TEACHING MATTERS: DIFFERENCES IN STUDENT ACHIEVEMENT AMONG STEM, HEALTH SCIENCE, AND GENERAL POPULATION STUDENTS IN THE ELEVENTH GRADE

A Dissertation

by

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This dissertation meets the standards for scope and quality of
Texas A&M University-Corpus Christi and is hereby approved.

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ABSTRACT

Research indicates that the current system of education suppresses student creativity and divergent thinking, which may contribute to the nation's dropout and academic achievement problems. Yet, current legislation, with its focus on science, technology, engineering, mathematics, and health science, is challenging teachers to implement creative methods of education. As a result, various models have been applied to specific high school programs. The purpose of this study was to compare the achievement of 11th grade students enrolled in the general population to those who are enrolled in two interest-based school-within-school academies. The three models were: (a) Science, Engineering, Technology, and Mathematics (STEM); (b) Health Science; and (c) general population. STEM and Health Science rely heavily on project based learning.

All 11th grade students enrolled in public schools in the state of Texas took the Texas Assessment of Knowledge and Skills (TAKS) tests for mathematics, science, social studies, and English language arts test as graduation requirements and have earned an accumulated GPA. Archived 11th grade data from a south Texas school district during the 2012-2013 school year were used. There were 57 cases from STEM, 60 cases from Health Science, and 60 cases randomly selected from 274 in the general population. Quantitative analyses provided descriptive, frequency, ANOVA, and Tukey post hoc statistical results.

Results showed that participants in STEM and Health Science programs outperformed general population students on all TAKS tests. In science, Health Science participants outperformed general population and STEM students. There were no statistically significant differences in GPA among participants in the general population, STEM, and Health Science.

While mathematics and science are key areas for STEM and Health Science, performance in social studies and English language arts was included to see if there was a relationship among groups in other content areas. High performance in an area such as mathematics and/or science has an impact in other content areas. Cross-curricular instruction is a natural part of project based learning. If State and Federal funds are going to be allocated towards instructional models to raise student achievement, school districts must put systems in place to develop teaching approaches that are creative, project based, and relevant to today's students.

DEDICATION

I dedicate my dissertation to my daughters, Jordan and Taylor. You inspired me to accept the challenge of this journey and to raise the bar of possibilities within our family. I hope that this accomplishment will serve as inspiration for you to pursue your dreams and to never give up regardless of any obstacle that may come your way. Thank you to my fiancé, Jack, for not allowing me to lose sight of my goals and for your endless support and encouragement. I hope this accomplishment will continue to inspire our family for years to come. Thank you Jordan, Taylor, Steven, Katie, Beba, Steve, Kaki, Ben, Krystal, Natalie, Robert, Abinadi, Jack, Joaquin, Christian, Matthew, Garrett, and Ivan. This goal could not have been realized without you.

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER ONE

INTRODUCTION

Background and Setting

During the 2000-2001 school year, there were 23,457 students who dropped out of school across the state of Texas (Comprehensive Annual Report on Texas Public Schools, 2002). Only 81.1% of the overall student population in Texas received a high school diploma in 2001. The most recent Comprehensive Annual Report on Texas Public School (2010) noted the 2009 graduation rate as 80.6%. In a decade of education, if one were to measure the success of a school on graduation rates, there does not seem to be much change, better or worse, in the success of education in Texas. While it must be noted that there are numerous factors which contribute to graduation rates such as gender, poverty levels, and minority groups, it should also be noted that the primary goal of attending school grades pre-kindergarten through grade twelve is to earn a high school diploma which is a mandatory admissions requirement for postsecondary education.

Growing concerns regarding the American education system in comparison to a global society became a critical focus of the National Commission on Excellence. “A Nation at Risk,” published in 1983, addressed the unacceptable state of the American education system (National Commission on Excellence in Education, 1983). The federal government recognized that American students were falling short and having difficulties maintaining competitiveness among their international peers. Maintaining a competitive, knowledge based economy made technology and scientific innovation critical elements of national education standards (Campbell, Hombo, & Mazzeo, 2000).

To address the growing problems of graduation and America's global competitiveness in Science, Mathematics, and Technology, the federal government passed legislation, such as The No Child Left Behind (NCLB) Act of 2001. The NCLB Act was signed into law by President Bush as a reauthorization of the Elementary and Secondary Education Act (ESEA) in 2002. NCLB legislation was a federal response to the public concern on education that specifically focused on improving educational opportunities for disadvantaged students (U.S. Department of Education, 2001). Numerous measures were put into place designed to improve student achievement and to hold districts more accountable for the progress of students (U.S. Department of Education, 2001). The primary areas of focus of the NCLB Act included annual assessment, academic progress of students, public campus report cards, teacher qualifications, student literacy, and funding changes. The academic progress referred to a stringent timeline which every state was now required to bring every student up to the proficient level of reading by the 2013-2014 academic school year (U.S. Department of Education, 2001). While many advocated for the change, the NCLB Act quickly became the center of much controversy as educators questioned the fairness and feasibility of meeting the new standards. Although the NCLB Act prompted controversy among educators and policy makers, it sparked changes in funding and forced educators to think differently about current school systems. Federal dollars have been made available to educate students through a variety of federal programs, grants and initiatives such as President Obama's "Educate to Innovate" initiative which came about in November of 2009 (Burke & McNeil, 2011).

Robinson (2010) claimed that our current system of education suppresses student creativity and divergent thinking which may contribute to the nation's dropout problem and academic achievement. We continue to make attempts to educate students and prepare them for the future using an educational system that was designed for our past (Robinson, 2010). Educators were forced to think creatively and search for ways to improve the academic achievement of all students who are faced with a technological world surrounded by distractions, yet expected to perform with traditional methods of teaching. A search for new methods of educating students became a priority for educators.

Allowing students the opportunity to explore their interests, figure out solutions to problems, and provide channels for collaboration play a central role in the learning process (Pink, 2009). Educators must consider the reality of a new type of student who is increasingly more difficult to motivate in the classroom. Daniel Pink (2009) discussed the key to motivation as intrinsic and internal. Teachers need ways to tap into the interest of students by going beyond the typical academic curriculum. John Dewey discussed a traditional, ordinary classroom where student desks were placed in rows creating an environment for paper/pencil tasks as inhibiting students' ability to create and explore learning (Dewey as cited by Benson, 1991). Students can become passively compliant in that they are willing to complete tasks to avoid negative consequences yet see little meaning or value to the task, thus, losing motivation to complete high school and see the value in earning a high school diploma (Schetsky, 2000). Offering authentic experiences and tearing down the metaphoric walls of the classroom are key to the learning process (Robinson, 2010). Students need educational opportunities to be active in their learning and have work spaces that foster collaboration, problem solving, and high level thinking.

In response to federal mandates and legislation, the Texas Education Agency (TEA) has developed new ways for districts to solicit specialized funding to support academic initiatives to improve student achievement. Texas Education Agency has partnered with private foundations and agencies such as Communities Foundation of Texas (CFT) and Texas High School Project

(THSP) which offer public-private funding options to schools. Foundations, such as CFT and THSP specifically focus on “improving instruction and academic performance in science and mathematics related subjects and increasing the number of students who study and enter STEM fields” (Texas Education Agency, 2011, para. 1). STEM and Health Science fields of study are included in the primary interest of specialized funding in an effort to remain competitive with a global economy. Funds granted to districts, which implement STEM and Health Science fields of study are expected to contribute to the academic success and college readiness of students and further prepare them for careers in related fields.

In an effort to raise student achievement with a focus on technology and science innovation, Texas school districts have implemented models of instruction with specific areas of focus. Schools-within-schools were developed by creating smaller school academies within public schools of general populations. Grant dollars are awarded to fund these models of instruction as a response to the urgency of raising student achievement and preparing students for a competitive, global workforce. The two models implemented include Science, Technology, Engineering, and Mathematics (STEM) Academy and Health Science Academy.

The curriculum for STEM and Health Science models examined in this study utilizes Project Based Learning (PBL) and Outdoor Classroom Experiences (OCE) aimed towards STEM and Health Science fields of study. Project Based Learning is an instructional method that engages in learning and grasping concepts through a hands-on inquiry process using authentic questions and carefully designed products and tasks (Jones et al., 1997 as cited by Verma, etal., 2011). Project Based Learning is also known for connecting classroom and academic experiences to the realistic practice of a particular profession (Verma et al., 2011). Project Based Learning lends itself to Outdoor Classroom Experiences. Outdoor Classroom

Experiences enhance instructional opportunities that are typically confined to the four walls of a classroom by providing hands-on experiences, physical interactions, and peer collaboration (The Outdoor Classroom Project, 2014, para. 2). The STEM and Health Science models acknowledge the importance of experience and creativity in STEM and Health Science related interdisciplinary fields (Hoachlander & Yanofsky, 2011). Outdoor Classroom Experience instructional techniques are used widely among STEM Academies to provide opportunities to create and experience the reality of the community and industry around students (Marshall, 2010).

The general population, STEM Academy, and Health Science Academy co-exist on the same campus being examined for the study. The STEM and Health Science academies are designed for students who have a particular interest in their fields of study. While there is an application process for entrance to the academies, the primary factor is a student's interest in a STEM or Health Science related field of study. It would be reasonable for one to assume that students enrolled in the STEM and Health Science academies would naturally outperform the general population in every content area, however, students of all academic achievement levels are enrolled in the general population, STEM, and Health Science academy which levels the academic playing field. All students have access to the same higher level courses such as PreAP, AP, and college preparatory courses. The difference for the students enrolled in STEM and Health Science is they follow a specific course of study which includes courses with project based learning and experiences beyond the classroom that pertain to postsecondary study and workforce. According to the enrollment rosters of the high school used for this study, courses within the academies tend to be smaller, taught by teachers with additional training, and utilize interest specific curriculum to include project based learning and outdoor classroom experiences. State and federal grants fund the additional training and curriculum.

Statement of the Problem

As highlighted in “A Nation at Risk,” the National Commission on Excellence in Education stated, “Our nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technology innovation is being overtaken by competitors throughout the world…others are matching and surpassing our educational attainments” (National Commission on Excellence in Education, 1983, p. 1). There is a sense of urgency to remain globally competitive with our counterparts. One of the most notable solutions to the foregoing problem is a radical change in the instructional methods used in high schools. Robinson (2010) argued that there is a deep disconnect between our outdated educational system and certain epistemic realities. Schools are in need of current instructional practices that meet the needs of a new generation of students.

There is an urban school district in South Texas which has implemented an alternative instructional model in response to the demands for raising student achievement. The district used for the study contains five high schools across the city with a diverse population of students. Each high school contains students from 9^{th} to 12^{th} grade with an approximate age of 14 years old through 18 years old. At one of the five high schools, two school-within-school academies have been formed: (a) STEM Academy; and (b) Health Science Academy. The academies have been created to form smaller learning communities with specialized interest and curriculum in an effort to raise student achievement and remain competitive in a global society. The study will compare the achievement of students enrolled in the general population to those who are enrolled in two interest based school-within-school academies.

The STEM Academy was implemented at one of the five high school campuses in 2007 after being awarded a STEM grant through Texas Education Agency and Texas High School Project. The STEM grant contained strict guidelines and criteria for implementation in an effort to raise student success and future interest in a STEM related career or college pathway.

The Health Science Academy began in the south Texas school district in 2001 as a result of a partnership created between the district and a local hospital. It is a school-within-school model that consists of 9th through 12th grade students who have an interest in an educational experience in a health science related field (CCISD, 2013). Students participate in authentic learning experiences in health science related fields that extend beyond the classroom. All students enrolled in the Health Science Academy are taught by teachers with specialized training who committed themselves to working as a cohesive team (CCISD, 2013).

Although the STEM and Health Science Academy have been in existence for several years, a systematic, comparative evaluation of the program with respect to the criteria established by Texas Education Agency on student achievement has not been conducted. This study compared the achievement of 11th grade students enrolled in the general population to those who are enrolled in two interest based school-within-school academies.

Theoretical Framework

Experiential Learning Theory (ELT) serves as the theoretical framework for the study. Experiential Learning Theory refers to a holistic model of the learning process that is consistent with how people learn, grow, and develop and it emphasizes that experience plays a central role in the learning process (Kolb, 1999). David Kolb is considered to be a major influence within the Experiential learning theory. The Experiential Learning Theory model, according to Kolb (1999), can be divided into two different models of experience: (a) Concrete Experience; and (b)

Abstract Conceptualization, and two different models of transforming experience: (a) Reflective Observation; and (b) Active Experimentation (Kolb, 1999).

Educational Learning Theory integrates the works of prominent scholars such as Dewey, Lewin, and Piaget who all tied experience to having a central role in how humans learn. Students who experience what they are learning will more likely develop skills for problem solving and innovation. According to Kolb, there are six propositions that the above mentioned scholars all share: (a) Learning is best conceived as a process and not in terms of outcomes; (b) All learning is re-learning; (c) Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world; (d) Learning is a holistic process of adaptation; (e) Learning results from synergetic transactions between the person and the environment; and (f) Learning is the process of creating knowledge (Kolb, 1984). Kolb's propositions can be aligned with the instructional practice of Project Based Learning and Outdoor Classroom Expereince which are implemented in the STEM and Health Science model being studied.

Additionally, Project Based Learning (PBL) is an approach that incorporates the foundations of experiential learning theory and is an instructional practice used in the models for the study. Project Based Learning is defined as a comprehensive approach in that it is designed to involve students in authentic problem solving, decision making, and the investigation of complex tasks (Blumenfeld et al., 1991). Project Based Learning offers students opportunities for students to produce realistic products over periods of time (Thomas, 2000). Students may reflect on and evaluate their learning in an environment where the teacher becomes the facilitator assisting students in developing an understanding of the concepts and tasks given (MaKinster et al., 2001).

Purpose of the Study

The purpose of this study was to compare the achievement of 11th grade students enrolled in the general population to those who are enrolled in two interest based school-within-school academies in an urban, South Texas school district. Academic achievement was measured according to two variables: (a) the overall GPA of students; and (b) scores earned on the Texas Assessment of Knowledge and Skills (TAKS) for mathematics, science, social studies, and English language arts. Students enrolled in the 11th grade, those enrolled in a school-within-school program along with the general population, for the 2012-2013 school year were chosen because all 11th grade students enrolled in a public school in the state of Texas took the TAKS test as a graduation requirement and have earned an accumulated GPA which is used for college applications upon the completion of their 11th grade school year. What were the differences in academic performance outcomes (TAKS scores) according to distinctive instructional models (general population; STEM academy; & Health Science Academy)?

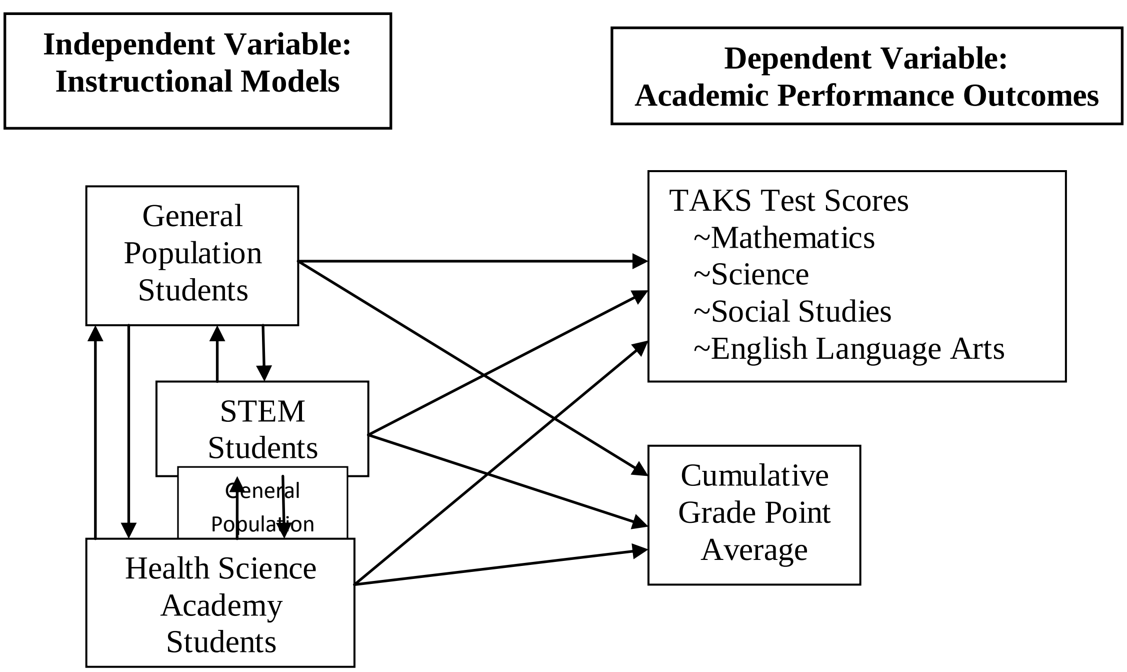

Figure 1

Relationship of Instructional Models to Academic Performance Outcomes

The study is guided by the following research questions:

1. Do overall TAKS scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?
   1.1 Do Mathematics scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?
   1.2 Do Science scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?
   1.3 Do Social Studies scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?
   1.4 Do English Language Arts scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?
2. Do average GPA differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

Definition of Terms

The state of Texas has recently transitioned from Texas Assessment for Knowledge and Skills (TAKS) to the State Assessment for Academic Readiness (STAAR) as the means for measuring success in Mathematics, Science, Social Studies, and English Language Arts. However, the study examined TAKS data results provided by the Texas Education Agency because all 11th grade students enrolled in a public school in the state of Texas took the TAKS test as a graduation requirement and have earned an accumulated GPA, which is used for college applications upon the completion of their 11th grade school year. The following provides brief descriptions of terms used for the study. The terms are provided to ensure clarity and understanding throughout the study.

