A Case Study of Technology in Music Classrooms With a High-Poverty Population of English Language Learners

A Document

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

Master of Music in Music Technology

Production Track

By

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University of Valley Forge

Phoenixville, Pennsylvania

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ABSTRACT

The purpose of this case study is to understand the impact that music has on teaching English vocabulary to English language learners. This study developed a series of musical activities and songs for English language learners at New Castle Elementary School in New Castle, DE. Students were enrolled in Kindergarten and 1st grade. A pre-test to check the English vocabulary of students was given and revealed an average raw score of 5.8181 out of a possible 10 points. Students were then exposed to the materials developed by the author and a post-test was given. Results demonstrated an average raw score of 8.6818. This demonstrates an increase in raw score of approximately 29%, which could only be recognized as improvement. Future recommendations include (a) developing materials for a broader vocabulary, and (b) development of video and musical materials to be used independently and out-of-class.

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Chapter 1 – Introduction

Problem Statement

English language learners are a growing population in the public education system of the United States, and come from a variety of cultural and ethnic backgrounds. However, 100% of students who participated in this study identify themselves as hispanic. The National Center for Education Statistics reports that Hispanics are the fastest growing student group enrolled in the public schools. (*National Center for Education Statistics, The Condition of Education, 2001 Washington, DC: U.S. Government Printing Office, 2001, 8.)* Furthermore, hispanic students often come from low-income families, and sometimes are in the country illegally. Both of these situations make it difficult for families of English Language Learners students to provide linguistic support for their child in an English speaking community. ELLs (English Language Learners) often come to school with little experience interacting with people who speak only English. Students may become frightened when they cannot communicate with their peers or teachers.

The Delaware Department of Education classifies 57.7% of students at New Castle Elementary School as “low income” for the 2014-2015 school year. Additionally, 17.2% of students are classified as English language learners. This means that English is a secondary language (ESL) for these students, and not the primary language spoken in their household.

The language barrier is the most obvious difficulty in working with ELLs. It is difficult to communicate with a student who does not speak the native language spoken

throughout the school. Additionally, parents of ELLs often do not speak English and cannot communicate without an interpreter. That interpreter is most often the child, or an older sibling.

Music students and teachers face unique challenges with English language learners in the classroom. Without the context of an explanation of directions or a description of musical activities, the music classroom is a very overwhelming experience. Music class is an experience in full auditory and visual stimulation, including loud music and movement created by the teachers and students. ESL students are often emotionally overwhelmed with stimuli in the music classroom, which creates an obstacle for learning that exacerbates the language barrier. Comforting a distressed child while faced with a language barrier is a difficult challenge for any teacher.

The resolution of this dilemma usually involves calling the ESL teacher or another bilingual person in the building who speaks the language of the child. The cost of training every teacher to learn a second language makes this solution, unfortunately, impractical. Many teachers take it upon themselves to learn a few phrases commonly used in the classroom to assist these students, such as “sit,” “stand,” “quiet,” and “bathroom.” Meanwhile, students work with the ESL teacher to learn how to speak English. Although this is a beginning to overcoming the language barrier, it does not address the challenges that students face as they are introduced into a public school environment.

As music teachers face unique challenges with English language learners, music teachers also offer a unique opportunity to students. Music, through universal tonal and

rhythmic ideas, allows people to create an initial dialogue in order to communicate without using spoken language.

Studies that Have Addressed the Problem

Most students of hispanic background entering the educational system in the United States have a limited English proficiency. (Flieshman and Hopstock). “Many ELL children go through a period, usually within the first month of encountering the new language, in which they refuse to talk with teachers or peers.” This is a normal developmental phase for young children learning a second language in a foreign country (Abril). A research study performed with adults showed that music is a predictor of phonological skills (the ability to comprehend and reproduce sounds) (Slevc, L. R., & Miyake, A.).

Deficiencies in the Study

Research concerning the relationship between music and language is promising, but there is little research in using music to teach second-language vocabulary to English language learners. This area of education should be further studied to determine the potential benefit for this growing population of students.

Relevance of the Study

The results of this study will assist music teachers who interact with ELL students. When teachers learn the songs and activities related to this research project, they can use them in the classroom, or modify the activity to accommodate their

classroom needs. Music teachers will be able to view the results of this study and develop it further for a more effective learning experience for future ESL students.

