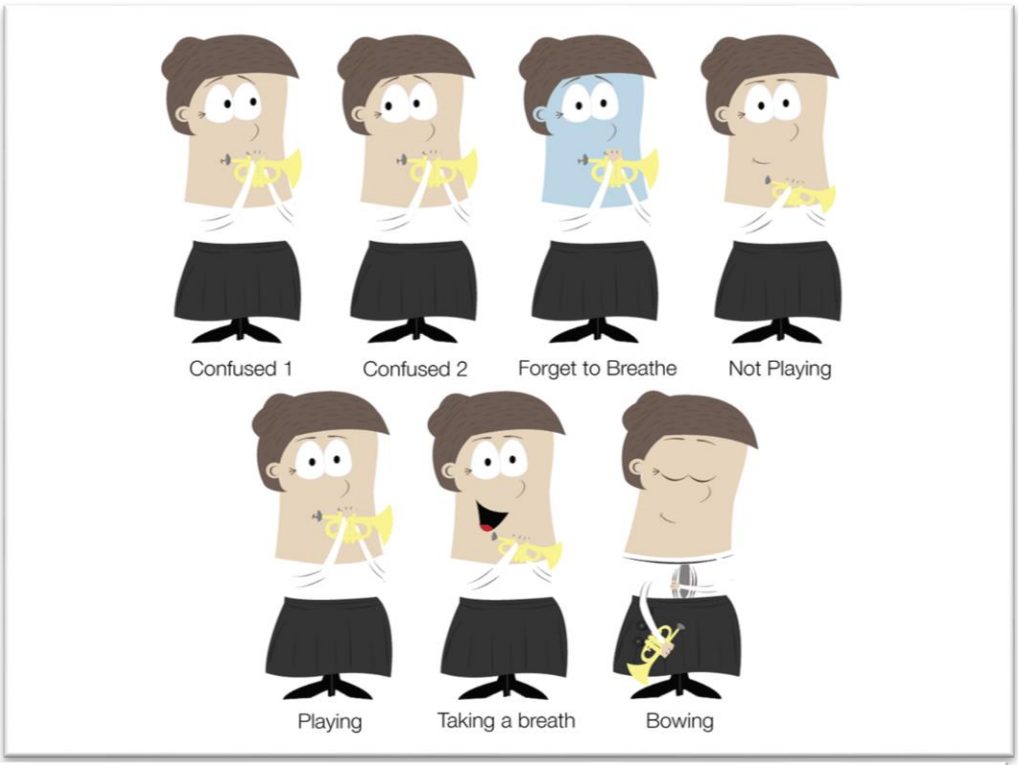

Image 16, Example Female Character Animations

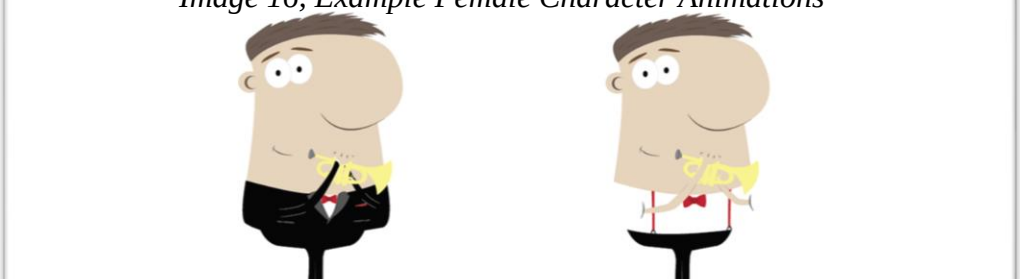

Image 17, Example Male Character Outfits by Decade

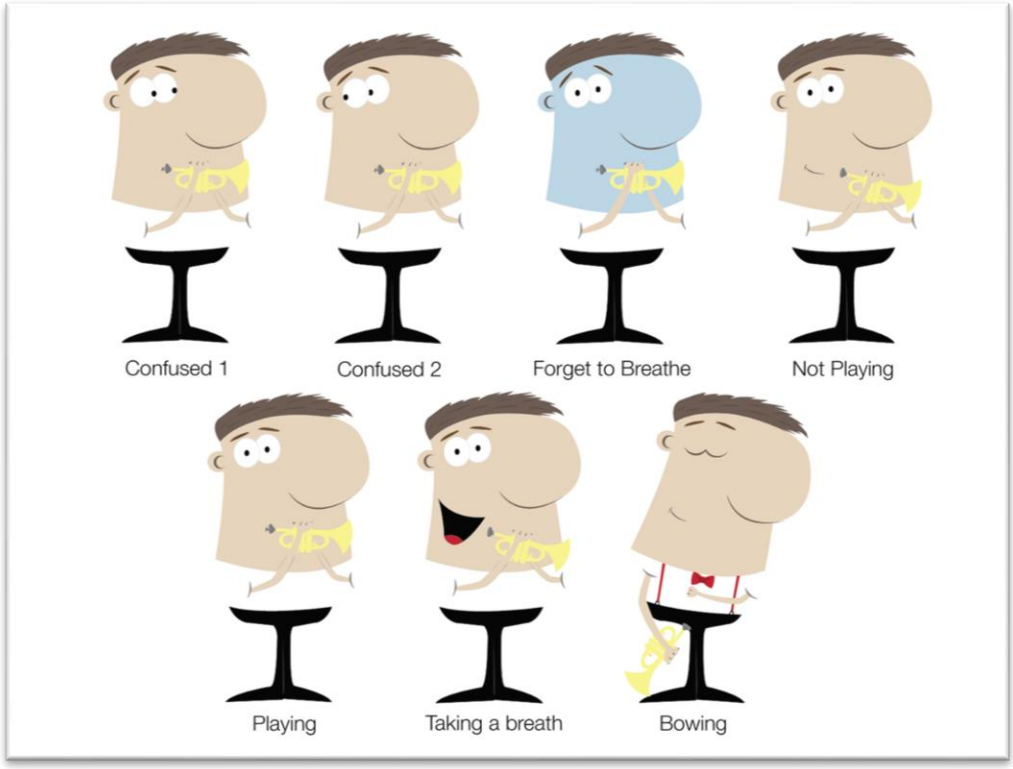

Image 18, Example Male Character Animations