TAKS: The definition of TAKS is Texas Assessment of Knowledge and Skills according to the Texas Education Agency (Texas Education Agency, 2013). It consists of testing items in English Language Arts, Math, Science, and Social Studies. "Every question that appears on the Texas Assessment of Knowledge and Skills (TAKS) is grounded in the knowledge and skills statements and student expectations within the state-mandated curriculum, the Texas Essential Knowledge and Skills (TEKS)" (Texas Education Agency, 2011, p. 1).

Independent Variables

General Population: General population is defined as students within the student body who are not enrolled in special programs or classified as honors or gifted (www.urbandictionary.com). The operational definition of general population is determined by those students who are identified in the school district as not participating in instruction that has a specialized focus. A specialized focus includes students who participate in a school-within-school program along with students who receive specialized instruction through their individualized education plan (IEP).

STEM Academy students: The STEM instructional model is defined as organized learning which uses student engagement, exposure, innovative ideas and design teaching Science, Technology, Engineering, and Mathematics (STEM) focused instruction that models real-world experiences (Texas High School Project, 2010). The operational definition of STEM Academy students is the school district designation of students participating in a school-within-school campus dedicated to teaching science, technology, engineering, and mathematics as its focus.

Health Science Academy students: The Health Science Instruction model provides instruction designed to provide for the “development of advanced knowledge and skills related to a wide variety of health careers” (Texas Education Code, Chapter 130, p. 5). The operational definition of Health Science Academy students is the school district designation of students participating in a school-within-school campus dedicated to teaching towards health related fields of study as its focus.

Eleventh grade students: Eleventh grade students is defined as those students who are in their junior year of high school. The operational definition is those students classified by the district who have completed ten credit hours but less than fifteen credit hours at the high school level.

School-within-School: School-within-School is defined as an approach for larger schools to replicate the qualities and advantages of a small school. It establishes a smaller educational unit with a separate educational program with typically, its own staff, students, and budget (Dewees, 2007).

Dependent Variables

TAKS mathematics scores: TAKS mathematics is defined according to the following: “Learning mathematics is essential to finding answers to real-life questions. The study of mathematics helps students think logically, solve problems, and understand spatial relationships. The concepts learned in mathematics courses, help students communicate clearly and use logical reasoning to make sense of their world” (Texas Education Agency, TAKS Information Booklet, 2007, p. 4). The operational definition of TAKS mathematics score is a range from 1281 to 2876 with a score above 2100 interpreted as exit passing level (Texas Education Agency, 2012)

TAKS science scores: TAKS science is defined according to the following: An understanding of science will ensure students are better informed and capable of making decisions that will affect their lives and environment (Texas Education Agency, 2004). Being scientifically literate includes understanding important science concepts and having the ability to apply those concepts to the health, safety, and environmental issues that are at the center of our everyday lives (Texas Education Agency, 2004). The operational definition of TAKS science score is a range from 1338 to 2829 with a score above 2100 interpreted as exit passing level (Texas Education Agency, 2012).

TAKS social studies scores: TAKS social studies is defined according to the following: The study of social studies helps students to understand their place in the world along with their role as responsible citizens (Texas Education Agency, 2004). "Social studies education enables students to develop critical-thinking skills, to prepare to participate productively in society, and to expand their horizons to include people and places far removed from their daily lives" (Texas Education Agency, TAKS Information Booklet, p. 5). The operational definition of TAKS social studies score is a range from 1444 to 2861 with a score above 2100 interpreted as exit passing level (Texas Education Agency, 2012).

TAKS English language arts scores: TAKS English language arts is defined according to the following: "At the high school level, students use their already established reading skills to explore literary and expository texts with greater understanding. Students analyze how literary elements and techniques contribute to a text's meaning and how an author crafts a piece of writing to affect the way the reader reads and understands it." (Texas Education Agency, 2004,

p. 5). The operational definition of TAKS English language arts score is a range from 1360 to 3069 with a score above 2100 interpreted as exit passing level (Texas Education Agency, 2012).

GPA: GPA is the grade point average of students. The grade point average for the participants is their cumulative GPA for their eleventh grade year. Grade point average is calculated on the scale as defined operationally: F = 0-69; C = 70-79; B = 80-89; A = 90-100. Grade point average is calculated by averaging grades awarded for state and district approved high school credit courses. Formulas are used to calculate weighted and non-weighted courses based on the criteria approved by the school board (CCISD, 2011).

Limitations

Due to the non-probability nature of the sampling, external validity was limited to study participants. The standardized assessment scores are collected only for the 2012-2013 school year while cumulative GPA begins calculating from a student's first day of high school. The standardized assessment data are a snap shot and are dependent upon the conditions during that time. Study participants are in the 11th grade and have accumulated their GPA over a three year time period. The cumulative GPA is dependent upon the conditions throughout the first three years of high school and may include coursework outside of the models being studied.

Campus mobility rates should be considered, specifically when analyzing general population students, as students may not have been enrolled in the models being studied for the entire first three years of high school. The researcher had no control of the assessment criteria, curriculum taught, student interest or selection for enrollment in each model, and the level of expertise of the different teachers. Due to non-experimental nature of the study, no causal inferences are drawn.

Delimitations

The study was delimited to 11th graders in an urban school district in South Texas. The study is delimited to outcome measures of mathematics, science, reading, and social studies among students who completed the TAKS assessment during the 2012-2013 school year and grade point averages (GPAs). First, the 11th grade students during the 2012-2013 school year were chosen because the models being studied were in full implementation at this time. For example, a phase in process for STEM occurred during the beginning years of implementation beginning with only 9th grade students in 2007. Every consecutive year thereafter, added a new grade level of STEM students were added until full implementation was reached. Second, the 11th grade students were chosen during the 2012-2013 school year because this was the last group of students to be administered the TAKS standardized assessment. The 83rd Regular Session of the Texas Legislature passed House Bill 5 in June of 2013 (Texas Education Agency, 2014). House Bill 5 addressed the Texas Education Code (TEC) and included changes in curriculum, accountability, and assessment. The assessment changes moved away from TAKS and introduced the State of Texas Assessment of Academic Readiness (STAAR) as the new standardized assessment for the state of Texas. Given the newness of the assessment, the phase in timelines, and changes in curriculum, the researcher used TAKS data to measure student achievement in the study.

Student demographics were not analyzed for the purpose of this study. While the demographic origin of students can be related to student achievement, it was not considered in the comparison of achievement levels of students between the groups studied. Since the overall models have never been examined in relationship to the academic achievement, they became the center of attention of this study. The overall instructional models were the focus of this study, although further research may consider demographics as an additional variable within various instructional models.

Assumptions

The researcher assumed the existing data on students enrolled during the 2012-2013 school year in each of the instructional models were accurate. It is assumed that the cumulative grade point average scores for students met the grading criteria adopted by the district. The study also assumed the curriculum for each model is in alignment with the Texas Essential Knowledge and Skills (TEKS).

Significance to the Study

As previously mentioned in “A Nation at Risk,” the National Commission on Excellence in Education noted our nation as being challenged by our global competitors particularly in the areas of commerce, industry, science, and technology (National Commission on Excellence in Education, 1983, p. 1). The United States has assumed the mission of ensuring American children enter a global society prepared for a technologically advanced or competitive career path (Singer, 2011). Federal and state initiatives are taking place to address deficiencies in our current educational system.

The Comprehensive Report on Texas Public Schools (2002) notes a significant drop-out rate in the state of Texas. The number of students not meeting graduation requirements have not changed much over the past decade. Schools remain stagnant, students are bored, and the value of earning a high school diploma has been lost (Robinson, 2010). There is a need to offer students opportunities that go beyond the walls of a classroom and provide authentic experiences (Robinson, 2010).

There is a need to study and examine the relationship between current educational models and educational outcomes in an effort to make decisions that are data driven. The study will provide a comparative examination of student achievement of those enrolled in the general population, STEM, and Health Science Academies. The results of the study could potentially impact the educational program design of campuses throughout the south Texas school district being studied and determine funding allocations for various models of instruction.

Summary

With the increased pressure faced by school districts to raise the academic achievement of students, it is important to discover whether current instructional models being implemented in classrooms are truly conducive to their learning. District and campus level administrators can use the information gathered in the study to guide their decision making when allocating funds towards various instructional models. Additionally, decisions can be made on training teachers to deliver instruction using methods such as project based learning and outdoor classroom experiences within smaller learning communities.

CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

For the purpose of the study, the review of existing research and literature specifically pertains to secondary schools. Chapter Two provides a systematic review of the literature and research related to student academic achievement, school-within-schools model, and the role of assessment in education. The chapter is organized by five major areas, specifically: (a) instructional models; (b) educational learning theories; (c) the theoretical framework; (d) the history and role of standardized assessment in the state of Texas; and (e) summary. The researcher utilized the following databases and search engines to retrieve the literature for the study: the Mary and Jeff Bell Library databases at Texas A&M University–Corpus Christi, EBSCO, ERIC, SAGE, Google, and Google Scholar.

Instructional Models

In response to the unique needs of the 21st century learner, classroom environments are moving away from traditional models where teachers are isolated in their classrooms (Saltmarsh, Chapman & Drew, 2013). Teaching practices and school organization are being challenged more than ever. School organization can be an influential factor in student achievement. As a result of the *Williams v. California* lawsuit regarding educational equity, a noteworthy study was conducted regarding school organization, equity, and schools-within-schools. Welner (2004) concentrated on structural factors such as school size and overcrowding, and two specific school structure, schools-within-schools and magnet schools. While there seems to be little research on what the ideal size for a high school should be, recent reform agenda center on how to reduce the size of large high schools by either building more schools, or by breaking up existing schools into smaller schools-within-schools (Lee et al., 2002).

Schools-Within-Schools

One of the strategies to improve student learning is establishing schools-within-schools. A school-within-school is a way for a large school to attempt to replicate the advantages and qualities of a smaller school. This model establishes a smaller educational unit often with a separate curriculum, its own staff and students, and a separate budget (Dewees, 2007). "Sociological research on school size suggests that small schools should have at least two advantages over large school: relationships among school members are more personal and the schools offer a narrower curriculum (typically confined to academic courses). Large schools are said to be impersonal and bureaucratic" (Lee et al., 2002, p. 2-3). Research suggests the school-within-school model has a varied degree of success in different settings (Dewees, 2007). A key component is the implementation of the model and allowing for a separate identity from the general population of the school.

General Population

Students receiving instruction in general populations are exposed to traditional models and are not typically enrolled in special programs. Special programs may include gifted and talented and special education. General population refers to those students who are identified in the school district as not participating in instruction that has a specialized focus. Students in the general population complete graduation requirements by capturing course credits through individual courses in a sequential order. Students learn with traditional paper, pencil tasks and utilize content area text books as their primary resource. The typical mindset when visualizing the general population of students is to assume a traditional classroom with desks in rows and the teacher at the front of the room. Dewey offered a detailed explanation of traditional education,

> with its row of ugly desks placed in geometrical order, crowded together so that there be as little moving room as possible, desks almost of the same size, with just space enough to hold books, pencils, and papers, and add a table, some chairs, the bare walls, and possibly a few pictures, we can reconstruct the only educational activity that can possibly go on in such a place…The attitude of listening means, comparatively speaking, passivity, absorption; that there are certain ready-made materials which are there, which have been prepared by the school superintendent, the board, the teacher, and of which the child is to take in as much as possible in the least possible time (Benson, 1991, p. 10).

In addition to the environment, curriculum, and instruction that take place in a traditional classroom in the general population, it is important to gain an understanding of the demographical make-up of students within a district or school. Demographics can be a factor in designing school programs based on culture and life experiences of students.

Knowledge of changing demographics can be a critical component for success among school districts. To gain a better understanding of the general population being studied by the researcher, general demographics of the high school used for this study is discussed. The Texas Education Agency (TEA) sends school districts annual group-performance reports that give school leaders valuable information on the diversity and performance levels of their students. Three of the major categories that are reported are economically disadvantaged, gender, and ethnicity.

A noteworthy demographic shift has taken place in the Hispanic population of public schools. The National Census Bureau identified Hispanic as an origin based on ones heritage, nationality group, or country of the person’s birth (Humes, Jones, & Ramirez, 2011). From 1993-2005, there was a 55% increase in Hispanic student enrollment in public schools across America (Fry, 2007). Fry also reports that Latinos accounted for 19.8% of all public students in 2005 while the non-Hispanic student enrollment decreased by more than 10% (2007).

The demographics where the researcher is conducting the study has encountered a similar shift in the Hispanic, Latino, and white student enrollments. Hispanic accounted for 59.7% of the community, while 33.3% were of non-Hispanic origin (National Census Report, 2010). More specifically, the school district being studied serves over 38,000 students. The students served in the district are 78.6% Hispanic, 14.4% White, 4.2% Black, 1.6% Asian, 0.1% Pacific Islander and 0.2% American Indian/Alaskan Native.

Another crucial concern in the education process is the role of parents. The role of parent expectations and involvement affecting students' success has received important attention. A recent review published by Yamamoto and Holloway (2010) suggests that the amount of parental involvement and attention among students varies by ethnic and racial groups.

Texas Science, Technology, Engineering & Mathematics (T-STEM)

Currently, there are 51 operating Texas-Science, Technology, Engineering and Mathematics (T-STEM) Academies that are public-private funded in conjunction with TEA and THSP (Texas Education Agency, 2011). These T-STEM Academies are typically grant funded and are established as either a school-within-school or stand-alone models. The South Texas school district being studied is one of 51 grant recipients across the state of Texas that was awarded a significant dollar amount to support a STEM Academy at a local high school which began during the 2007-2008 school year (Texas Education Agency, 2011). Funding is allocated based on criteria set forth by each individual grant and tied to its provisions. The STEM academy in the study contains three major components: curriculum; training; and operations (CCISD, 2007).

The curriculum, training, and operations that are used in the South Texas STEM Academy are driven by a blueprint that was designed in partnership between the Texas Education Agency and the Texas High School Project (THSP). The foundation of the STEM Academy uses student engagement, exposure, innovative ideas, and design teaching STEM focused instruction that models real-world experiences (Texas High School Project, 2010). The Academies use the STEM Design Blueprint, Rubric, and Glossary as a guidepost to build and sustain STEM schools that address the seven benchmarks: (a) mission driven leadership; (b) school culture and design; (c) student outreach, recruitment, and retention; (d) teacher selection, development and retention; (e) curriculum, instruction, and assessment; (f) strategic alliances; and (g) academy advancement and sustainability (Texas High School Project, 2010, para. 3). The Blueprint contains benchmarks with non-negotiable program requirements for each STEM Academy that receives funding.