Purpose Statement

The purpose of this case study is to understand the impact that music has on teaching english vocabulary to English language learners. This study developed a series of musical activities and songs for English language learners at New Castle Elementary School in New Castle, DE.

Chapter 2 - Literature Review

Introduction to the Literature Review

A review of research literature reveals 3 categories of studies. The first category focuses on ELLs in the classroom. Research in this category discusses:

- breaking the language barrier
- correlations between musical ability and learning a second language
- standardized guidelines for music instruction when working with ELLs.

A second category of research addresses the issue of working with students who live in poverty. Research in this category discusses:

- lack of funding for music programs,
- emotional and behavioral dysfunction in students,
- mixed teacher perceptions of students
- recruitment, structure and execution of music programs

The third category of literature is a review of research that addresses the use of technology in the classroom. Research in this category discusses:

- a systematic acquisition of music technology resources, with case studies to provide examples
- The digital divide (the economic and social inequality in access to information and communication technology)

Section One - ELL Research Literature

Introduction

The research studies and articles express the importance of cultural relevance in learning. This means allowing ELL students to share their unique experiences with their peers. It also means making the content of the lesson relevant to the experience of ELL students.

An important consideration when working with ELLs is to distinguish the difference between content learning and English language learning. Additionally, it is argued that acquisition of English vocabulary and linguistic ability is the responsibility of all stakeholders (all teachers, guardians, and the student) and not the sole responsibility of the ESL teacher.

Research literature reveals that differentiation of instruction and assessment is necessary to reach beyond the language barrier and deliver content effectively. Teachers of ELLs must use non-linguistic means of assessment and instruction to deliver content to supplement conventional methods of learning that involve language such as reading, writing, and lecturing.

Lastly, research literature reveals that music increases neurological connections that provide for an accelerated rate of physical and mental learning in ELL students.

A 2002 survey, titled "**Secondary Teacher Attitudes Toward Including English Language Learners in Mainstream Classrooms,"** composed of 279 subject-area teachers from a midsized city in the southeastern United states revealed that secondary teachers have a positive attitude toward ELL inclusion, a somewhat positive attitude

toward coursework modification, and a neutral attitude toward professional development opportunities that are designed to improve instruction with ELLs. It is notable that the majority of teachers feel that:

- ELL inclusion created a positive learning atmosphere
- Inclusion of ELL students does not benefit the majority of students
- ELL students must attain a minimum level of English language proficiency.

The **National Association for the Education of Young Children** offers these recommendations for working with English language learners:

• Recognize that all children are cognitively, linguistically, and emotionally connected to the language and culture of their home.

• Acknowledge that children can demonstrate their knowledge and capabilities in many ways.

• Understand that without comprehensible input, secondary language learning can be difficult.

• Recognize that children can and will acquire the use of English even when their home language is used and respected.

• Support and preserve home-language usage.

• Develop and provide alternative and creative strategies for young children's learning.

“No Hablo Inglés: Breaking the Language Barrier in Music Instruction.”

Carlos Abril points out that there is no standardized method to teaching ELL children in a music classroom. Therefore, programs for these children vary greatly from school to school. Most English language learners are included with their English speaking peers into the music classroom. Using appropriate English music vocabulary is particularly challenging for ELL students. Additionally, the use of hand signs is an effective form of communication for breaking language barriers. An example of this is using the Curwen hand signal system for musical solfege. Another example is using conducting gestures to convey expression. Selecting repetitive songs, and teaching difficult passages on a neutral syllable, will assist ELL students. Such non-verbal means of communication reiterate the importance of using non-linguistic means of instruction.

English language learners participate in musical ensembles less frequently than their peers; ELL status is a negative predictor of participation. In **“The Relationship Between English Language Learner Status and Music Ensemble Participation”** Julie Lorah describes when compared with socioeconomic data, it appears as though there is no evidence ELL students participate in musical ensembles at a different rate as their peers. Lorah concluded that it may be a lack of opportunity that causes ELL students to fall behind in participation, not a lack of interest.

