

Quantitative Project
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CHAPTER 1: INTRODUCTION

Introduction

Literacy is a key component in a child's education, especially when they are English as a Second Language or English Language Learners (ESLs/ELLs). Students in the ABC School are assessed using the Fountas and Pinnell (F&P) Reading Benchmark Assessment. This tool is used to gauge the rate at which students are progressing in literacy. Literary factors such as fluency, comprehension and reading level are determined through this assessment. In this experiment, the reading levels of students in one first, and one second grade class will be compared to students in our bilingual classroom that has students in both first and second grade combined. The difference will be the weekly intervention – the bilingual classroom will have an additional ten to fifteen minutes of literacy practice using multisensory learning via technology.

Statement of the Problem

Our ESL/ELL students take a longer time with language acquisition, as they are mastering two languages at once. Any additional interventions provided to our ESL/ELL students are determined by their reading level. All students meet with our ESL/ELL Instructor. In addition, those students who qualify for Basic Skills Intervention (BSI), because they are reading below grade level, meet with an Interventionist. What students do not obtain in our school is an intervention with a differentiated approach made possible with technology called multisensory learning. In this study, students will engage in reading using music, movement and lyrics. Will our ESL/ELL students benefit from technology that takes a multisensory approach to achieve a differentiated methodology to learn literacy?

Purpose

The purpose of this study is to compare the impact of a multisensory literacy intervention with the district's only mutli-grade and bilingual classroom, to their respective peers using the F&P Benchmark Assessment. In this experiment, technology will be used to provide a multi-sensory experience for our ESLs/ELLs, combining audio, visual, and movement. Both the ESL/ELL Instructor, and the BSI Interventionists mimic the same format for Guided Reading; students sit in front of the teacher and are asked to read an instructional leveled book. However, this study will take an innovative approach to achieve gains in literacy – students will all participate in singing various songs using gestures and movements. As the lyrics appear in front of them on the screen, students will be able to sing along and make connections – ultimately, acquire English language skills.

Research Questions

R1. How many students in our first and second grade bilingual classroom are performing on or above their current grade level according to the Fountas and Pinnell Reading Chart before the multi-sensory intervention?

R2. How many students in our first-grade bilingual classroom are performing on or above their current grade level peers according to the Fountas and Pinnell Reading Chart after the multi-sensory intervention?

R3. How many students in our second-grade bilingual classroom are performing the same or above their grade level peers according to the Fountas and Pinnell Reading Chart after the multi-sensory intervention?

CHAPTER 2: LITERATURE REVIEW

Introduction

The technology used for this study is multisensory learning via YouTube to help support the literacy skills of ESL/ELL students, specifically in first and second grade. Explicitly, songs and music from the YouTube Channel entitled *Barefoot Books* will be used as a literary intervention within the school's bilingual classroom comprised of both first and second grade students. *Barefoot Books* Channel has many songs that are animated, provide lyrics that light up in real-time, and are colorful, all while providing an audio-visual support for students as they sing and procure language acquisition.

Music is an important feature for ESL/ELL students as they develop skills in a new language. Lems (2018) accentuates the connection between the left frontal hemisphere of the brain, in relation to language development – both language and music are processed in the same part of the brain. This discovery underscores the importance of music to a person who is learning a new language. Laboratory Director Gottfried Schlaug from Harvard Medical School stated, “I would challenge everybody to come up with another activity that engages as much real estate in the brain as music making does” (Cole 2011, 29). It is scientifically undeniable to discredit the role music plays in the human brain – especially in the minds of students that are six and learning a new language. Lems (2018) goes on to note the role YouTube can play in classrooms as students sing karaoke, which allows students to be exposed to repeated rhythms and patterns that deepen language development.

Not only is music relevant to students acquiring a new language, but the number of ESL/ELL students is steadily on the rise. Breiseth, L. (2015) reports that in 2012-2013, there

were over 4.85 million ELLs enrolled in public schools across the United States. Breiseth, L. (2015) also notes that “ELLs are the fastest-growing student population in the country, growing 60% in the last decade, as compared with 7% growth of the general student population.” The ESL/ELL population cannot be ignored. Therefore, having a cost-effective approach that supports language acquisition will help foster the English language; in turn, ESL/ELL students will be better prepared for the working global economy.

Literature Review

YouTube is a cost-effective resource for teachers to utilize within the ESL/ELL classroom. A. Usman (2018), shared that there is a lack of attention to develop ESL/ELL fluency skills in schools, which can negatively affect their overall performance. YouTube can target fluency as it is an important factor in reading; fluent readers have expression, read correctly and have a fluid pace. A. Usman (2018) collected data through a questionnaire and Read Aloud Test and found that the vast majority of the ESL/ELL students tested lacked English phoneme recognition. Having a free resource that is accessible in the classroom, and on phones or tablets is a tool any ESL/ELL student can access at any time of day, which can reinforce skills previously taught.

Kitay, J. (2000), shared that making use of music allows students to listen to language at various speeds, introduces new vocabulary, and the wide range of speakers allows students to increase their listening and comprehension skills. Immersing students in an English experience with visual, audio, and kinesthetic movement while singing is a multisensory method for children, especially of a young age, to acquire English language skills. Attempting this method

as an intervention will not take away from the already established core curriculum, but rather will compliment ABC School's methodology towards ESL/ELL's language support.