The first Benchmark of the STEM Design Blueprint focuses on mission-driven leadership. It requires the development of a shared STEM mission and vision among superintendent, board members, design team, staff, students, parents, and community partners. An Annual Action Plan (AAP) must be in place and regularly monitored and assessed by STEM Academy leaders (THSP, 2010). Additionally, a focused design team must be established along with leadership participation in the collaboration and development of the STEM goals that are set forth by the design team.

Benchmark two involves creating a college-going culture for postsecondary success. The Annual Action Plan must address strategies for sustaining small learning communities, allowing for student voice, and individual STEM-focused graduation plans. Culture must be fostered both within and outside the school community and plans must be made for postsecondary student success in STEM related fields. Each student should be enrolled in 12-30 college hours through dual enrollment, articulated, and/or Advanced Placement (THSP, 2010).

Benchmark three addresses student outreach, recruitment, and retention. It ensures a process to market and recruit to encourage participation from underrepresented students which includes active involvement with feeder schools. Open access to the academy is required through lottery-based and/or application processes. Student support and intervention strategies such as mentoring, tutoring, counseling, and bridge programs are also addressed (THSP, 2010).

Benchmark four discusses provisions for teacher selection, development, and retention. STEM Academies must employ highly-qualified teachers as defined by the Texas Education Agency. Procedures must be put in place to support and develop teachers in content competence, new instructional strategies, technology integration, reflective inquiry, and student artifact analysis (THSP, 2010). Additionally, strategies must be present for teacher retention such as common planning time for results-driven and team focused learning along with ongoing opportunities to improve teachers' content knowledge, technology embedded instruction, integrative STEM pedagogy, college and career readiness standards, and leadership capacity (THSP, 2010).

The fifth Benchmark involves curriculum, instruction, and assessment. The major components of this Benchmark include: rigor, STEM-focused curriculum, instructional practices, STEM education integration, literacy, and assessment. Academies must specifically incorporate data-driven instruction and utilize Project Based Learning (PBL) with clearly defined outcomes which are aligned with the curriculum scope and sequence (THSP, 2012). Instructional strategies should be utilized that challenge students to think critically, innovate, and invent to solve real-world problems while integrating hands-on experiences and integrative approaches (THSP, 2012).

Benchmark six addresses strategic alliances with parents, business and school community, institutes of higher education, and community stakeholders (THSP, 2012). Business, industry, and community partners are required to be identified and secured for sustainability purposes. It is also important to gain Memorandums of Understanding (MOU) with institutions of higher learning for dual credit purposes (THSP, 2012).

Benchmark seven discusses advancement and sustainability program requirements. The requirements include strategic planning, continuous improvement and evaluation, sustainability and growth and program placement (THSP, 2012). These requirements include grant writing initiatives to secure future funding for sustainability.

Health Science Academy

The Health Science Academy began in the south Texas school district in 2001 as a result of a partnership created between the district and a local hospital. It is a school-within-school model that consists of ninth through twelfth grade students who have an interest in an educational experience in a health science related field (CCISD, 2013). Students participate in authentic learning experiences in health science related fields that extend beyond the classroom. "Authentic learning typically focuses on real-world, complex problems and their solutions, using role-playing exercises, problem-based activities, case studies, and participation in virtual communities of practice. The learning environments are inherently multidisciplinary" (Lombardi, 2007, p. 2). Authentic learning is rooted in the Project Based Learning model and is used as a catalyst for student learning.

All students enrolled in the Health Science Academy are taught by teachers with specialized training who committed themselves to working as a cohesive team (CCISD, 2013).

The professional development of the teachers includes collaboration with Health Science professionals and visits to the local hospital who has partnered with the district. Teachers participate in visits to the hospital, an understanding of their facilities, collaboration on curriculum development with the hospital staff, and implementation of the academy goals with the assistance of the hospital staff.

Educational Learning

The works of prominent scholars such as Dewey, Piaget, and Lewin, focus on experience as being a central factor in their theories of how humans learn (Kolb, 1984). The benefits of experience, and learning by doing is rooted in the learning theory of John Dewey (Savery & Duffy, 1995). Dewey compared learning without experience to a child learning to swim without getting too close to the water (Savery, 2006). The integration of instructional strategies such as Project Based Learning and Outdoor Classroom Experiences provide a catalyst for students to problem solve and experience learning.

Project Based Learning (PBL) is defined as a comprehensive approach in that it is designed to involve students in authentic problem solving, decision making, and the investigation of complex tasks (Blumenfeld, 1991). In contrast to traditional models, Project Based Learning provides opportunities for students to drive their own learning through inquiry, as well as work collaboratively to research and create projects that reflect their knowledge (Barron & Darling-Hammond, 2008; Bell, 2010; Blumenfeld et al., 1991; McGrath, 2004). Students are given opportunities to analyze real life problems and create their own products or solutions. Project Based Learning can be traced back to the early 20th century. William Kilpatrick was a proponent of project-based instruction stating it should include four components: (a) purposing; (b) planning; (c) executing; (d) and judging (Foshay, 1999).

William Kilpatrick advocated project-based instruction (Bas & Beyhan, 2010). According to Foshay (1999), Kilpatrick's notion was that such instruction should include four components: purposing, planning, executing, and judging. Project-based instruction continues to create new instructional practices that reflect the environment in which children live and learn (Bas & Beyhan, 2010). Dewey (1900) saw a waste in education due to students' inability to apply what they were learning to daily life and the isolation of concepts learned stating, "the isolation of school is isolation from life" (p. 67). Students need opportunities to learn across academic disciplines to incorporate a variety of concepts into one learning experience. Project Based Learning instructional methods focus on the learner and how they learn (Harris & Katz, 2001). Opportunities for in-depth inquiry based investigation go beyond the narrow scope of a content driven lesson plan. Groups of students work cooperatively to investigate topics that require them to think critically and problem solve solutions while capturing their interest and giving value to their learning.

How a child learns is instrumental to the instructional strategies utilized in schools today. Taking students beyond the isolation of narrowly driven lessons within the metaphoric four walls of a classroom can spark interest and motivation. Factors that play a key role in student achievement include motivation, attitudes towards learning, and the attitude towards the subject being learned (Baseya & Francis, 2011). Taking learning beyond the walls of the traditional classroom can assist in capturing the interest in motivation of students. The Outdoor Classroom Experience (OCE) is a cross-curricular approach where students are taken to conducive learning environments where the surroundings can be used as a learning arena and a source of knowledge (Fagerstam, 2013). Outdoor Classroom Experiences should be a realistic environment for learning, not just a single field trip at the culmination of a course or unit. Jordet (2010) perceived learning as a social and communicative process. The Outdoor Classroom Experience provides students with opportunities to communicate and participate in collaboration with their peers. Students engage in activities and learn by doing while participating in concrete real-life applications (Fagerstam, 2013). The Figure below further explains implications for the Outdoor Classroom Experiences.

A model of characteristics of school-based outdoor learning Source: Translated from Jordet, 2010

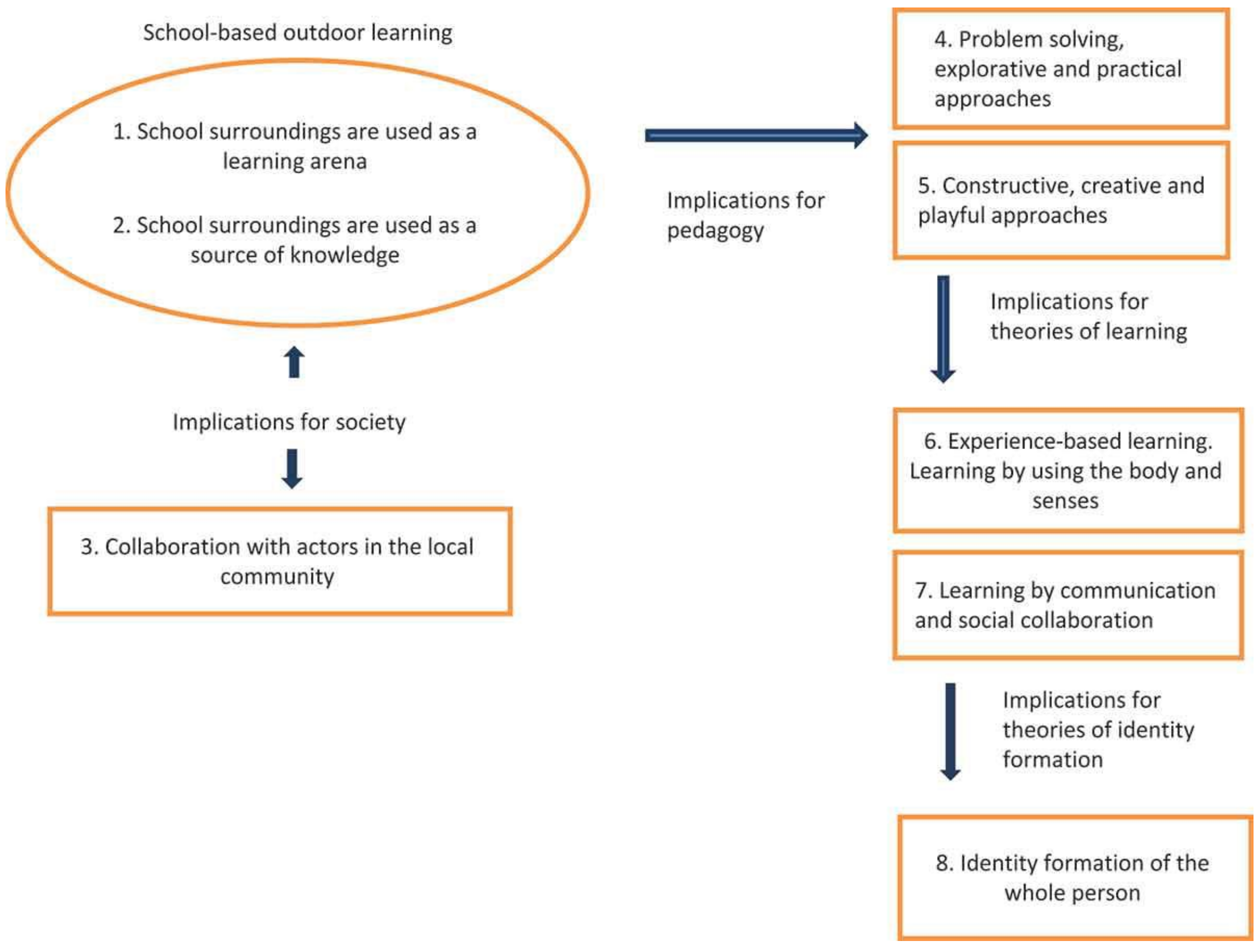

Figure 1

Experiential learning theory (ELT) integrates the works and learning theories of Dewey, Piaget, and Lewin, all of which tied experience to having a key role in the way that humans learn. Kolb (1984) describes six propositions that these scholars share: (a) Learning is best conceived as a process and not in terms of outcomes; (b) All learning is re-learning; (c) Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world; (d) Learning is a holistic process of adaptation; (e) Learning results from synergetic transactions between the person and the environment; and (f) Learning is the process of creating knowledge.

Proposition 1

Learning is best conceived as a process and not in terms of outcomes. Kolb notes the primary focus should be on engaging students in a process that best enhances their learning which includes feedback on the effectiveness of their learning efforts (Kolb &Kolb 2005). Education has to be thought of as a continuing reconstruction of experience. The processes and goals are the same (Dewey 1897:79 as cited by Kolb & Kolb, 2005).

Proposition 2

"All learning is relearning. Learning is best facilitated by a process that draws out the students' beliefs and ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas" (Kolb & Kolb 2005, p. 195).

Proposition 3

"Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world. Conflict, differences, and disagreement are what drive the learning process. In the process of learning, one is called upon to move back and forth among opposing modes of reflection and action feeling and thinking" (Kolb & Kolb, 2005, p. 3).

Proposition 4

Learning is a holistic process of adaptation to the world. Not just the result of cognition, learning involves the integrated function of the total person (Kolb & Kolb, 2005).

Proposition 5

Learning results from synergetic transactions between the person and the environment. Jean Piaget notes that learning occurs through equilibration of the dialectic process of assimilating new experiences into existing concepts and accommodating concepts to new experiences (Paiget as cited by Kolb & Kolb, 2005).

Proposition 6

"Learning is the process of creating knowledge. Experiential learning theory proposes a constructivist theory of learning whereby social knowledge is created and recreated in the personal knowledge of the learner. This stands in contrast to the "transmission" model on which much current educational practice based, where preexisting fixed ideas are transmitted to the learner" (Kolb & Kolb, 2005, p.196).

Theoretical Framework

Kolb (1984) theorized that learning is a continuous cycle of experience, observation, and reflection. Experiential Learning Theory refers to a holistic model of the learning process that is consistent with how people learn, grow, and develop and emphasizes that experience plays a central role in the learning process (Kolb, 1999). Kolb continued to define experiential learning as "the process whereby knowledge is created through the transformation of experience and results from the combination of grasping and transforming experience" (Kolb, 1984, p. 2). According to Kolb (1984), there are four phases that learners engage in on any given experience they may encounter: (a) Concrete Experience; (b) Reflective Observation; (c) Abstract

Conceptualization; and (d) Active Experimentation. The model shown below further explains the four phases.

The Experiential Learning Model (Kolb, 1984)

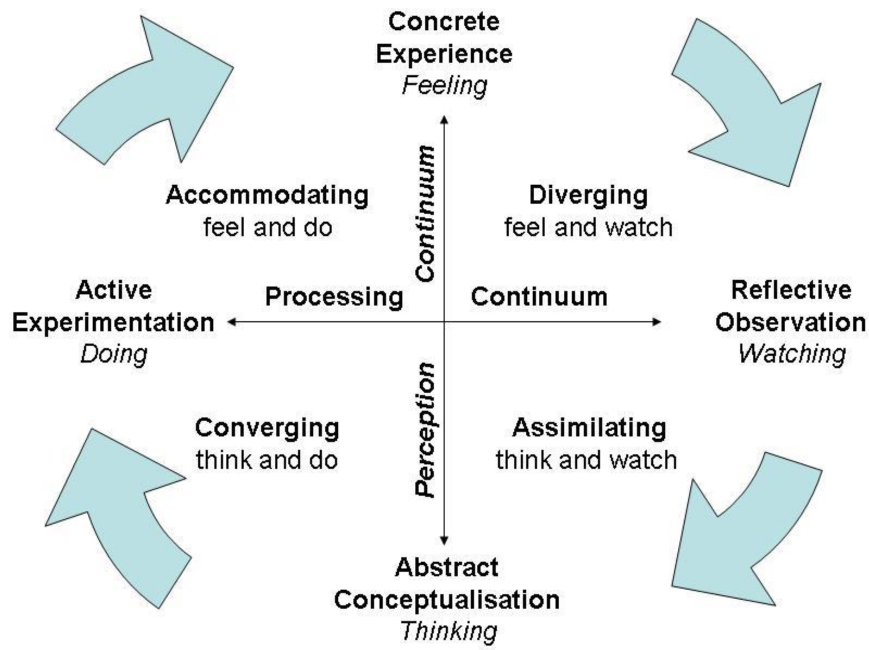

Figure 2

Kolb's Experiential Learning Theory works on two levels, grasping and transforming experiences – establishing the framework for four distinct learning styles that are based on the four-mode learning cycle. Learning therefore, involves two dialectical modes for grasping experience – concrete experience and abstract conceptualization. Then, there are two dialectical modes for transforming experience –reflective observation and active experimentation (Kolb, 1984, p. 41 as cited by Turesky & Gallagher).

This learning theory not only stresses learning by experience, it recognizes that people learn in different ways. By experiencing learning and learning by doing, a variety of learning styles are accommodated as all students learn in different ways.

> Piaget (1969), Friere (1974), Dewey (1958) and Lewin (1951) all stressed that the heart of learning lies in the way we process experience, in particular, our critical reflections on experiences and the meanings we draw from them. The combination of grasping and transforming experience as part of continuous learning in multiple modes creates a synergy…(Turesky & Gallagher, 2011, p. 7).

Other learning theories, such as constructivism can be detected throughout the benchmarks and design of the academies being studied in the south Texas school district. Constructivism refers to learners constructing their own meaning by engaging in experiences both individually and socially among a community of learners (Hein, 1991). Bruner (1966) discussed four major aspects of constructivism including a predisposition of learning, the ways that a learner can grasp knowledge, the sequence in which material is presented, and the pacing of rewards and punishments (Bruner, 1966). Bruner was heavily influenced by the works of Vygotsky and Piaget who also played a major role in the constructivist learning theory.