Let’s look at an individual case of a secondary ELL: **“Diva Irina: An English Language Learner in High School Choir” by** Regina Carlow of the University of New Mexico conducted a yearlong case study in 2004 of five ELL high school students

enrolled in chorus. Irina, one of the subjects, felt forced to attend chorus in high school. She she did not feel valued as a member of the chorus, did not enjoy the music, and often sat in her chair checking her cell phone.

She expressed that her experience in chorus in Kazakhstan was enjoyable to her because the music they sang was culturally relevant to her and her family. At her school in America, she was invited to sing a solo “Russian Song” which she performed with confidence and appropriate style.

The study found that some standards in secondary choral classes can be viewed “as culturally incongruent with ELL students’ previous musical experiences.” This study emphasizes the importance of making the musical experience culturally relevant to the ELL.

New Talk about ELL Students

Educators sometimes assume ELLs cannot participate in academic work until they are proficient in English. Additionally, many teachers place the responsibility of learning English solely on the ESL teacher. Stacey J. Lee, professor of educational policy studies at the University of Wisconsin-Madison, expresses the importance of learning English through content. Lee suggests a “plurilingual” approach to language learning, which “centers on individual students’ linguistic, cultural, and schooling experiences.” Students use their native language to learn English.

Success with ELLs: Modifying Lessons for English Language Learners also suggests several methods for adapting learning for ELLs. One way that lessons can be adapted for ELLs is to understand the ELL's cultural perceptions, which are often very different from native English speakers. ELLs must be allowed to bring their personal cultural experiences into the classroom. A second way that lessons can be adapted is by using alternate versions of materials. For example, the article suggest allowing ELLs to use abridged versions of texts in English literature class. A third way learning can be adapted for ELLs is to allow students to have a choice in the materials, procedures, and goals of a lesson.

Success with ELLs: Authentic Assessment for ELLs in the ELA Classroom ELLs face the challenge of second language acquisition while simultaneously developing content knowledge. Educators face the challenge of determining whether the results of an assessment are indicative of content knowledge or English proficiency. One way teachers can create valid assessments is to offer a variety of ways that ELLs can show they are learning content. This means connecting classroom activities to real world applications, and connecting language to the assessment of the content knowledge.

Drawing on the diverse backgrounds of ELL students provides an opportunity for multiple perspectives of complex, real-world problems. **Success with ELLs: Developing and Shifting Perspectives** focuses on a 9th grade class in which 30% of

students are ELLs. The teacher creates a writing activity. The topic of the activity was the depletion of the rainforest. While most students emphasized the negative impact of rainforest destruction, an ELL student named Paolo argued, that his father's job as a logger in Brazil was his only choice to support his family.

Success with ELLs: Using Your State's Travel Websites to Promote Academic Vocabulary centers around a vision for resources: "Use what we have, use what we have access to, and use what is already created for you." Every state has a travel and tourism website, and many of them offer PowerPoints and YouTube videos that have a built in vocabulary lesson. Vocabulary from these websites usually includes terms and phrases that are a part of that state. Students can write descriptive sentences to describe what they see on the website, and essential vocabulary can be underlined.

A **Reading Test Performance of English Language Learners using an English Dictionary** determined whether ELLs performed better on a standardized test with or without a simplified English dictionary. The study used a control group of non-ELL students in addition to a cohort of ELL students. The study found no significant difference in scores when a simplified English dictionary was used in either cohort. The exception were students at an upper-intermediate level of English Language Learning, where there was a moderately significant score improvement in the ELL cohort when compared to the control group.

"Individual differences in second language proficiency: Does musical ability matter?" ***Psychological Science*****, 17, 675-681**

This 2006 study by L.R. Slevc examined the correlation between musical ability and second language proficiency in adult learners. Musical ability is a predictor of phonological ability (the ability to distribute and pattern speech sounds in a language), but does not explain variance between syntax (the study of the rules for the formation of grammatical sentences) or lexical knowledge(knowledge of vocabulary without context of syntax). "Musical skills may assist in obtaining appropriate sound structure in learning a language."

There is further research that validates music as an enhancing tool in developing linguistic abilities. **Music Enrichment Programs Improve the Neural Encoding of Speech in At-Risk Children** focuses on the aural neurophysiological functions (the functions of the nervous system in processing of sound) of children who are trained in music. The study showed that children who participated in 2 years of musical training showed a statistically significant increase in the neurophysiological distinction of consonants. Children who participated in a control year, where no musical training was given in the first year, showed no increase in neurophysiological distinction.