Summary

Will technology be the underlying factor towards the success of this study? Lee, R. (2006), highlights, "Because of its diverse forms, there are major differences between e-text and print. For example, e-text provides visual, textual, and audio components while print is hierarchical and static." For this experiment, technology provides a unique lens to see the possibility of using music, rhythm, song and dance, in the form of e-text. This approach of e-text will be a way to engage and promote reading for a population that needs it most – ESL/ELL students.

Providing ESL/ELL students with the opportunity to experience a fun and interactive way to learn English will be explored with this multisensory experiment. Lee, R. (2006) notes how combining closed captions with visuals, improved the classroom experience for ESL/ELL students. In addition, Lee underlines how using video animation "increased their success in mainstream classrooms" ... "multisensory learning activities were able to assist them in enhancing their second language acquisition." To provide students with the opportunity to gain better language skills while singing songs will be a method that has never been used before in ABC School.

CHAPTER 3: METHODOLOGY

Introduction

For this study, a Quantitative Approach is taken to measure the effectiveness of multisensory learning with ESL/ELL students. This type of intervention has never been attempted in ABC School. F&P reading scores of the bilingual students will be compared to students in general education classrooms.

Research Design

The Research Design utilized in this study is an experimental design. This type of study is described by Creswell (2018) as one that “systematically manipulates one or more variables in order to evaluate how this manipulation impacts an outcome (or outcomes) of interest. Importantly, an experiment isolates the effects of this manipulation by holding all of the variables constant. When one group receives a treatment and the other group does not (which is a manipulated variable of interest), the experimenter can isolate whether the treatment and not other factors influence the outcome” (147-148). For this particular study, all of the classes obtain traditional services. The only difference is that the bilingual class has an ESL/ELL Instructor that provides support for a fraction of the day for about two hours a day. The manipulated variable in this scenario is that for an additional ten to fifteen minutes, the entire class will obtain a multisensory intervention, in which all students can participate at ones. The other two general education classes will not obtain this multisensory intervention. Instead, they will obtain the customary instruction established by the school-wide curriculum for the entire

literacy block. The ESL/ELL class will obtain an additional segment of instruction without altering or removing from the curriculum.

Population and Sample

The population targeted for this study is our only bilingual ESL/ELL classroom in the district. This classroom combines both first and second grade students, all of which qualify for ESL/ELL services. All of the children in this classroom are bilingual in the English and Spanish language. The sampling done in this research is probability sampling, specifically stratified sampling. Creswell, J. (2019) explains this type of sampling as one that is divided into subgroups. For this particular study, the classroom has to be divided between first and second grade, and these subgroups must be compared to students who are in general education classrooms – a first and second grade classroom. In order for the investigator to have comparative variables, the main class that is being analyzed will be compared to the general education classes. All three classes will be assessed using the F&P Benchmark, by grade level. The underlying factor is if there was a notable increase in the bilingual classroom due to the multisensory intervention that has taken place over the course of a couple of months.

Instrument

The main technological tool used to conduct this study is YouTube, to access *Barefoot Books*. In addition, supplemental tools used for this project is the Internet, a projector, speakers and a white screen. This will ensure that the experience is more communal. In addition, the letters used to obtain permission and consent for this study are located in the Appendix.

Procedures

Procedural Timeline to Conduct Study	
Identify and Select Participants	1 week
<i>Meet with the building Administrator to share your reasoning for the study. After obtaining feedback, ask the Administrator to select a random first and second grade class. These two random classrooms will be used in the study to compare the progress in literacy to the ESL/Bilingual class comprised of both first and second grade students.</i>	
Obtain Proper Permission from School Administrator	1-2 weeks
Create an Informed Consent Form for Parents of Students in Study Group	
<i>Provide building Administrator with Permission to Consent letter for review and signature. This document will be submitted to NJCU's Review Board for approval to begin study. Draft an Informed Consent Form for parental review and signature. This form will be given to parents pending approval from NJCU's Review Board.</i>	
Obtain Approval from NJCU's Review Board	Open
<i>NJCU's Review Board may provide feedback of changes that need to be made to the proposal. Make any necessary changes and resubmit. If the Review Board approves study, proceed to next step.</i>	
Obtain Proper Permission from Students' Parents via Informed Consent Form	1-2 weeks
<i>Provide Informed Consent Form to the participants' parents/legal guardians. Keep in mind that not all parents may consent. Phone calls may have to be made to further explain the study for clarification. Once you've obtained a definite answer, you can move on to the next step. You have to close off the wait period for signed forms and maintain timeline in order to not delay study. Those students who do not return form, as well as those students whose parents refused to participate cannot be included in the study.</i>	
Proceed with Study; Ongoing Assessment	8-12 weeks
<i>Meet with students and explain the purpose of the study. Document what are the research questions and what are the scores of the pre-assessment. As the study unfolds, document each literary intervention that is used which incorporates multi-sensory learning. A benchmark can be done after four, eight, and twelve weeks as it can take place after six weeks and then at the twelve-week mark. These assessments will gauge student progress and be documented as such.</i>	
Collect Additional Data (Behavioral Observations; Post-Assessment)	1 week
<i>Collect behavioral observations that may be noteworthy, ie: level of engagement, comments/remarks from students, student feedback, etc. Conduct formal post-assessment to collocate final scores based on F&P Reading Chart.</i>	
Share Data	2 weeks
<i>Data collected from this study should be analyzed and shared with others. A comparative analysis should explain what research says, and what the findings were.</i>	