According Bruner, learners construct new ideas based upon existing knowledge and are able to explore more difficult levels of understanding through experience (Overbaugh, 2004). Constructivist theory, according to Bruner, has four major aspects which include: (a) predisposition towards learning; (b) the ways in which a body of knowledge can be structured so that it can be most readily grasped by the learner; (c) the most effective sequence in which to present material; and (d) the nature and pacing of rewards and punishments (Bruner, 1996).

While constructivism is noteworthy, experiential learning theory is better suited to guide the study based on the focus models being examined in the study. Experiential learning theory captures the Project Based Learning that is embedded in the curriculum and program design of the school-within-school models being studied. Additionally, it captures the essence of Dewey's theory of learning by doing.

Standardized Assessment in Texas

The Texas era of accountability began in 1979 in response to the growing concern that students were graduating from high school without the necessary skills to perform successfully in the workplace (Cruse & Twing, 2000). Texas standardized testing has evolved over the years with changing assessments that include: (a) Texas Assessment of Basic Skills (TABS); (b) Texas Educational Assessment of Minimum Skills (TEAMS); (c) Texas Assessment of Academic Skills (TAAS); (d) Texas Assessment of Knowledge and Skills (TAKS); and (e) State of Texas Assessments of Academic Readiness (STAAR).

Texas Assessment of Basic Skills (TABS)

The Texas Assessment of Basic Skills (TABS) came about in 1979 when Texas Legislature passed a bill requiring the Texas Education Agency (TEA) to adopt and administer a criterion referenced assessment to assess basic skills in mathematics, reading, and writing in response to growing concern that students were graduating without the necessary skills to succeed in the work place (Texas Education Agency, 2012). TABS was administered to students in grades 3, 5, and 9 from 1980 to 1985. This was the beginning of high-stakes accountability and when the state began to publish group scores for school districts (Cruse & Twing, 2000).

Texas Educational Assessment of Minimum Skills (TEAMS)

In 1984, the Texas Legislature increased the rigor and changed the wording in the Texas Education Code from basic skills to minimum skills that students were expected to have upon graduation from a K-12 public school (Cruse & Twing, 2000). TABS was then replaced by the Texas Educational Assessment of Minimum Skills (TEAMS) as the new, state mandated, criterion-referenced achievement test in the areas of reading, mathematics, and writing and was administered to students in grades 1, 3, 5, 7, 9, and 11 (Texas Education Agency, 2012). For the first time, remediation and retesting became mandatory for any student who failed the TEAMS and students were required to pass the 11th grade exam as a graduation requirement for public schools (Cruse & Twing, 2000). The new requirements increased the high-stakes nature of standardized testing in Texas.

Texas Assessment of Academic Skills (TAAS)

During the late 1980s, the Essential Elements became the new statewide curriculum in response to a directive from the State Board of Education (SBOE) that included an expansion of content being measured and a greater emphasis on problem solving skills (Cruse & Twing, 2000). The new curriculum inspired a new state assessment. In 1990, the Texas Assessment of Academic Skills (TAAS) replace TEAMS as the new state assessment. TAAS was administered in grades 3,5,7,9, and 11 still with the requirement that students had to pass the 11th grade exam to graduate. The subject areas tested remained the same testing reading, writing, and mathematics (Texas Education Agency, 2012). Major changes to the TAAS were made in 1993 when the exam administration was moved from the fall to the spring and the number of grades being assessed increased with grades 3,4,5,6,7, and 8 being assessed for reading and mathematics while only grades 4,5,6,7,8 were also assessed in writing (Cruse & Twing, 2000). At this point, the purpose of assessment in Texas had evolved from the collection of school level information which was assessed using TABS; to the assessment of curriculum specific minimum skills which was assessed using TEAMS; to school accountability for student performance assessed by TAAS (Texas Education Agency, 2012).

Texas Assessment of Knowledge and Skills (TAKS)

In 2001, the Texas legislature decided to make the exams more rigorous after more than a decade of TAAS; thus, the Texas Assessment of Knowledge and Skills (TAKS) was born (Cruse & Twing, 2000). A new state curriculum called the Texas Essential Knowledge and Skills (TEKS) replaced the Essential Elements. Additional subject areas were being tested that included: English language arts, mathematics, reading, writing, social studies, and science (Texas Education Agency, 2012). TAKS was first administered in 2003 and it ended social promotion with the new Student Success Initiative (SSI) which required students pass the TAKS in grades 3,5, and 8 for promotion to the next grade level. The Student Success Initiative was put in place in response to the No Child Left Behind Act (NCLB) of 2002 (Texas Education Agency, 2012).

TAKS was designed to measure what a student learned and whether students are able to apply knowledge and skills learned at each tested grade level (Texas Education Agency, 2011). Compared to previous standardized testing in Texas, TAKS asked questions in more authentic ways and assessed more of the TEKS than previously tested. It was “developed to better reflect good instructional practice and more accurately measure student learning (Texas Education Agency, 2007, p. 1).

The development process of the TAKS took three years and began in the summer of 1999 after scrutiny and input from teachers, administrators, parents, the business community, professional organizations, and national content area specialists (Texas Education Agency, 2007). The TAKS development committee identified student expectations for each grade level and drafted objectives for each content area. This forced developers to vertically align the TEKS which was a critical step in ensuring the TAKS was a more rigorous assessment of student knowledge (Texas Education Agency, 2007). An annual educator review and revision took place among educators and content area specialists along with a series of quality control steps which assisted in ensuring content validation (Texas Education Agency, 2007).

State of Texas Assessment of Academic Readiness (STAAR)

The State of Texas Assessment of Academic Readiness (STAAR) is the most recent state wide assessment that began to be phased into public schools in 2012. The rigor was once again increased and school districts across the state are being held at the highest accountability ever. STAAR is the fifth state assessment that has been implemented in the state of Texas (Texas Education Agency, 2012). STAAR will assess the same subjects and grades that were assessed on TAKS in grades 3-8; however, it involves a major shift for high school students. The first students that will be held to the new STAAR graduation requirements are those enrolled in the 9^{th} grade during the 2011-2012 school year. Students will not be required to pass grade specific, end-of-course exams in algebra, biology, English, and history. As sophomores in 2013, students will then need to pass geometry, chemistry, English, and history as more subject areas are phased in each school year (Texas Education Agency, 2012). The new STAAR test will be the most rigorous and intellectually demanding of any test ever given statewide in Texas (Texas Education Agency, 2012).

Texas has continued to develop more rigorous assessments for students in public school over the past several decades. With each, passing standards, expectations, and accountability has been raised. Districts who fail to meet standards posed by TEA face the possibility of losing funding and possibly harsh TEA intervention. School district officials are forced to seek creative alternative methods of instruction for optimal learning among students.

Summary

Chapter two provided a systematic review of literature and research related to student academic achievement, school-within-schools model, and the role of assessment in education. Instructional models such as school-within-school were discussed along with Project Based Learning and authentic instructional strategies. Experiential learning theory was decided upon as the theoretical framework to guide this study as it encompassed the school-within-school model and instructional strategies being utilized in the school the researcher used for the study. Additionally, the role of standardized testing was discussed as the data provided from the student scores will be utilized, along with GPA scores, to examine relationships between the models on the academic achievement of eleventh grade students.

CHAPTER THREE

Methodology

Introduction

The purpose of the study was to examine the relationship between a school-within-school model on the academic achievement of 11^{th} grade students. Academic achievement was measured by the overall GPA of students and scores earned on the Texas Assessment of Knowledge and Skills (TAKS) for mathematics, science, social studies, and English language arts. Students enrolled in the 11^{th} grade for the 2012-2013 school year were chosen because all 11^{th} grade students enrolled in a public school in the state of Texas took the TAKS test as a graduation requirement and have earned an accumulated GPA which is used for college applications upon the completion of their 11^{th} grade school year. The study was guided by the following research questions:

1. Do overall TAKS scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

   1.1 Do Mathematics scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

   1.2 Do Science scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

   1.3 Do Social Studies scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

   1.4 Do English Language Arts scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

2. Do average GPA differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

Research Design

The study was an *ex post facto* causal-comparative design. Causal-comparative research is a non-experimental investigation. It relies on observation of relationships among naturally occurring variations in the presumed independent and dependent variables (Gall, Gall, & Borg, 2007). The independent variables were not manipulated. Researchers seek to identify variables to be used to distinguish between or among groups (Gall, Gall, & Borg, 2007). The independent variable was not manipulated, therefore no causal inferences can be established.

In this study, students in the eleventh grade attend high schools with different instructional models: (a) general population; (b) STEM; and (c) Health Science. The study had two outcome measures: (a) TAKS testing results in areas of mathematics, science, social studies, and English language arts; and (b) GPA.

Participant Selection

Participants were enrolled in the 11th grade during the 2012-2013 academic school year. This academic year was selected because it is the most recent year of standardized assessment data that are available to the researcher for the study. The 11th grade was selected because every student in eleventh grade during the 2012-2012 academic school year fell under the same testing guidelines and graduation requirements as the state transitioned to a new standardized assessment. The eleventh grade class of the urban, South Texas school participating in the study consisted of 391 students. Of the 391 students enrolled in the 11th grade, STEM consisted of 57 students and Health Science consisted of 60 students. The remaining 274 students are considered to be general population. Due to the non-probability nature of the sampling, external validity was limited to study participants.

An application to conduct the study was submitted to the Institutional Review Board (IRB) at Texas A&M University-Corpus Christi (Appendix A) and permission to conduct the study was obtained from The College (Appendix B).

Data Collection

Data were collected through the state testing system. The state testing system requires school districts to administer the state standardized test every year during the spring. Testing occurs over five days. Each portion of the test (mathematics, science, social studies, and English language arts) takes approximately four to six hours to administer depending on the content area. Data are collected by the state and analyzed according to the following categories: passing standard for each content area must be equal to or greater than a score of 2100; commended performance standard for each content area must be greater than or equal to 2400. Once the state calculates results, they are distributed to districts and schools. Districts and schools then use the results for data driven decision making and program planning.

For this study, the scores equal to or greater than 2100 are used because they indicate students have successfully mastered the standardized assessment graduation requirement. Permission to use the data for the purpose of the study was obtained from the district. Data for the study were obtained through the district assessment and accountability office. The district converts the state results into a spreadsheet and provides them to the researcher for further analysis. The data are de-identified except for type of school (general population; T-STEM; and health science academy) and eleventh grade students. Since there are national, state, and district initiatives to increase student participation and scores in the sciences, this study examined differences in GPA and standardized test scores among eleventh grade students according to general population, T-STEM, and health science academy models of instruction.

Data Analysis

Data were obtained from the district and entered into SPSS (Statistical Package for the Social Sciences) for analysis. Several analyses are used to calculate results. Data are analyzed for descriptive statistics in order to summarize results. Descriptive results relate data in meaningful and convenient ways (Coladarci, Cobb, Minium, & Clark, 2008). Frequency distributions displayed results according to how data were associated (Coladarci, Cobb, Minium, & Clark, 2008). Additional analyses were completed utilizing ANOVA, and Tukey post hoc where applicable. Analyses were performed at the $p < .05$ level of significance.

Assumptions

Statistical analyses are associated with assumptions. Assumptions are conditions to be met to help ensure accuracy of results (Glass & Hopkins, 2008). Independence of observations was the first assumption. Normality is the second assumption and relates to the evaluation of histograms, skewness, and kurtosis. A normal distribution of scores was expected. Variables with scaled scores were examined closely for positive and negative skewness and kurtosis. Homogeneity of variance was also examined. Levene's analysis tests for homogeneity of variance. It involved equality of scores around a mean result. If results showed unequal groups, they were examined according to Levene's unequal pairing. If results showed equal groups, they were examined according to equal pairings.

Research Question 1 (RQ1): Do overall TAKS scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model? Research question one was analyzed according to ANOVA with a significance level of $p < .05$. ANOVA analyzed whether test scores in mathematics, science, social studies, and English language arts differ among eleventh grade students in the general population, STEM, and Health Science models. If significance was determined, a Tukey post hoc test was run to decide where the significance between schools occured.

Research Question 2 (RQ2): Do average GPA differ significantly between 11^{th} graders in the general population and those who are enrolled in a school within a school instructional model? Research question two was analyzed according to ANOVA with significance level of $p<.05$. ANOVA analyzed whether GPA differs among eleventh grade students in the general population, T-STEM, and Health Science models. If significance was determined, a Tukey post hoc test was run to decide where the significance between schools occured.

Summary

Chapter three provided a detailed explanation of the methodology utilized for the study. The *ex post facto* causal-comparative design was decided upon by the researcher as it showed relationships among the independent and dependent variables for the study. An explanation of the participant selection was given providing details regarding student enrollment in the academies being studied. Existing data were analyzed by the researcher.

CHAPTER IV

RESULTS

The purpose of this study was to compare the achievement of 11th grade students enrolled in the general population to those who are enrolled in two interest based school-within-school academies. The study relied on academic data in the form of cumulative GPA and state assessment performance for 11th grade students in mathematics, science, social studies, and language arts.

Using the data collected from one South Texas high school, two primary research questions along with four secondary research questions for the first primary question were considered. Multiple analyses for each research question were based on the measures for each of the dependent variables. Descriptive statistics were calculated for all variables: (a) the independent variables–general population students, STEM students, and Health Science students; (b) dependent variables–TAKS scores in mathematics, science, social studies, and English language arts and cumulative grade point average on a 100 point scale established by the district. The SPSS software was used to produce frequency distributions and descriptive statistics. The researcher used a one-way ANOVA and Tukey HSD to examine the statistical significance. Tables 1 through 6 provide the descriptive statistics.

Exit level data were gathered on the 11th grade students during the 2012-2013 academic school year from an urban, South Texas High School. The school implemented two separate school-within-school models in addition to their general population of students. There were 391 valid cases: 274 students enrolled in the general population; 57 students enrolled in STEM; 60 students enrolled in Health Science. To make the sample size equivalent, two procedures were used. First, cases in the general population that had missing scores were deleted. This left 244 students in the general population. Second, every fourth case among the general population was selected for a total of 60 cases. This results in an N of 177 for further analysis. The participants are presented in Table 1.

Table 1

Schools-within-Schools, N = 391

Schools	Frequency	Percent
General Population	60	33.9
STEM	57	32.2
Health Science	60	33.9

Data were gathered from three school-within-schools of an urban, South Texas High School on student achievement based on cumulative GPA and Exit Level TAKS scores in mathematics, science, social studies, and English language arts. The results are presented in Tables 2 through 6.

Table 2

Cumulative GPA, N = 177, 100 point scale

	N	Mean	SD	SE
General Population	60	82.4	5.79	0.75
STEM	57	84.31	6.3	0.83
Health Science	60	87.7	4.11	0.53

Table 3

Mathematics Exit Level TAKS, N = 176

	N	Mean	SD	SE
General Population	60	2182.32	156.05	20.15
STEM	56	2265.6	139.38	18.62
Health Science	60	2306.97	123.5	15.94

Table 4

Science Exit Level TAKS, N = 176

	N	Mean	SD	SE
General Population	60	2190.2	94.96	12.3
STEM	56	2263.73	92.99	12.43
Health Science	60	2307.3	105.7	13.64

Table 5

Social Studies Exit Level TAKS, N = 176

	N	Mean	SD	SE
General Population	60	2382.3	160.35	20.7
STEM	56	2471.4	164.2	21.94
Health Science	60	2490.7	158.6	20.5

Table 6

English Language Arts Exit Level TAKS, N = 177

	N	Mean	SD	SE
General Population	60	2240.1	115.3	14.9
STEM	57	2303.6	116.42	15.42
Health Science	60	2388.4	135.3	17.5

Statistical Assumptions

There were assumptions associated with statistical analyses. Assumptions are conditions to be met to help ensure accuracy of results (Glass & Hopkins, 2008). Independence of observations was the first assumption. Independence was assumed for the results as testing parameters did not allow for sharing of information as the study referred to participants not collaborating with each other to take the state assessments. Normality was the second assumption and it related to the evaluation of histograms, skewness, and kurtosis. A normal distribution of scores was expected. Variables with scaled scores were examined closely for positive and negative skewness and kurtosis. Homogeneity of variance, which addressed equality of scores around a mean score, was also examined. Levene's statistic calculated equality if $p > .10$. If the groups were determined unequal, results were interpreted according to Levene's unequal pairing. Based on the descriptive results, frequencies and assumptions were considered appropriate for further analyses.