Section Two - Music Education in High-Poverty Schools

Introduction to Music Education in High-Poverty Schools

A 2010 report from the Center on Budget and Policy Priorities reported that twenty-two percent of all children in the United States are living in poverty. The number of children living in poverty has not been as high since 1933. The article, **General Music and Children Living in Poverty,** addresses challenges that face children growing up in the face of poverty. The problem is a lack of opportunity for these students; all students have potential. Schools with high-poverty populations rely more heavily on state funding due to lower local tax revenue. As a result, they are disproportionately affected by state education cuts.

Culturally responsive pedagogy can be utilized in the classroom with children who come from economically disadvantaged families. Allowing students to use music to convey the personal and cultural stories of their lives can bring them comfort and happiness. Students are empowered when they feel like their voices and stories are heard. Finding similarities and common interests with others also creates community in the classroom.

Music education organizations must enable music educators to create strong music programs in high-poverty districts. Music education organizations must increase workshop programming that will address the needs of these students and teachers, offer reduced-price memberships to teachers who work in high poverty settings, and offer mentor programs that will pair experienced teachers with effective new teachers in high-poverty schools.

Social Class and School Music, by Vincent Bates, addresses three manifestations of poverty in the music classroom: financial resources, cultural practices, and social networks. He tells the age-old story of a mother returning an instrument because she could not afford the monthly payments. He warns against imposing a "rehabilitation" of the lower class by impressing music of another (upper) class (traditional western repertoire) in order to suppress the existing musical culture. The author argues that schools with high-poverty populations are subject to a stricter standard of management and enforcement, few opportunities for real life problem solving, and little to no instruction in the arts.

There is research that shows a positive correlation between poverty and negative behavior in the classroom. A survey was published in 2014 titled ***Behavioral and musical characteristics of the children who are exposed to child maltreatment and poverty in South Korea*.** The survey was conducted by Jinah Kim in South Korea. This survey found that students who were subjected to abuse and poverty were more likely to show emotional and behavioral problems than their peers who came from wealthier backgrounds. The most frequent behaviors shown were aggressive and delinquent behaviors. The survey also showed a correlation between the frequency of abuse and the degree of emotional and behavioral dysfunction. Also, teachers expressed that students who played a musical instrument were less likely to show symptoms of poverty and abuse in the classroom.

Students who show emotional or behavioral problems in school may be considered “at risk.” At risk students, according to **Music Class for the At Risk - A Music Therapist’s Perspective,** are students who drop out of school or who are doing poorly in school. This article discusses how music can be used to support at risk students. One factor that has a high correlation with dropping out of school is a lack of involvement in extracurricular activity. Music is often an extracurricular activity. Another factor is a lack of self-discipline in at risk students. Listening to, evaluating, and performing music teaches self-discipline. A lack of self-esteem is another factor that affects at risk students. Music is a means of self expression and enhances self worth. Lack of motivation is a factor that affects at risk students. At risk students will often change their behavior to earn the privilege of participating in a performance or musical activity. Finally, the risk of chemical dependency and addiction can impact at risk students. Although music alone cannot cure addiction, it can provide social involvement, self-esteem, and emotional support to at risk students who may otherwise turn to drugs or alcohol.

In, **“Can Performing Arts Bring the Curtain Down on Poverty?”** by Tamar Ann Mehuron, the author argues that involvement in music can bring self-esteem, confidence and discipline to children. This article highlights a program called City Hearts, which offers a creative outlet to urban children in Los Angeles through the performing arts. The idea is to offer discipline with compassion and respect. Students in the dance program choose their dance music and participate in a year end concert,

which boosts their self esteem. The article emphasizes the importance of instructors teaching in a non-judgemental, non-blaming way:

- They feed the hearts and souls of deprived children.
- Donations for clothing and costumes often come from families of students.
- There is an intergenerational program where children work with the elderly.