Creswell, J. & Guetterman, T. (2019). Chapter 5: Collecting Quantitative Data

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APPENDIX A

March 16, 2020

To: Mr. Richard Taibi, Principal

From: Mrs. Aileen Matias-Castro

Re: Permission to Conduct Study

Dear Principal Taibi:

I am a doctoral student in the Educational Technology Department in New Jersey City University. I am interested in conducting a research project with your bilingual classroom, which combines students that are in first and second grade. Along with the bilingual class, I am interested in comparing the progression of literacy scores, according to the Fountas and Pinnell Chart, of your ESL classroom to those students within a random first and second grade general education classroom of your choice. I will be under the supervision of my professor, Dr. Carnahan, throughout the entire study. I would like to research the impact of multi-sensory learning with technology as an intervention, specifically with your ESL students in the bilingual classroom. The goal of this study is to gauge the effectiveness of utilizing technology to support the literacy skills of your ESL students. I would like to concentrate on the progression of your ESL students' achievement and engagement in literacy throughout this study, as it compares to general education students.

I am respectfully requesting a formal letter for the NJCU Review Board that grants me permission to conduct this study. I will serve as the primary investigator throughout this investigation. ESL students will obtain ongoing interventions which will utilize technology that highlights various multi-sensory methodologies to provide support in literacy. This intervention is in addition to the already established literacy block and will occupy a 10-15-minute timeframe a few times a week.

I understand the benefit of this study is to explore the option of using technology as a means to implement multi-sensory literacy support for your ESL population. The level and rate of progression of all three classrooms in this study will be compared. A copy of this study will remain in your office to emphasize the importance of confidentiality.

Fondly,

Aileen Matias-Castro

Aileen Matias-Castro

APPENDIX B (English Version)

March 16, 2020

To: Parent/Guardian

From: Mrs. Aileen Matias-Castro

Re: Informed Consent Form

Dear Parent/Guardian:

I am interested in conducting a study in your child’s classroom entitled “Multisensory Literacy Learning”. The purpose of this study is to expose your child to a different way to learn literacy skills using technology. This intervention will take place in addition to the already established and approved curriculum. This study will explore how multisensory learning can enhance your child’s learning experience within a 10-15-minute timeframe, a few times a week. Your child’s participation is completely voluntary; you can also withdraw your child from the study at any point.

Students in the study will use music, lyrics, and movement to practice fluency and reading skills. I will collect data throughout the study and use a pseudonym in place of your child’s name. You can ask me questions at any point in time throughout the study. I will also be happy to share my findings with you. There are no known risks if you decide you would like to have your child participate in this study. Your child will benefit from this study as it is a method to expose your child to an alternative way to read, which is an additional reinforcement.

If you would like your child to participate in this multisensory experiment, please sign below; a copy will be provided to you for your records.

Signature

Date

Print

Investigator: Aileen Matias-Castro, ext. 8132; acastro@12345.com

APPENDIX C (Versión en español)

16 de marzo de 2020

Para: Padre/Guardián

De: Sra. Aileen Matias-Castro

Re: Formulario de Consentimiento Informado

Estimado Padre/Guardián:

Estoy interesada en realizar un estudio en el salón de clases de su hijo titulado "Aprendizaje de Alfabetización Multisensorial". El propósito de este estudio es exponer a su hijo a una manera diferente de aprender habilidades de alfabetización usando la tecnología. Esta intervención se llevará a cabo además del plan de estudios ya establecido y aprobado. Este estudio explorará cómo el aprendizaje multisensorial puede mejorar la experiencia de aprendizaje de su hijo dentro de un período de tiempo de 10-15 minutos, algunas veces a la semana. La participación de su hijo es completamente voluntaria; también puede retirar a su hijo del estudio en cualquier momento.

Los estudiantes en el estudio utilizarán la música, las letras y el movimiento para practicar la fluidez y las habilidades de lectura. Recopilaré datos a lo largo del estudio y usaré un seudónimo en lugar del nombre de su hijo. Puede hacerme preguntas en cualquier momento a lo largo del estudio. También estaré encantado de compartir mis hallazgos con ustedes. No hay riesgos conocidos si usted decide que le gustaría que su hijo participara en este estudio. Su hijo se beneficiará de este estudio, ya que es un método para exponer a su hijo a una forma alternativa de leer, que es un refuerzo adicional.

Si desea que su hijo participe en este experimento multisensorial, por favor firme a continuación; se le proporcionará una copia para sus registros.

Firma

Fecha

Impresión

Investigadora: Aileen Matias-Castro, ext. 8132; acastro@12345.com

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