Statistical Analyses

The analyses for the research questions were a one-way ANOVA. ANOVA analyzes differences in mean scores between and among two or more groups. The groups in this study consisted of 11th grade students in the general population, STEM, and Health Science academic programs.

Research Questions

RQ 1: Student Achievement, TAKS

Do overall TAKS scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional mode at an urban, South Texas High School? Results for the statistical analysis for each individual question were presented.

Research Question 1.1: Do Mathematics scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model at an urban, South Texas High School? Since Levene's test of Homogeneity of Variance was not violated ($p > .10$), the results can be assumed for equality of variance ($p = .82$). The one-way ANOVA examined the difference between the general population, STEM, and Health Science programs in the area of mathematics. Results of a one-way ANOVA showed that there was a statistical significance between groups in the area of mathematics, $F(2,175) = 12.27$, $p < .001$. The Tukey post hoc test showed differences between general population (M = 2182) and STEM (M = 2266); and general population (M = 2182) and Health Science (M = 2306). In other words, students in both STEM and Health Science performed better than the students in the general population in the area of mathematics. Table 7 provides a summary of the results.

Table 7

One-way ANOVA: Model Impact on Academic Achievement on the Mathematics TAKS

Variables	n	Mean	SD	SE	Min	Max	F	*p*
Program							12.27	.000
General Population	60	2182	156.05	20.15	1873	2704		
STEM	57	2266	139.38	18.62	1944	2603		
Health Science	60	2306	123.45	15.94	2085	2542		

Research Question 1.2: How do Science scores differ among 11th graders in the general population as compared to who are enrolled in a school-within-school instructional model at an urban, South Texas High School? Since Levene's test of Homogeneity of Variance was not violated ($p > .10$), the results can be assumed for equality of variance ($p = .59$). The one-way ANOVA examined the difference between the general population, STEM, and Health Science programs in the area of science. Results of the one-way ANOVA showed that there was a statistical significance between groups in the area of science, $F(2, 175) = 21.79$, $p < .01$. The Tukey post hoc test showed differences between general population (M = 2190) and STEM (M = 2263); general population (M = 2190) and Health Science (M = 2307); and STEM (M = 2263) and Health Science (M = 2307). In other words, in the area of science, students in STEM performed better than students in the general population. Students in Health Science also performed better than students in STEM and the general population in the area of science. Table 8 provides a summary of the results.

Table 8

One-way ANOVA: Model Impact on Academic Achievement on the Science TAKS

Variables	n	Mean	SD	SE	Min	Max	F	*p*
Program							21.79	.001
General Population	60	2190	94.96	12.26	1936	2444		
STEM	56	2263	92.99	12.43	2018	2477		
Health Science	60	2307	105.69	13.64	2151	2576		

Research Question 1.3: How do Social Studies scores differ among 11th graders in the general population as compared to those who are enrolled in a school-within-school instructional model at an urban, South Texas High School? Since Levene's test of Homogeneity of Variance was not violated ($p > .10$), the results can be assumed for equality of variance ($p = .99$). The one-way ANOVA examined the difference between the general population, STEM, and Health Science programs in the area of social studies. Results of the one-way ANOVA showed that there was a statistically significant difference between groups in the area of social studies, $F(2, 175) = 7.70$, $p < .01$. The Tukey post hoc test showed differences between general population (M = 2382) and STEM (M = 2471); and general population (M = 2382) and Health Science (M = 2491). In other words, students in both STEM and Health Science performed better in the area of Social Studies than those in the general population. Table 9 provides a summary of the results.

Table 9

One-way ANOVA: Model Impact on Academic Achievement on the Social Studies TAKS

Variables	n	Mean	SD	SE	Min	Max	F	*p*
Program							7.70	.001
General Population	60	2382	160.35	20.70	2033	2861		
STEM	56	2471	164.16	21.94	2152	2861		
Health Science	60	2491	158.57	20.47	2206	2861		

Research Question 1.4: How do English language arts scores differ among 11th graders in the general population as compared to those who are enrolled in a school-within-school instructional model at an urban, South Texas High School? Since Levene's test of Homogeneity of Variance was not violated ($p > .10$), the results can be assumed for equality of variance ($p = .99$). The one-way ANOVA examined the difference between the general population, STEM, and Health Science programs in the area of social studies. Results of a one-way ANOVA showed that there was a statistically significant difference between groups in the area of English language arts, $F(2,176) = 22.03$, $p < .001$. The Tukey post hoc test showed differences between general population (M = 2240) and STEM (M = 2303); and general population (M = 2240) and Health Science (M = 2388). In other words, students in both STEM and Health Science performed better in the area of English language arts than those in the general population. Table 10 provides a summary of the results.

Table 10

One-way ANOVA: Model Impact on Academic Achievement on the English Language Arts TAKS

Variables	n	Mean	SD	SE	Min	Max	F	*p*
Program							22.03	.000
General Population	60	2240	115.25	14.88	1967	2647		
STEM	57	2303	116.42	15.42	2078	2717		
Health Science	60	2388	135.29	17.47	2213	3069		

RQ 2: Students Achievement, GPA

How does GPA differ among 11th graders in the general population as compared to those who are enrolled in a school-within-school instructional model at an urban, South Texas High School? Levene's test of Homogeneity of Variance was violated, $p = .03$. Therefore, the harmonic mean of the group sizes was used. There was no statistical differences: $F(2, 176) = 14.29$, $p > .05$. Table 11 provides a summary of the results.

Table 11

Homogeneous Subsets

Program Type	n	1	2
General Population	60	82.39	
STEM	57	84.31	
Health Science	60	87.65	
Sig.		.139	1.00

Summary

Chapter four provided a description of data analysis procedures that were used to examine the differences in student achievement among 11th graders enrolled in various models of schools-within-schools at an urban, South Texas High School. The independent variables were the general population students, STEM students, and Health Science students. The dependent variables were TAKS scores in mathematics, science, social studies, and English language arts and the cumulative grade point average on a 100 point scale established by the school district. The study relied on multiple analyses. A description of the findings in tables and statistical form resulted from each of the two main research questions.

There were multiple analyses for the research questions based on the measures for each of the dependent variables. The study used SPSS software to conduct all analyses. The researcher selected to use a one-way ANOVA and Tukey HSD to examine statistical significances among the variables.

The first research question examined the differences in student achievement among 11th graders enrolled in the general population from those enrolled in STEM and Health Science with an analysis of TAKS scores in the areas of mathematics, science, social studies, and English language arts. Data were analyzed by performing one-way ANOVAs and the Tukey HSD. The second question examined the differences in student achievement among 11th graders enrolled in the general population from those enrolled in STEM and Health Science with an analysis of cumulative grade point averages on a 100 point scale established by the district. Data were analyzed by performing several one-way ANOVAs and Tukey HSD tests.

When assessing the descriptive statistics, it became evident that the group sizes among those enrolled in the general population, STEM, and Health Science were uneven. In an effort to make the sample sizes equivalent, two procedures were used. First, the cases in the general population that had missing scores for any area were deleted. Once the cases were deleted, this left 244 students in the general population. Secondly, every fourth case among the general population was then selected for a new total of 60 cases, which was comparable to the total cases for STEM (n = 57), and Health Science (n = 60).

Chapter Five provides a summary of the study, a discussion of the major findings from the study, implications from the study, and implications for future research.

CHAPTER V

SUMMARY, CONCLUSIONS, and DISCUSSIONS

Introduction

During the 2000-2001 school year, there were 23,457 students who dropped out of school across the state of Texas (Comprehensive Annual Report on Texas Public Schools, 2002). Only 81.1% of the overall student population in Texas received a high school diploma in 2001. The most recent Comprehensive Annual Report on Texas Public School (2010) noted the 2009 graduation rate as 80.6%. In a decade of education, if one were to measure the success of a school on graduation rates, there does not seem to be much change, better or worse, in the success of education in Texas. While it must be noted that there are numerous factors which contribute to graduation rates such as gender, poverty levels, and minority groups, it should also be noted that the primary goal of attending school grades pre-kindergarten through grade twelve is to earn a high school diploma which is a mandatory admissions requirement for postsecondary education.

This study examined the relationship between a school-within-school model on academic achievement of 11th grade students. The study used pre-existing academic data collected from an urban, South Texas High School in the form of cumulative GPA and TAKS scores in the areas of mathematics, science, social studies, and language arts. The three school-within-school models that were examined included the general population, STEM, and Health Science.

The general population refers to students enrolled in the high school being studied. General population students are not enrolled in STEM or Health Science and attended traditional classes which follow the state mandated diploma plans to include: the minimum graduation plan; the recommended graduation plan; or the distinguished graduation plan. Students were required to obtain a pre-established number of credits for courses in the four content areas: (a) mathematics; (b) science; (c) English language arts; (d) and social studies. In addition, students were required to earn credits in Fine Arts, Physical Education, Foreign Language, and electives. Students enrolled in the general population attended traditional classes, which follow the state mandated curriculum, Texas Essential Knowledge and Skills (TEKS). Exposure to project-based-learning in traditional classes was limited for students enrolled in the general population although they had full access to advanced placement (AP) and pre-advanced placement (Pre-AP) courses throughout the four years of high school.

STEM refers to students enrolled in a smaller learning community, school-within-school, of the high school used for this study. Student must apply for entrance into STEM and must declare an interest in at least one of the science, technology, engineering, or mathematics fields of study. A lottery system was used for student selection until student capacity for STEM was met. Students enrolled in STEM were bound to the same state mandated graduation plans as the general population, however, their elective courses and much of their core class work revolved around STEM fields of study. In addition, teachers had specialized training in project-based-learning and deliver instruction which is cross-curricular.

Health Science refers to students enrolled in a smaller learning community, school-within-school, of the high school used for this study. Students must apply for entrance into Health Science and must declare an interest in a health science field of study in addition to being subject to a competitive selection process. Students enrolled in Health Science were bound to the same state mandated graduation plans as the general population, however their elective courses and much of their core class work revolved around health science fields of study.

Teachers had specialized training in health science fields of study and deliver instruction by using cross-curricular project-based-learning.

The purpose of this study was to compare the achievement of 11^{th} grade students enrolled in the general population to those who are enrolled in two interest based school-within-school academies in an urban, South Texas high school. Specifically, the study focused on student achievement in the areas of mathematics, science, social studies, and English language arts and overall GPA. The school-within-school models, STEM and Health Science, for this study utilized alternate methods of instruction which were cross-curricular and incorporated project-based-learning. STEM and Health Science were intended to prepare students for post high school courses of study which lead to careers in STEM and the health sciences. The results of this study may be useful for school officials to determine areas for improvement for school structure, teacher training, cross-curricular project-based-learning, and instructional practices. The researcher collected data that was useful in determining if the funds invested in STEM and Health Science make an impact on student achievement. The research questions guiding the study were:

1. Do overall TAKS scores differ significantly between 11^{th} graders in the general population and those who are enrolled in a school within a school instructional model?
   1.1 Do Mathematics scores differ significantly between 11^{th} graders in the general population and those who are enrolled in a school within a school instructional model?
   1.2 Do Science scores differ significantly between 11^{th} graders in the general population and those who are enrolled in a school within a school instructional model?

1.3 Do Social Studies scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

1.4 Do English Language Arts scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

2. Do average GPA differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

Conclusions

All students who attend a public high school in the state of Texas are required to complete the same graduation requirements to include: successful performance on standardized assessments; successful completion of coursework with a passing average of 70 or above; and an accumulation of a specific number of credits and various content areas. The research questions on students achievement discussed below guided the study.

RQ 1: Do overall TAKS scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model?

Research Question 1.1: Do Mathematics scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model at an urban, South Texas High School? Results of the one-way ANOVA indicated a statistical significance between groups in the area of mathematics. More specifically, the Tukey post hoc revealed differences between the general population and STEM, and the general population and Health Science. Participants in this study who were enrolled in STEM or Health Science, outperformed participants enrolled in the general population in the area of mathematics.

The results showed that the type of experience these students are receiving in mathematics, influence their tests scores. Kolb (1984) identified six propositions tied to human experience and learning. Proposition one related that learning is best conceived as a process and not in terms of outcomes. Kolb noted the primary focus should be on engaging students in a process that best enhances their learning which includes feedback on the effectiveness of their learning efforts (Kolb & Kolb, 2005). The instructional methods used in the three educational environments provide different experiences. The experience students gain from the general population does not focus on engaging students in the area of mathematics. The instructional methods limit student experiences in mathematics while STEM and Health Science students are provided with experiences in mathematics that are relevant and authentic to their learning.

These experiences are consistent with proposition two: "Learning is best facilitated by a process that draws out the students' beliefs and ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas" (Kolb & Kolb, 2005, p. 2). Thus, students are in particular programs because they have a fundamental belief about the benefits of school. Those students who enter STEM do so because they have a long term interest in a STEM related fields of study. Those students who are drawn to Health Science participate because they have an interest in a workforce related field beyond high school. In both programs, the role of mathematics is stressed so that students will learn how to think critically and apply mathematical applications to real world scenarios.

Research Question 1.2: Do Science scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model at an urban, South Texas High School? Results of the one-way ANOVA indicated a statistical significance between groups in the area of science. More specifically, the Tukey post hoc revealed differences between the general population and STEM, the general population and Health Science, and differences between STEM and Health Science. Participants enrolled in Health Science are outperforming participants enrolled in the general population and participants enrolled in STEM in the area of science.

The results showed that the type of experience these students are receiving in Science, influence their tests scores. Proposition five, according to Kolb (1984) related to synergistic transactions between the person and the environment. Kolb noted the primary focus should be on engaging students in a process that best enhances their learning which includes feedback on the effectiveness of their learning efforts (Kolb & Kolb, 2005). The instructional methods used in the three educational environments provides different experiences. The instruction students receive from the general population does not focus on transactions between the person and the environment. The instructional methods limit student experiences which do not facilitate new experiences to existing concepts. STEM and Health Science students are provided with experiences in science that are relevant and authentic to their learning, however, the partnership acquired by Health Science with local hospitals provide a work environment which is conducive to applying new experiences to existing concepts learned. This could be an underlying factor as to why Health Science is also outperforming STEM in the area of science.

These experiences are consistent with proposition two: “Learning is best facilitated by a process that draws out the students’ beliefs and ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas” (Kolb & Kolb, 2005, p. 2). Thus, students are in particular programs because they have a fundamental belief about the benefits of school. Those students who enter STEM do so because they have a long term interest in a STEM related field of study. Those students who are drawn to Health Science participate because they have an interest in a workforce related field beyond high school. In both programs, the role of science is stressed so that students will learn how to think critically and apply scientific applications to real world scenarios.

Research Question 1.3: Do Social Studies scores differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model at an urban, South Texas High School? Results of the one-way ANOVA indicated a statistically significant difference between groups in the area of social studies. More specifically, the Tukey post hoc revealed differences between the general population and STEM, and the general population and Health Science. Participants in this study who were enrolled in STEM or Health Science, outperformed participants enrolled in the general population in the area of social studies.

The results showed that the type of experience these students are receiving in social studies, influence their tests scores. Kolb (1984) identified six propositions tied to human experience and learning. Proposition one related that learning is best conceived as a process and not in terms of outcomes. Kolb noted the primary focus should be on engaging students in a process that best enhances their learning which includes feedback on the effectiveness of their learning efforts (Kolb & Kolb, 2005). The instructional methods used in the three educational environments provide different experiences. The experience students gain from the general population is not conducive to their academic achievement in the area social studies. The instructional methods limit student experiences in social studies while STEM and Health Science students are provided with experiences that are relevant and authentic to their learning.

These experiences are consistent with proposition six: "Learning is the process of creating knowledge. Experiential learning theory proposes a constructivist theory of learning whereby social knowledge is created and recreated in the personal knowledge of the learner. This stands in contrast to the "transmission" model on which much current educational practice based, where preexisting fixed ideas are transmitted to the learner" (Kolb & Kolb, 2005, p. 3). Thus, students are performing in the area of social studies because they are provided opportunities to create and recreate social knowledge through their experiences. While students who enter STEM and Health Science do so because they have a long term interest in the related fields of study and workforce, they are outperforming the general population due to their ability to think critically and problem solve.