There is a way to engage at risk students. Paul Gorski, in **Building a Pedagogy of Engagement for Students in Poverty,** names 7 basic strategies for increasing engagement for students in poverty in the classroom: express high expectations through higher order engaging strategies; enhance family involvement; incorporate arts in instruction; incorporate movement into instruction; focus intently on student and family strengths; analyze material for class bias; promote literacy enjoyment; reach out to families early and often.

Gorski also mentions an additional four higher level strategies: advocate universal preschool; nurture relationships with community agencies; reduce class size, and increase health services in schools.

The seven strategies discussed above require a concrete method for execution. Many of our country's poorest students are concentrated in struggling schools. These schools are ineffective at closing the achievement gap. National programs, such as No Child Left Behind, have historically produced modest gains that level off after time. **Restructuring High-Poverty Elementary Schools for Success: A Description of the Hi-Perform School Design** gives a successful and proven model of execution.

The solution lies in restructuring elementary schools using the “Hi-Perform School Design.” The development of this design relies on two major components. The first is effective administrators and teachers. The second is a blend of traditional and progressive ideas. However, a third component for high-poverty schools relies on an emphasis on differentiation for students and a shifting population. After various educational structures and designs were researched and studied, emphasis was given to methods that created the highest levels of achievement.

The design itself is multifaceted. It incorporates the Modularized Continuous Progress approach developed by John Champlin in the 1970s. This organizes students by knowledge and skill level, instead of by grade level. These students are placed into groups that are geared toward “modules” in the learning scope and sequence. This approach works because it is a responsive teaching strategy that is driven by the needs of the students.

The design also has students participate in a dramatic or musical production. It is interesting to note that participation in a dramatic or musical production increased the reading scores of low-income students by a wider margin than their advantaged peers.

There are strategies that teachers can use to keep students living in poverty engaged. **Building Your Instrumental Music Program in an Urban School** by Kevin Mixon offers several categorical solutions to obstacles that instrumental music teachers often encounter in an urban school, or a school with a high-poverty student population. For selection and retention of instrumental students, he recommends giving older

students preference when instruments are in short supply, because younger students have more time to join the program at a later time. Teachers can also set up practice areas for students so they can practice during the school day. This offers more practice opportunities for those who live in chaotic homes. Forming non-traditional ensembles will allow students to remain engaged and excited about their music, which will improve retention.

Mixon also thinks that parental involvement is crucial for maintaining an instrumental program. Frequent, positive communication is the most important step in forming relationships with parents. Personal relationships are important to families, so providing documentation with pictures and video is an important part of the program. Since funding for a program is also important, connecting with grant-writers is one effective approach. Principals may also be able to offer a little help as well.

Teacher perception of students in poverty is varied. In 1967, George E. North conducted a survey titled **Teacher Views of Poverty Area Children** that asked 167 teachers to select 50 of 300 words that best describe children living in poverty. Favorability was unaffected by the number of students living in poverty in the classroom. Teachers with a higher percentage of students living in poverty were frustrated with their work. Teachers' age and teachers' childhood economic background were unrelated to favorability or content of view of these children. Successful teachers who worked with children living in poverty were happier with their work than unsuccessful teachers. There was no difference between data collected from caucasian teachers and

african-american teachers. Teachers generally thought of children living in poverty in a negative way.

Section Three - Music Technology

Introduction

Glimpsing into the history of music education will give clarity and context to the role of music technology in the classroom. In **From the Melting Pot to Cultural Pluralism: General Music in a Technological Age, 1892-1992,** George N. Heller gives a brief overview of 100 years of history in music education. In 1892, music education was primarily concerned with sight singing, vocal pedagogy, and music appreciation. The first music course study in the state of Kansas was published in 1894. It was during this time that music educators began to actively meet and collaborate at the national level. At the end of World War One, music was taught over the radio waves. In the 1920s, song singing gave way to movement and music with the research of Emile Jaques-Dalcroze. Teachers who previously taught under certificates now needed a bachelor's degree. Class Piano increased in popularity, as did broadcasting by radio. Many music teachers had to set aside their professions to serve in World War II. A reaction to the war was an increase in Western music. Music textbooks began introducing systematic methods to reading music. Zoltan Kodaly and Carl Orff were highly influential in the post war era. In 1954, schools became racially integrated and students learned a more comprehensive, culturally diverse music curriculum. Education of the 1960s and 1970s focused on the development of supporting ethnic minorities, and physically and mentally disabled children. Testing in the general music classroom

began in the 1970s a result of the need for accountability. In the 1980s, Computers, MIDI, and laser disks, furthered music technology and education.

The article **A Systems Approach to Music Technology** states that the purpose of music technology in the classroom is to enable and enhance student learning. The systems approach considers the context of the technology in the classroom. This process is broken down into five steps.

Step one is people and purpose. Define who the students are, and what do you want them to do. This process is to be guided by standards, curriculum, and goals. Seek examples and success stories from other teachers.

Step two is to determine the amount of physical space needed for your students. Most MIDI labs go from a closet, to storage space, to a classroom over the course of years. Consider making your space mobile by placing the equipment on a cart.

Step three is to select the software required to complete the activity. Consider the program's function, ease of use, cost, and required peripherals. Choose from notation, sequencing, presentation, or other specialized software. The software you want to use will determine the operational parameters for your hardware.

Step four is to choose the hardware for your activity. Consider Mac or PC, processor speed, memory, sound card, and all of the peripherals that are required. Remember to add cables, headphones, and adapters to your total cost.

Step five is to find funding. Know the procedure for funding in your district. Prioritize your requests to show how you can acquire materials over time.

There is **A Case Study of the Creation of a Technology-based Music Course.** This study was designed to examine the process, desires, and conditions around creating a high school music technology class. The idea was prompted by a band director who, after attending a professional development workshop on Sibelius, became interested in expanding his own knowledge in music technology. He concluded that he could use technology to expand his music program. The band director reached out to the assistant superintendent, who awarded a grant to the high school music program to secure the funding for a music technology course. The grant allowed for a 12 station music lab with Macintosh computers. This case offers an example of educational progress that started from the bottom up, as opposed to a mandated requirement by the state.

Music technology can be for a variety of reasons in the classroom. In, **"Podcast Time:" Negotiating Digital Literacies and Communities of Learning in a Middle Years ELL Classroom,** Suzanne Smythe conducted a study with middle school ELLs. During this study, students used GarageBand to create podcasts using sound effects, music, and spoken word. Students also constructively criticized and evaluated podcast productions created by their peers. The use of digital and multimodal technology provided challenges to the conventional curriculum, including organization of space, student grouping, and access to equipment. The study concluded that digital literacy projects can help teachers create classroom learning communities that critically engage and respond to the social worlds of ELLs.

The digital divide (the economic and social inequality in access to information and communication technology) is a challenge faced by many teachers in the classroom. **Closing the Digital Divide: Update from the Early Childhood Longitudinal Study** investigated the equitable access to technology for 8,283 children in Kindergarten, 1st, and 3rd grades. The study found that high-poverty schools had more computers for instruction than low-poverty schools. However, children at low-poverty schools had greater access to home computers than children at high-poverty schools. The results of the study found that “access to and use of computers at home, at school, internet access, and low-poverty school status were correlated positively with academic achievement.”

Chapter 3 - Design and Implementation

Research Design

This research used a quantitative and qualitative experimental design. The participants in the study were students in kindergarten and first grade at New Castle Elementary School, in New Castle, Delaware, who were assigned to work with the ESL teacher. The music teacher acquired a list of English language learners from the ESL teacher to create a cohort to work with during the course of this study. The testing concentrated on twenty-five English vocabulary words from five popular English children's songs: *Itsy Bitsy Spider, Hickory Dickory Dock, Hey Diddle Diddle, Are you Sleeping, and It's Raining.*

Vocabulary Pool

Itsy Bitsy Spider *Vocabulary:*	Spider	Water	Spout	Rain	Sun
Are you Sleeping Vocabulary:	Morning	Bells	Brother		
Hey Diddle Diddle Vocabulary:	Cat Dog	Fiddle Sport	Cow Dish	Moon Spoon	
It's Raining Vocabulary:	Old	Man	Bed	Head	
Hickory Dickory Dock Vocabulary:	Mouse	Clock	One	Down	Up