Research Question 1.4: Do English Language Arts scores differ significantly between 11^{th} graders in the general population and those who are enrolled in a school within a school instructional model at an urban, South Texas High School? Results of the one-way ANOVA indicated a statistically significant difference between groups in the area of English language arts. More specifically, the Tukey post hoc revealed differences between the general population and STEM, and the general population and Health Science. Participants in this study who were enrolled in STEM or Health Science, outperformed participants enrolled in the general population in the area of English language arts.

The results showed that the type of experience these students are receiving in English language arts, influence their tests scores. Of the six propositions Kolb (1984) tied to human experience and learning, proposition one related that learning is best conceived as a process and not in terms of outcomes. Kolb noted the primary focus should be on engaging students in a process that best enhances their learning which includes feedback on the effectiveness of their learning efforts (Kolb & Kolb, 2005). The instructional methods used in the three educational environments provide different experiences, however, general population students perform lower as compared to STEM and Health Science students. The experience students gain from general population does not focus on engaging students in the area of English language arts. The instructional methods limit student experiences in English language arts, while STEM and Health Science students are provided with experiences in English language arts that are relevant and authentic to their learning.

Additionally, these experiences are consistent with proposition two: “Learning is best facilitated by a process that draws out the students’ beliefs and ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas” (Kolb & Kolb, 2005, p. 2). Thus, students are in particular programs because they have a fundamental belief about the benefits of school which can be shown in cross-curricular content areas such as social studies and language arts. Those students who enter STEM and Health Science do so because they have a long term interest in a STEM or Health Science related field of study. In both programs, the role of English language arts may not be a focus, however, students continue to outperform.

RQ 2: Do average GPA differ significantly between 11th graders in the general population and those who are enrolled in a school within a school instructional model at an urban, South Texas High School? Levene’s test of Homogeneity of Variance was violated; therefore, the harmonic mean of the group sizes was used to analyze GPA differences. There were no statistical differences among students enrolled in the general population, STEM, and Health Science.

The results showed that the type of experience students are receiving in all three models do not influence their accumulated grade point average. The instructional methods used in the three educational environments provide different experiences. Although students in STEM and Health Science outperform general population on state mandated standardized assessments, the student's grade point averages do not show statistical significances based on their type of educational experience.

National Curriculum framework (2005) stated the inadequateness of the evaluation system especially the lack of full disclosure and transparency in grading and mark reporting. Grades assume to give us an indication of the amount of learning and understanding and provide the feedback needed for the growth of knowledge and learning (Gafoor & Jisha, 2014). The lack of statistical significance leads to new questions regarding the accuracy of grading systems in addition to the possibility of higher expectations for a more rigorous curriculum implemented by STEM and Health Science.

Kolb (1984) provided a model to help understand the statistical significance between instructional models in various areas and the lack of statistical significance in grades. The model is the theoretical framework of the study. According to Kolb (1984) there are four phases that learners engage in on any given experience they may encounter: (a) Concrete Experience; (b) Reflective Observation; (c) Abstract Conceptualization; and (d) Active Experimentation. The model shown below further explains the four phases.

The Experiential Learning Model (Kolb, 1984)

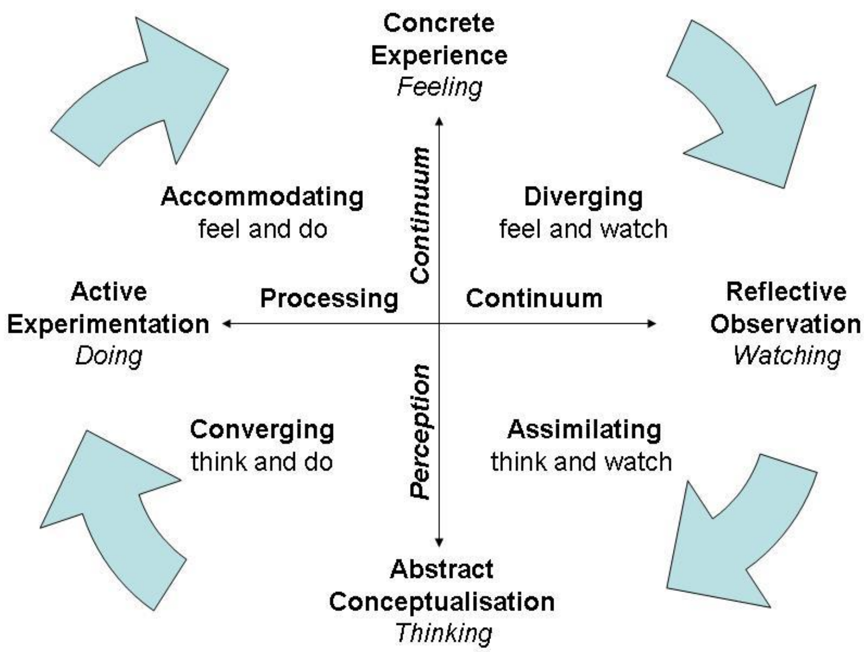

Figure 2

Kolb's Experiential Learning Theory works on two levels, grasping and transforming experiences – establishing the framework for four distinct learning styles that are based on the four-mode learning cycle. Learning therefore, involves two dialectical modes for grasping experience – concrete experience and abstract conceptualization. Then, there are two dialectical modes for transforming experience – reflective observation and active experimentation (Kolb, 1984, p. 41 as cited by Turesky & Gallagher).

The model reflects the way people learn, not necessarily the measurement of outcomes. Each aspect of the model provides a framework for how the results can be understood. All three instructional models give students a certain level of concrete experience, reflective observation, abstract conceptualization, and active experimentation. However, it is the quality of those experiences that differ.

Divergent learning allows for concrete situations to be experienced from various points of view which may involve brainstorming sessions, working in collaborative groups, and generating ideas (Kolb et al., 1999). When examined through the lens of the diverging (feel and watch), general population tends to be exposed to traditional methods of transmitting knowledge to students in isolation (Ruben, 1999). Students of the general population can expect limited diverging experiences where they are not given many opportunities to leave the classroom for collaborative, concrete experiences. STEM offers opportunities to experience concrete situations from various points of view. STEM students can expect diverging experiences in formal learning situations that offer time for brainstorming and the generation of new ideas in the areas of science, technology, engineering, or mathematics. In addition, Health Science also offers opportunities to experience concrete situations from various points of view. Health Science students can expect specific diverging experiences that offer time for collaborative brainstorming and the generation of new ideas in the health science fields of study. Thus, when approaching standardized testing, STEM and Health Science students' experiences appear more relevant to their concrete experience than general population. Grades, however, are subject to the values of the individual instructor. There is no way to gauge the rigor of assignments or grading process that stands behind GPA.

Assimilating refers to more abstract and reflective learning (Kolb et al., 1999). When examined through the lens of assimilating (think and watch), general population may be more apt to providing opportunities for assimilating as lectures, readings, and transmitting knowledge than other more concrete experiences. General population students can expect individual opportunities to experience readings, lectures, and abstract concepts which is an important component of building a knowledge base. STEM offers a combination of concrete and abstract experiences where students may have more limited exposures to readings and lectures, but offered more time to think through analytical models. STEM students can expect assimilated (think and watch) experiences that include reflective observation in the areas of science, technology, engineering, and mathematics. Health Science also offers a combination of concrete and abstract experiences which build more upon the concrete experiences. Health Science students can expects a combination of assimilated experiences and concrete experiences in the health and science fields of study. Thus, when approaching standardized testing, STEM and Health Science students' combination of concrete and abstract experiences appear more relevant than the general populations more abstract experiences. Grades, however, are subject to the values of individual instruction. The subjective grading of abstract knowledge gained and the level of rigor leads to new questions regarding grading processes reflected in GPA.

Converging refers to abstract conceptualization and active experimentation where students are given opportunities to find practical uses for ideas and theories (Kolb et al., 1999). Converging learning involves problem solving and making decisions based on finding solutions to problems or inquiry (Kolb et al., 1999). When examined through the lens of converging (think and do), the general population ultimate test of knowledge and acquiring skills is not in the knowing, but the ability to translate knowledge into behavior (Ruben, 1999). General population students can expect limited opportunities to demonstrate knowledge by finding practical uses and active problem solving. With the use of Project Based Learning, STEM students can expect opportunities to experience finding solutions to problems and practical uses of concepts learned in the areas of science, technology, engineering, and mathematics.

Additionally, Health Science offers many of the same opportunities for finding solutions to problems and practical uses of concepts learned with more technical tasks in the health and science fields of study. Thus, when approaching standardized testing, the converging experiences of both STEM and Health Science appear to be more relevant than the experiences of the general population. Grades, however, are subject to the values of individual instruction which may be difficult to gauge using current grading processes reflected in GPA.

Accommodating learning allows for concrete situations to be experienced through active experimentation providing hands-on experiences (Kolb et al., 1999). When examined through the lens of the accommodating (feel and do) general population tends to be exposed to traditional methods of transmitting knowledge to students in isolation (Ruben, 1999). General population methods are in contradiction to accommodating learning where students may test different approached to solving a particular problem. Students of the general population can expect limited opportunities for accommodating learning. With the integration of Project Based Learning and Outdoor Classroom Experiences, STEM and Health Science are provided opportunities to carry out plans for hands-on experiences where they may rely on the collaboration of peers for rigorous problem solving. STEM and Health Science students can expect opportunities for formal learning in their related fields of study that involve collaboration among peers and professionals, and relevant hands-on experiences. Thus, when approaching standardized testing, the accommodating experiences of both STEM and Health Science appear to be more relevant that the experiences gained by the general population. Grades, however, are subject to the values of individual instruction which may be difficult to gauge using current grading processes reflected in GPA.

The differences in standardized tests demonstrate how students perform on a level playing field. There exists the possibility that low grades in STEM, for example, demonstrated more learning at a higher rigorous level, than a high grade in the general population, or vice versa. There also exists the suggestion of subjectivity when measuring the outcomes of learning through observation of demonstrated skills. There are elements of all Six Propositions, however, only the most salient ones are discussed.

Discussion

While national mandates to increase student achievement are of critical importance, an assessment of instructional models implemented at high school campuses is an area of urgency for district level and campus level administrators. The standards imposed by the NCLB Act represent an unprecedented challenge for districts to reform schools in an effort to meet the new rigorous standards (Simpson et al., 2004). There is a need for data analysis on whether instructional models that are implemented on campuses are actually working and doing what they are intended to do. Models such as STEM and Health Science have grant dollars funding their programs for: (a) teacher training; (b) project-based-learning; (c) outdoor classrooms experiences; (d) and community partnerships. Grant dollars are made available through a variety of sources which include, but are not limited to, federal, state, and private foundations. District officials need evidence of student achievement to make educated decisions on the allocations for models of instruction implemented to ensure they are getting the most from every dollar. However, the type of evidence and how much of it comes into question. For example, although there is a statistically significant difference in test scores, is the gap in scores between the general population, STEM, and Health Science enough to justify funding? The issue can be expanded, as well. The current initiatives for pre-k through grade twelve is to prepare students for jobs or college. This raised the concerns about funding. Ultimately, does the funding for STEM and Health Science programs lead to greater economic development and successful transition to and graduation from college?

The concern for educators, though, is that preparation for jobs and college often clashes with principals of learning. Experiential Learning Theory (ELT) integrates the works and learning theories of Dewey, Piaget, and Lewin, all of which tied experience to having a key role in the way humans learn. Kolb (1984) described six propositions that these scholars share: (a) Learning is best conceived as a process and not in terms of outcomes; (b) All learning is re-learning; (c) Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world; (d) Learning is a holistic process of adaptation; (e) Learning results from synergetic transactions between the person and the environment; and (f) Learning is the process of creating knowledge.

Proposition one relates that learning is best conceived as a process and not in terms of outcomes. Unfortunately, standardized testing and grades do not measure process. They are outcome driven. Both are extremely important for both jobs and entrance into college. The results of the study, though, do indicate processes can be effective. Both STEM and Health Science students outperformed general population students. The feedback, which is a key element of proposition one, is much more extensive. For example, with Project Based Learning, students are involved in investigative tasks which require the teacher's role to be that of a facilitator, rather than merely transferring knowledge. The feedback and extension given to students is an integral part of the process for learning (Ngeow, Kong, & Yoon-San, 2001).

Proposition two relates that all learning is relearning. The results can be attributed to not just processes but intent. Students in STEM and Health Science self-select although they are not guaranteed entrance. Students are required to show a long term interest in a related field of study either with postsecondary studies, or through entering a related workforce field. The curriculum being taught follows the same state standards, although the methods of delivery vary. Project Based Learning is used to study all content areas through the use of specifically focused projects in one of the related fields. For example, students in Health Science may learn about the writing process while drafting medically related reports reflective of a hands-on experience in a hospital setting.

Proposition three relates that learning requires the resolution of conflicts between dialectically opposed adaptation to the world. Students move back and forth between opposing reflections of feeling and thinking. Standardized testing and GPA does not measure reflection and feeling, although it can be considered when measuring thinking.

Proposition four relates learning is a holistic process of adaptation. It involved the total functioning of a person, which includes thinking, feeling, perceiving, and behaving (Kolb, 1984). Problem solving, decision making, and creativity can be observed in the methods of Project Based Learning although it may be difficult to measure through grades and standardized assessments. The results of the study do indicate adaptation can be effective.

Proposition five relates learning results from synergetic transactions between the person and the environment. Learning occurs through the assimilation of new experiences to existing concepts and knowledge (Kolb, 1984). New experiences can influence decisions and choices made as new concepts are assimilated. The environment plays a key role in the design of STEM and Health Science and offers Outdoor Classroom experiences. For example, seeing the effects of environmental pollution through sampling of the water shed can impact the value of data collection from a learner's point of view.

Proposition six relates learning is the process of creating knowledge. It further relates that social knowledge is created and recreated in the personal knowledge of learners which is in contrast to models utilized in many traditional settings where fixed ideas are transferred to the learner (Kolb, 1984). Unfortunately, standardized testing and grades do not measure the social creation of knowledge and are instead outcome driven. The results of the study do indicate social knowledge can be useful through the implementation of models which utilize Project Based Learning and Outdoor Classroom Experiences.

School districts need to examine instructional models that contribute to the academic achievement of students. Indicators such as performance on standardized assessments in mathematics, reading, science are used to examine the achievement levels of students in U.S. schools (Aud et al., 2012). In addition, close attention should be given to the subjective grading policies adopted by school districts which measure learning and student achievement. Grading systems have human qualities such as personality which is a factor that contributes to the lack of precision reflected in teacher assigned grades (Gafoor & Jisha, 2014). How districts implement grading policies and consistency in assigning grades can play a key role in measuring student success.

Instructional models implemented at schools should not only increase the academic achievement of students, it should also prepare them for success in their field of higher education and workforce. The combination of Project-Based-Learning (PBL) and Outdoor Classroom Experience (OCE) are key components of STEM and Health Science. The interdisciplinary, hands-on nature of Project Based Learning and Outdoor Classroom Experiences allow for students to a gain deeper understanding of concepts while offering authentic experiences for real-life application of the material. The cross-curricular impact from cooperative learning is an attribute of Project Based Learning. Additionally, student's attitudes and written communication skills are positively impacted when having cooperative learning experiences (Snyder, 2006). Students see value in their learning when they can directly apply it to life beyond high school while learning problem-solving skills needed for success in their chosen industry.

Implications

In an effort to increase student achievement, the federal government released "A Nation At Risk" and the No Child Left Behind Act. The federal government understood the need for improvements to our education system in an effort to remain competitive with a global economy and workforce. Although controversy surrounded the implications and educational reform of "A Nation at Risk" and NCLB, the underlying premise remains that the success of student achievement in the public classroom can have a lasting effect on their performance in a higher education setting and in the workforce. Educational outcomes strongly effect economic growth in a global society (Shultz & Hanushek, 2012). Those who pursue their education earn higher salaries, live healthier, and are contributors to the economic growth of their communities (Hout, 2012). Finding ways to increase student achievement in public school districts is critical in ensuring they succeed in higher learning institutions and in the workforce.