Pretest Vocabulary Questions

1. Bed 2. Dish 3. Head 4. Clock 5. Moon

6. Fiddle 7. Mouse 8. Down 9. Up 10. Water

Rubric

0 - does not say correct vocabulary word
1 - says correct vocabulary word

Post Test Vocabulary Questions

1. Cat 2. Dish 3. Mouse 4. Bed 5. Bells

6. Spider 7. Rain 8. Down 9. Up 10. Spoon

Rubric

0 - correctly says vocabulary word
1 - incorrectly says vocabulary word

Implementation

The first step in the implementation was to collect a list of students who were selected to work with the ESL teacher. The music teacher then compiled a list of English language learners to assess, and group them into one cohort. The music teacher created a spreadsheet for data collection and analysis and input student names into a spreadsheet. The music teacher printed out images of the vocabulary words to administer the pretest.

Recording Procedure

Recording took place in the lobby of the music room. Recording of the tracks to be used in the performance was completed with the following materials:

- MacBook Pro
- ProTools First
- GarageBand
- Audio-Technica AT2035 cardioid condenser microphone
- Behringer U-Phoria 202HD Digital Audio Interface
- Korg Nano 2 MIDI Controller
- Casio PX360 Digital Piano

Vocals are to be performed by Frederick Higgins and a student, Vanessa.

Pretest Procedure

The pretest was administered to a cohort of 44 students.

The teacher asked, in English, “What is this?” to each student, while pointing to a printed image depicting the vocabulary word. The student was expected to give the answer in English. A total of 10 vocabulary words were assessed and recorded.

Instruction - Lesson Plan

After the pretest was administered, the students received weekly music instruction that contained key vocabulary words from the songs:

Objective

ELLs will acquire and retain 25 vocabulary words:

Spider	Water	Spout	Rain	Sun	Morning	
Bells	Brother	Cat	Fiddle	Cow	Moon	
Dog	Sport	Dish	Spoon	Old	Man	
Bed	Head	Mouse	Clock	One	Down	Up

Materials

- Printed pictures of each item in the vocabulary pool.

- The teacher recorded, edited, mixed, and produceed a high-quality recording to use during musical instruction: I*tsy Bitsy Spider, Hickory Dickory Dock, Hey Diddle Diddle, Are you Sleeping, and It's Raining.* A digital copy of the produced recordings, and images used for this study can be found at the following URL:

https://drive.google.com/open?id=0B58B-I8YqHVVMHJsbG51U0FFTVU

Procedure

- Sing the song, Itsy Bitsy Spider. The teacher points to the picture that shows each vocabulary word (Spider, Water, Spout, Rain, Sun) as is sung during the song.
- Sing the song, Hickory Dickory Dock. The teacher points to the picture that shows each vocabulary word (Mouse, Clock, One, Down, Up) as is sung during the song.
- Sing the song, Hey Diddle Diddle. The teacher points to the picture that shows each vocabulary word (Cat, Fiddle, Cow, Moon, Dog, Sport, Dish, Spoon) as is sung during the song.
- Sing the song, Are You Sleeping. The teacher points to the picture that shows each vocabulary word (Morning, Bells, Brother) as is sung during the song.

- Sing the song, It's Raining. The teacher points to the picture that shows each vocabulary word (Old, Man , Bed, Head) as is sung during the song.

Post-Test Procedure

The teacher created a spreadsheet for data collection and analysis and entered student names into a spreadsheet. The teacher printed out images of the vocabulary words to administer the post-test.

The post-test was administered to a cohort of 44 students. The teacher asked, in English, "What is this?" to each student, while pointing to a printed image depicting the vocabulary word. A total of 10 vocabulary words were assessed and recorded. The vocabulary in the post-test were a mixture of vocabulary from the pretest and new vocabulary words.

Limitations in the Study

There are several threats to validity with this experiment that need to be addressed. Student selection is one such threat. It would be optimal to have every student in the experiment have no knowledge of the English language. However, in order to provide an adequate number of students for a reliable cohort, there will be ELL students who do have prior knowledge of the English language.

A second threat to validity may be changes in participation. Working with high-poverty students means a high rate of absenteeism, and students change schools frequently as families move from home to home.

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Chapter 4 - Results

Data

A pretest of the English vocabulary of students was given and revealed an average raw score of 5.8181 out of a possible 10 points. Students were then exposed to the materials developed by the author and a post-test was given. Results indicated an average raw score of 8.6818. These results demonstrated an increase in raw score of approximately 29%, which could only be recognized as an improvement. All students who began the study were able to complete the study with no attrition of the population.

Due to a greater lack of prior knowledge, Kindergarten English language learners had a significantly greater difference between pretest and post-test scores. 18 of 24 1st grade participants received a perfect score in the post-test. This shows that this type of instruction would be more advantageous for students who have less prior knowledge of the English language.

Tier	Pretest	Posttest	Difference	T-Test
K	3.473684211	7.578947368	+4.105263157	0.0000000613036
1	7.6	9.52	+1.92	0.0000106802
Total	5.818181818	8.681818182	+2.863636364	0.0000000000425061

A T-test comparison between the pretest and post-test score revealed a 0.0000000000425061 probability that the post-test results were random. This means there is a highly significant probability (at the .01 level) that the improvements were the result of the instruction the students received.

Recollection of Anecdotal Evidence of Learning

Student 1 began with a score of 1 in her pretest. She did not say a single word in our first music lesson. She sat quietly, and avoided eye contact with the instructor. The music teacher was sure to smile and wave at her in the hallway in between lessons. In the second lesson, she made eye contact and smiled. It wasn't until the 5th lesson that she was beginning to say the vocabulary words with the pictures during the music lessons. Even though she wasn't verbalizing, she received a score of 8 out of 10 in her post-test. It was because of the building of the student/teacher relationship, as well as a consistent routine during instruction, that led to success with this student.

Chapter 5 - Summary and Conclusions

Summary

English language learners are a growing population in the public education system of the United States. They come from a variety of cultural and ethnic backgrounds. Music educators in the United States face a variety of challenges when working with ELLs, including the language barrier, cultural differences, and poverty.

A review of research literature focusing on ELLs revealed the importance of:

- breaking the language barrier
- correlations between musical ability and learning a second language
- standardized guidelines for music instruction when working with ELLs.

A review of research literature focusing on students who live in poverty revealed the importance of:

- lack of funding for music programs,
- emotional and behavioral dysfunction in students,
- mixed teacher perceptions of students
- recruitment, structure and execution of music programs

A review of research literature focusing on music technology revealed the importance of:

- a systematic acquisition of music technology resources, with case studies to provide examples
- The digital divide

The purpose of this case study is to understand the impact that music has on teaching English vocabulary to English language learners. This study develops a series of musical activities and songs for English language learners at New Castle Elementary School in New Castle, DE. The students were tested on 10 vocabulary words used in the songs before and after a period of 8 weeks of instruction. Students demonstrated an increase in raw score of approximately 29%. A T-test comparison between the pretest and post-test score reveals a highly significant probability (at the .01 level) that the improvements are the result of the instruction the students received.

Future Application

The method of instruction in this project can be applied effectively to future instruction. This study has proven that music can be an effective way of teaching vocabulary to English language learners. The vocabulary that was taught through this study had no correlation with the vocabulary taught by the ESL teacher. Music teachers who wish to use this study as a model may choose to work independently in developing vocabulary. Conversely, music teachers may choose to collaborate with the ESL teacher in their school to align the musical vocabulary work with goals, standards, and content that would be beneficial to the ESL student.

Remaining Gaps in the Literature

There is little to no research literature on differentiation of music instruction with English language learners that originate in various cultures. How would music instruction for an English language learner from Russia be different when compared to music instruction for an English language learner from Mexico?

There is well known research that points to the fact that both language and music aptitude wane at an early age. There is little to no research on how music would work teaching English vocabulary to older children, adolescents, and adults. It would be worthwhile to further study the effects of teaching vocabulary to older populations using music.

Conclusion

Music is often described as a universal language. This study leads to a further understanding of the impact that music has on teaching vocabulary to English language learners. Music is effective at teaching vocabulary to young students with little to no prior knowledge or use of the English language. Future research will reveal the effectiveness of music in teaching English vocabulary to older students.

This study renews the importance of music in the American educational system. Music has always been an artistic expression of our American culture that has been used to tell the stories of hardworking, everyday Americans who molded our country into what it is today. Here, music has become a tool to stir the melting pot.

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