This study found that students enrolled in STEM and Health Science tended to outperform the general population as measured by their performance on standardized assessments. The instructional methods used create experiences for students to gain a better understanding of the curriculum. STEM, Health Science, and the general population are all assessed with the same instrument which measures how well they learned the state mandated curriculum, the Texas Essential Knowledge and Skills (TEKS). The same TEKS are taught to all students enrolled in the Texas public school system; however, the method of instruction varies.

STEM and Health Science students have indicated their long-term interest in a related field of study. These models receive specialized funding which create opportunities for extensive Project Based Learning and Outdoor Classroom Experiences. Additionally, teachers are given specialized training to teach the TEKS in a Project Based Learning format which offers opportunities for students to experience real-world applications.

Fagerstam (2013) identified eight components of an outdoor learning model. Although the three instructional models in this study are not outdoor learning experiences, the model provides a foundation for implications.

A model of characteristics of school-based outdoor learning Source: Translated from Jordet, 2010

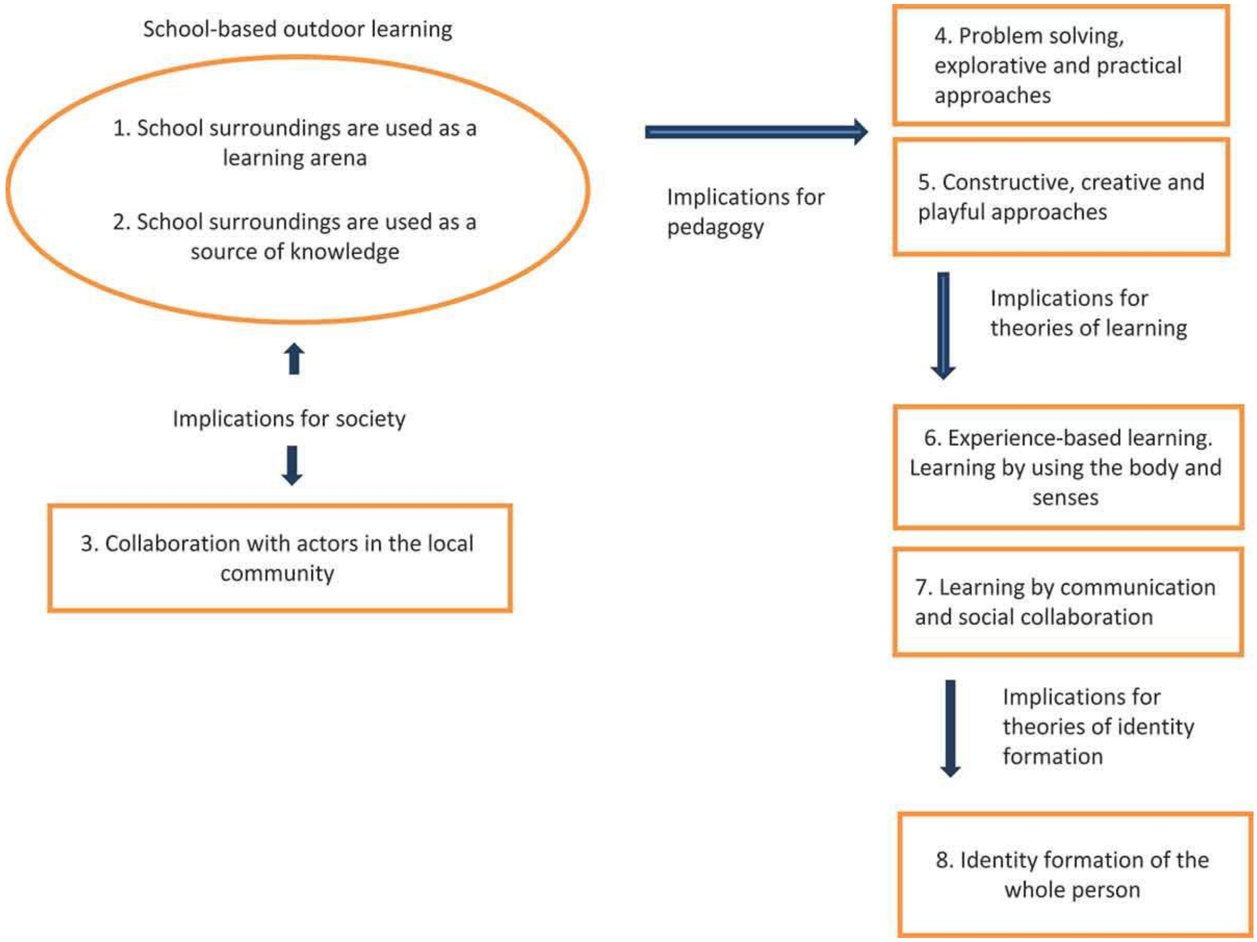

Figure 1

First, students from the Health Science programs performed the best, followed by STEM students, and finally general population students. The implication is that school surroundings, as a learning arena, whether explicit or implicit, leads to different learning outcomes. When curriculum is being designed, it has to be designed with not only the content knowledge in mind, but how the environment affects content. STEM students attend classes in traditional classroom settings and attend numerous locations, such as watershed locations for specimen sampling, as an extension of the classroom conducive to Project Based Learning. Health Science students spend numerous hours applying coursework on location at a local hospital which has partnered with the school. In contrast, general population students attend classes located in a traditional classroom setting.

Second, school surroundings used as a source of knowledge influence outcomes. The implication is that using the surroundings as a source of knowledge leads to difference learning outcomes. When planning a learning environment, the resources available within the surroundings should be considered. The off campus locations for STEM and Health Science provide additional professional persons as sources of knowledge which is in addition to their classroom teacher. General population students are typically afforded only the expertise of the classroom teacher for each course attended.

Third, characteristics one and two above lead to implications for society, particularly collaboration with actors in the community. The implication is that actors in the community become stakeholders leading to different outcomes. Community stakeholders become vested and can offer resources such as funding in an effort to develop students towards specific career goals. Students in STEM and Health Science are exposed to community stakeholders such as university researchers and hospital administrators. Exposure can lead to opportunities such as internships which vests both community stakeholders, but students as well. This collaboration with the community leads to different outcomes for students enrolled in the different instructional models.

Fourth, characteristics one and two above also lead to implications for pedagogy, particularly problem solving including explorative and practical approaches. The implication is that opportunities for problem solving using explorative and practical approaches lead to different learning outcomes. When the process for delivering instruction is designed, it must be designed with opportunities for students to explore and apply practical approaches for their learning. Both STEM and Health Science incorporate Project Based Learning which provides opportunities for exploration. Additionally, practical problem solving takes place when students are given opportunities to solve problems related to their long term field of study in STEM and Health Science.

Fifth, an additional implication for pedagogy includes constructive, creative, and playful approaches. The implication is that instructional changes which can be constructive and creative lead to different learning outcomes. The environment plays a key role in constructive approaches which are conducive to the creativity of students. STEM and Health Science utilize alternative settings for learning and design opportunities for students to be creative in their projects. The classroom setting may offer intentional opportunities for creativity, however, the lack of consistent Outdoor Classroom Experiences lead to differences in learning outcomes.

Sixth, characteristics four and five above lead to implications for theories of learning, experience based learning using the body and senses. The implication is that Experiential Learning Theory is utilized in both STEM and Health leads to different learning outcomes. Students in STEM and Health Science experience workforce and postsecondary related opportunities in their fields of study through college visits, industry partnerships and experiences, and hands-on research.

Seventh, an additional implication for theories of learning includes learning by communication and social collaboration. The implication is that students learn by their social interactions with peers, professionals, and the community. STEM and Health Science students are offered a wealth of opportunities to interact and collaborate socially. In contrast, traditional classroom settings typically limit the social interactions of peers and do not offer professional and community collaboration.

Eighth, identity formation of the whole person influence outcomes. The implication is that tending to the human needs of the whole student leads to different outcomes. Designing programing and curriculum should involve a process for tending to the individual learner. Considerations, such as student intent and interests should be integrated in program design. The application process for STEM and Health Science includes an essay where students communicate their specific interests in a related field of study. Their interest in science, technology, engineering, mathematics or the health sciences is considered to be a key element for entrance to the program. Students in the general population are mixed with peers who have various interests along with peers who have not put much thought into their path following the completion of high school. This scenario makes instruction difficult for the teacher when attempting to cater to the specific needs and interests of students.

This study found students enrolled in STEM and Health Science are outperforming general population students. Based on the eight key components mentioned above, the implication is that the various instructional methods used throughout STEM, Health Science, and general population leads to different outcomes. A closer look at curriculum and lesson design throughout the different models would be a useful component for this study when determining district and campus programming.

Future Research

This study represents a continuing need for examination of instructional models implemented by schools geared toward improving student achievement. The study focused on three instructional models: (a) general population; (b) STEM; (c) and Health Science. While the general population has a more traditional scope of instruction, STEM and Health Science have very specific fields of study which incorporate Project Based Learning and Outdoor Classroom

Experiences in a smaller school-within-school setting. A primary goal of enrollment in STEM and Health Science is to pursue higher education and workforce in related fields. A longitudinal component to the study to document students who graduated from STEM or Health Science and their long-term career paths would offer an added dimension to the study. This component would be helpful in determining successful employment and possibly wages earned compared to national averages.

Furthermore, a qualitative component could provide insight from teachers who teach in STEM and Health Science regarding their training and ability to implement Project Based Learning and Outdoor Classroom Experiences in their classrooms. Teacher perspectives and feedback could be a valuable component for both campus and district level administrators when planning for instructional models, teacher trainings, and funding allocations.

An additional comparative study on student grades and GPA would add depth to the study. Student achievement is largely based on the grades students earn, however, consistency and human error must be taken into account. When implementing instructional models that include Project Based Learning and Outdoor Classroom Experiences, teacher observation of student performance and problem solving is a large component. Open-ended responses and inquiry become a part of student learning and we rely on the accuracy of teachers to measure the learning with numeric grading systems.

> Nonetheless, as years of grading in schools passes there is increasing force for the public outcry that the grades in schools are inflated and that this practice too does harm for the learning and development of younger generation. While there is no doubt that effective grading allows many students to actively update and advance their own learning, motivate them to attain the highest grades and to receive the recognition that accompanies such grades and to avoid the lowest grades, provide information to students for self-evaluation, for analysis of strengths and weaknesses, and for creating a general impression of academic promise, even the supporters of grading agree that teachers can teach without them and students can and do learn without them (Frisbie, & Waltman, 1992 as cited by Gafoor & Jisha, 2014, p. 294).

Summary

The goal of this study was to examine whether school-within-school models encompassing Project Based Learning and Outdoor Classroom Experiences would provide different outcomes in student achievement. Specifically, this study examined state assessment scores in mathematics, science, social studies, and English language arts along with accumulated grade point averages of students enrolled in STEM and Health Science as compared to the general population. While mathematics and science are key areas of focus for STEM and Health Science, performance in social studies and English language arts was included to see if there was an impact in other content areas as cross-curricular instruction is a natural part of Project Based Learning and Outdoor Classroom Experiences. If state and federal funds are going to be allocated towards instructional models to raise student achievement, school districts must put systems in place to measure student progress and continually adjust to student needs in a changing demographic economy.

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FOR COMPLIANCE OFFICE USE ONLY:

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Date Received:

☐ Revision

Application for Review of Research Involving Human Subjects

Institutional Review Board (IRB)

Texas A&M University-Corpus Christi

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RESEARCH COMMERCIALIZATION OUTREACH

INSTRUCTIONS

IRB protocol application forms are ONLY accepted in electronic format. Please utilize digital signatures and email form with the IRB Protocol Application Form to irb@tamucc.edu.

1. Complete CITI Training
CITI training is required for all researchers and faculty advisors listed on the protocol.
Note: The Certificate of Completion will be automatically emailed to the Research Compliance Officer upon completion.

2. Complete Form
All sections of the form are required. The protocol review will not begin if any section is incomplete. The form must be complete and free of typographical/grammatical errors.

3. Submit Application & Completed Supplemental Documents
Review of application will not begin until all required documentation is received.

If you have any questions or need assistance completing this application, please contact Kassandra Brown at *(361)825-2892 or kassandra.brown@tamucc.edu* ***or Erin Sherman at*** *(361)825-2497 or erin.sherman@tamucc.edu.*

Check which of the following documents are submitted with the protocol application:

☐ Any other documents referenced in this application as applicable (survey instrument, interview questions, debriefing form, payment schedule, etc.)

☐ Grant/contract proposal as applicable

☒ Permission from site of study as applicable

☐ Recruitment Materials as applicable: Flyers, Letters, Phone Scripts, Email, Online Posting, etc.

☐ Consent Documentation as applicable: Informed Consent Form, Assent Form, *Translated Informed Consent Form, and *Translated Assent Form
**See Translator/Interpreter Guidelines on the IRB forms page*

☐ Conflict of Interest Disclosure as applicable

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CONFLICT OF INTEREST CERTIFICATION

All Principal Investigators and Co-Investigators must certify the Conflict of Interest Statement below and comply with the conditions or restrictions imposed by the University to manage, reduce, or eliminate actual or potential conflicts of interest or forfeit IRB approval and possible funding. This disclosure must also be updated annually (for expedited and full board reviews)when the protocol is renewed.

Carefully read the following conflict of interest statements and check the appropriate box after considering whether you or any member of your immediate family* have any conflicts of interest.

****Immediate family is considered to be a close relative by birth or marriage including spouse, siblings, parents, children, in-laws and any other financial dependents.***

Financial conflicts of interest include:

- ***a) A financial interest in the research with value that cannot be readily determined;***
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- ***c) Have received or will receive compensation with value that may be affected by the outcome of the study;***
- ***d) A proprietary interest in the research, such as a patent, trademark, copyright, or licensing agreement;***
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- ***f) Being an executive director of the agency or company sponsoring the research;***
- ***g) A financial interests that requires disclosure to the sponsor or funding source; or***
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PLEASE NOTE: SIGNATURE PAGES MAY BE SUBMITTED EITHER (1) SCANNED ORIGINAL SIGNATURE(S) ON SIGNATURE PAGE EMAILED AS AN ATTACHMENT WITH FORM (2) SUBMITTED AS PRINTED HARD COPY

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Date: 2014.06.11 00:31:43 -05'00'

Date: June 10, 2014

Conflict of Interest Certification: ◉ I have no conflict of interest related to this project. ◯ I have a non-financial conflict of interest related to this project** ◯ I have a financial conflict of interest related to this project**

B. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor *(Typed)*: Randall Bowden, PhD.

Co-Principal Investigator/ Advisor *(Signature)*: Randall Bowden

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Date: 2014.06.12 10:03:48 -05'00'

Date: June 10, 2014 Check one: ◯ Co-PI ◉ Faculty Advisor

Conflict of Interest Certification: ◉ I have no conflict of interest related to this project. ◯ I have a non-financial conflict of interest related to this project** ◯ I have a financial conflict of interest related to this project**

C. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor *(Typed)*:	
Co-Principal Investigator/ Advisor *(Signature)*:	
Date:	Check one: ◯ Co-PI ◯ Faculty Advisor
Conflict of Interest Certification:	◯ I have no conflict of interest related to this project. ◯ I have a non-financial conflict of interest related to this project** ◯ I have a financial conflict of interest related to this project**

D. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor *(Typed)*:	
Co-Principal Investigator/ Advisor *(Signature)*:	
Date:	Check one: ◯ Co-PI ◯ Faculty Advisor
Conflict of Interest Certification:	◯ I have no conflict of interest related to this project. ◯ I have a non-financial conflict of interest related to this project** ◯ I have a financial conflict of interest related to this project**

**PROVIDE DETAILS AS ATTACHMENT FOR ANY NON-FINANCIAL CONFLICT OR FINANCIAL CONFLICT OF INTEREST RELATED TO THIS PROJECT.

PROJECT CLASSIFICATION

◯ Research Project ◯ Masters Thesis ◯ Class Project ◉ Doctoral Dissertation ◯ Program Evaluation ◯ Other

Specify Other:

REVIEW REQUESTED

Please thoroughly review the Human Subject Research Categories and Notes at the end of the protocol form before completing this section.

Exempt Review

*Are you requesting exempt status for the project?

◯ Yes ◉ No

If yes, based on which category outlined at the end of the application?

Category 1

Expedited Review

*(**Expedited review does NOT mean rushed approval**. Please allow at least three weeks for the expedited review process.)*

**Are you requesting an expedited review of the project?*

◉ Yes ◯ No

If yes, based on which category outlined at the end of the application?

Category 7

Full Board Review

Are you requesting full board review for the project?

◯ Yes ◉ No

*** You may only select one of the above choices. A protocol cannot qualify for more than one category of review.***

EXTERNAL FUNDING

Is the project externally funded? ◯ Yes ◉ No *If yes, complete the remainder of the External Funding Section. If no, go to next section.*

External Funding Submission Deadline/Award Date:

Funding Agency:

PROJECT TITLE

Title of Project: Student Performance Differences between Students Enrolled in a School-Within-School and the General Population in a South Texas School District

PROJECT DATES

Starting Date: Upon IRB Approval

The starting date CANNOT be a date before IRB approval is received. If you will start as soon as approval is received, enter "Upon IRB Approval" for the starting date.

Estimated Completion Date: December 2014

The above is an estimated date of completion. A Completion Report is due at the conclusion of the project noting the actual completion date.

PROJECT PURPOSE & OBJECTIVES

Describe Project Purpose:

Be specific and thorough.

The purpose of the study is to examine the relationship between school-within-school models on the academic achievement of 11th grade students as compared to the general population in an urban, South Texas school district.

Academic achievement will be measured according to two variables: (a) the overall GPA of students; and (b) scores earned on the Texas Assessment of Knowledge and Skills (TAKS) for mathematics, science, social studies, and English language arts.

Students enrolled in the 11th grade, those enrolled in a school-within-school program along with the general population, for the 2012-2013 school year were chosen because all 11th grade students enrolled in a public school in the state of Texas took the TAKS test as a graduation requirement and have earned an accumulated GPA which is used for college applications upon the completion of their 11th grade school year.

The general research question is: What are the differences in academic performance outcomes (TAKS scores) according to distinctive instructional models (general population; STEM academy; & Health Science Academy)?

Describe Project Objectives and/or Research Questions:

Be specific and thorough.

Research Questions.

1. How do TAKS scores differ among 11th graders in the general population from those who are enrolled in a school within a school instructional model?

1.1 How do Mathematics scores differ among 11th graders in the general population from those who are enrolled in a school within a school instructional model?

1.2 How do Science scores differ among 11th graders in the general population from those who are enrolled in a school within a school instructional model?

1.3 How do Social Studies scores differ among 11th graders in the general population from those who are enrolled in a school within a school instructional model?

1.4 How do English Language Arts scores differ among 11th graders in the general population from those

	who are enrolled in a school within a school instructional model? 2. How does GPA differ among 11th graders in the general population from those who are enrolled in a school within a school instructional model?

RESEARCH SUBJECTS

Description and Source of Research Subjects: ***MINIMUM information to include:*** *1. Target number of participants* *2. Location of participants (on campus or specifically provide names for other locations - permission needed from other locations)* *3. Manner in which participants will be identified from a larger pool of individuals* *4. Inclusion & Exclusion criteria for participants (ex. age, physical characteristics, learning characteristics, professional criteria, etc.)* *5. Minimum age for participants* *6. How participants will be contacted (ex. online, through a faculty member, through a social networking site, through a professional in a specific field, etc.)*	1. Participants were enrolled in the 11th grade during the 2012-2013 academic school year. This academic year was selected because it is the most recent year of standardized assessment data that are available to the researcher for the study. 2. Participants include 11th graders enrolled in the T-STEM Academy at Moody High School consisting of 63 of students. Participants include 11th graders enrolled in the Heath Science Academy at Moody High School consisting of 90 students. Participants from the general population include approximately 400 11th graders enrolled at Moody High School in Corpus Christi, TX. 3. Participants will have taken and received a score on the Texas Assessment of Knowledge and Skills in Mathematics, English Language Arts, Science, and Social Studies during the 2012-2013 school year. 4. Participants will have earned an accumulative GPA (grade point average) upon completion of the 11th grade during the 2012-13 school year. 5. The minimum age of participants is 16 - generally the lowest possible age of an 11th grader enrolled in a CCISD high school. 6. Participants will not be contacted. Data will be provided by Corpus Christi Independent School District (CCISD) and de-identified by CCISD so the researcher will not know whose assessment data are being analyzed.

RESEARCH DESIGN, METHODS, & DATA COLLECTION PROCEDURES

Describe Research Design. Methods and Data Collection Procedures for Human Subject Interactions: *Be specific and thorough.* *Be specific to your study.* *Describe the methods and procedures step-by-step in common terminology. Describe each procedure, including frequency duration and location of each procedure. Describe how data will be stored and protected, how long data will be kept following the study, etc.* *You do not need to describe the statistical methods for analyzing data once it is collected or other elements of the study not involving human subjects.*	The study is an ex post facto causal- comparative design. The independent variables were not manipulated. The independent variable is not manipulated, therefore no causal inferences can be established. In the study, students in the eleventh grade attend high schools with different instructional models: (a) general population; (b) T-STEM; and (c) health science academy. The study has two outcome measures: (a) TAKS testing results in areas of mathematics, science, social studies, and English language arts; and (b) GPA. This researcher has obtained permission from CCISD to utilize archived data, Texas Assessment of Knowledge and Skills (TAKS) data, and cumulative GPA data for the 2012-2013 school year. (See attachment) All data are anonymous since the researcher cannot match TAKS assessment scores with those students who are part of (a) general population; (b) T-STEM; and (c) health science academy. Data provided by CCISD will not be identifiable to the researcher. All data will be stored on the researcher's password protected computer. Data will be kept for 3 years, then destroyed.

RISKS & PROTECTION MEANS

Describe the Specific Risks and Protection Means for Human Subject	The research has minimal risk to participants. The risk is minimal since the names of students taking the TAKS exam from CCISD in the 11th grade during 2012-2013 academic year could be known, although that information is not provided with the data. No specific schools are identified in the study so it would be

Participants: *Be specific and thorough. If no risk, state "No risk." If risks associated with the study are minimal and not greater than risks ordinarily encountered in daily life, state: Minimal Risk* ***and describe risks.*** *The risk levels provided in the protocol and the consent forms must be consistent.* *Describe each potential risk and the steps taken to protect human subject participants from the risk (ex. breach of confidentiality, data protection, possibly injury, psychological distress, pressure to conform, pressure to participate, etc.) Describe the protection means specifically and how participants will gain access to any necessary outside assistance (ex. medical care, counseling, etc.) if available.* *Consider whether there are physical, emotional, social, legal, etc. risks if participants' participation were to become public.*	difficult to narrow names to any individual TAKS test scores. The archived data will be provided to the researcher by CCISD. The data will not include personally identifiable information. Raw data will be viewed only by the researcher and faculty advisor. No personally identifiable information is included in the data.

BENEFITS VS. RISKS

Describe Benefits & Risks to Human Subject Participants: *Address benefits reasonably expected to the research participant and potential benefits to society. Any possible monetary compensation is not to be categorized as a benefit. Be specific and thorough.*	There are no direct benefits to the participants. Results of the study may be useful to CCISD to consider, develop, and/or implement instructional practices to include a school-within-school model and project based learning.

INFORMED CONSENT METHODS

Describe Methods for Obtaining Informed Consent from Human Subject Participants: *Be specific and thorough. Describe how researcher(s) will gain access to participants, how participants will be provided the consent documentation, in what format the consent will be provided, any discussion that will take place with participants, and methods of communication utilized to keep participants aware of their rights throughout the study, if applicable. Points to remember:* *(1) Participants must be given time to review the consent/ informational documents and ask questions* *(2) minors must have a separate assent for participation written at*	

a level appropriate to the age group of participants, and parents must be given a separate parental consent form. *(3) Information sheets should be utilized for exempt studies in which the only record of participants would be signed consent forms.* *(4) The online consent template should be utilized as a guide for online survey consent.*	

☒ *Check if waiver of signed informed consent is requested. Justification must be provided for waiver. See waiver criteria at end of form.*

Justification:	The study will utilize pre-existing data from the 2012-2013 school year. Data will be provided by CCISD and will not include personally identifiable information. The research involves no more than minimal risk to the subjects. The waiver or alteration will not adversely affect the rights and welfare of the subjects. The research could not practicably be carried out without the waiver or alteration.

INVESTIGATOR(S) QUALIFICATIONS

Qualifications of the Investigator(s) to Conduct Research: *Describe the qualifications of each investigator to conduct human subject research or attach CV/ biosketch.*	The researcher will be conducted by Jamie M. Copeland, a high school Assistant Principal. Jamie Copeland obtained both a BA and M.Ed. from the University of the Incarnate Word. She has 15 years of K12 experience working in public schools as a teacher and administrator. Jamie has been working as a doctoral student at Texas A&M University Corpus Christi since the Fall of 2009 and completed all course work to include successful completion of comprehensive exams and Proposal Defense in December of 2013. The study will be supervised by Dr. Randall Bowden, Co-Principal Investigator. Dr. Bowden is an Associate Professor of Education Administration and Research. His PhD is in Higher Education Administration. He has served in higher education for over 20 years as a faculty member and administrator. His dissertation chair/committee work includes serving on over 25 dissertation committees. He has over 25 publications in topics of education and management.

FACILITIES & EQUIPMENT

Facilities & Equipment to be Used in the Research: *Describe any equipment that will be used, including audio/video equipment.* ** Specifically list (by name) any off-campus locations that will be used.* *List any on-campus locations where the study will occur.*	The researcher will utilize a personal computer and personal office space. The researcher's computer containing SPSS will be used for data entry and analysis. E-mail will be used for communication purposes between the primary researcher and Faculty Advisor.

* Investigators must submit permission from all off-campus study locations and/or organizations providing data, specimens, access to participants, etc. Permission must be submitted with the IRB protocol application.

INVESTIGATOR(S) RESPONSIBILITIES & SIGNATURES

By complying with the policies established by the Institutional Review Board of Texas A & M University-Corpus Christi, the principal investigator(s) subscribe(s) to the principles stated in "The Belmont Report" and standards of professional ethics in all research, development, and related activities involving human subjects under the auspices of Texas A & M University-Corpus Christi. The principal investigator(s) further agree(s) that:

A. Approval will be obtained from the Institutional Review Board before making ANY change in this research project.
B. Development of any unexpected risks will be immediately reported to the Institutional Review Board.
C. An annual continuation application will be completed and submitted annually for expedited and full review studies. The study will CEASE once approval expires.
D. Signed informed consent documents will be kept for the duration of the project and for at least three years thereafter at a location approved by the Institutional Review Board and as described in the protocol.

ALL INVESTIGATOR(S) AND ADVISOR(S) MUST SIGN THE PROTOCOL. The Principal Investigator should save a copy of the IRB Protocol Form after emailing the form to the Research Compliance Officer for review. Type the name of each individual in the appropriate signature line. Add additional signature pages if needed for all Co-Principal Investigators, collaborating and student investigators, and faculty advisor(s).

ORIGINAL SIGNATURES REQUIRED

PLEASE NOTE: SIGNATURE PAGES MAY BE SUBMITTED EITHER (1) SCANNED ORIGINAL SIGNATURE(S) ON SIGNATURE PAGE EMAILED AS AN ATTACHMENT WITH FORM (2) SUBMITTED AS PRINTED HARD COPY

A. Principal Investigator Certification:

Principal Investigator *(Typed)*: Jamie M. Copeland

Principal Investigator *(Signature)*: Jamie M. Copeland

Digitally signed by Jamie M. Copeland
DN: cn=Jamie M. Copeland, o=Texas A&M Corpus Christi, ou, email=jcopeland1@islander.tamucc.edu, c=US
Date: 2014.06.11 00:31:14 -05'00'

Date: June 10, 2014

B. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor *(Typed)*: Randall Bowden

Co-Principal Investigator/ Advisor *(Signature)*: Randall Bowden

Digitally signed by Randall Bowden
DN: cn=Randall Bowden, o=Texas A and M Corpus Christi, ou=Educational Leadership, email=randall.bowden@tamucc.edu, c=US
Date: 2014.06.12 10:28:51 -05'00'

Date: June 12, 2014 Check one: ○ Co-PI ◉ Faculty Advisor

C. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor *(Typed)*:

Co-Principal Investigator/ Advisor *(Signature)*:

Date: Check one: ○ Co-PI ○ Faculty Advisor

D. Co-Principal Investigator or Faculty Advisor Certification:

Co-Principal Investigator/ Advisor *(Typed)*:

Co-Principal Investigator/ Advisor *(Signature)*:

Date: Check one: ○ Co-PI ○ Faculty Advisor

Human Subject Research Categories

Please Note

Research involving special or protected populations, such as children, prisoners, pregnant women, mentally disabled persons, or economically or educationally disadvantaged persons, does not qualify for exempt review and is subject to full review.

The following types of studies do not qualify for exempt reviews and are subject to expedited or full reviews:

1) Studies involving a faculty member's current students
2) Studies supported by external funding
3) Studies involving the following and similar sensitive subject matters which can potentially cause discomfort and stress to the participant: Abortion, AIDS/HIV, Alcohol, Body Composition, Criminal Activity, Psychological Well-being, Financial Matters, Sexual Activity, Suicide, Learning Disability, Drugs, Depression

Studies involving audio taping and/or videotaping *__DO NOT__* qualify for exempt review.

Exempt Research Categories

Certain categories of research are exempt from the Protection of Human Subjects policy in the Code of Federal Regulations 45 CFR 46. The IRB Chair will determine, based on the federal guidelines, whether a research activity qualifies for exemption. Although exempt research is not regularly reviewed by the IRB, the exempt research form (and the informed consent form, if applicable) must be on file with the IRB, and the research may be reviewed at the committee's discretion. If the committee deems necessary, it may require a full review.

Unless otherwise required by federal departments or agencies, research activities in which the only involvement of human subjects will be in one or more of the following categories are generally exempt from full review by the IRB:

1) Research conducted in established or commonly accepted educational settings, involving normal education practices, such as (i.) research on regular and special education instructional strategies, or (ii.) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

   Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless (i.) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii.) any disclosure of human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under the previous paragraph, if (i.) the human subjects are elected or appointed public officials or candidates for public office; or (ii.) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

5) Research and demonstration projects that are conducted by or subject to the approval of federal department or agency heads, and that are designed to study, evaluate, or otherwise examine (i.) public benefit or service programs (ii.) procedures for obtaining benefits or services under these programs (iii.) possible changes in or alternatives to those programs or procedures; or (iv.) possible changes in methods or levels of payment for benefits or services under those programs

6) Taste and food quality evaluation and consumer acceptance studies (i.) if wholesome foods without additives are consumed or (ii.) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture

Expedited Review Categories

Expedited review procedures are available for certain kinds of research involving no more than minimal risk, and for minor changes in approved research. Specifically, research is eligible for expedited review if it involves no more than minimal risk (see 45 CFR as amended) to the subjects and the only involvement of human subjects will be in one or more of the categories listed below:

(1) Clinical studies of drugs and medical devices only when condition (a) or (b) is met.

   a. (a) Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review.)
   b. Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in

accordance with its cleared/approved labeling.

(2) Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows:

a. (a) from healthy, nonpregnant adults who weigh at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8 week period and collection may not occur more frequently than 2 times per week; or

b. from other adults and children' considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period and collection may not occur more frequently than 2 times per week.

(3) Prospective collection of biological specimens for research purposes by noninvasive means.

Examples: (a) hair and nail clippings in a nondisfiguring manner; (b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction; (c) permanent teeth if routine patient care indicates a need for extraction; (d) excreta and external secretions (including sweat); (e) uncannulated saliva collected either in an unstimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue; (f) placenta removed at delivery; (g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor; (h) supra- and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the process is accomplished in accordance with accepted prophylactic techniques; (i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings; (j) sputum collected after saline mist nebulization.

(4) Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications.)

Examples: (a) physical sensors that are applied either to the surface of the body or at a distance and do not involve input of significant amounts of energy into the subject or an invasion of the subject's privacy; (b) weighing or testing sensory acuity; (c) magnetic resonance imaging; (d) electrocardiography, electroencephalography, thermography, detection of naturally occurring radioactivity, electroretinography, ultrasound, diagnostic infrared imaging, doppler blood flow, and echocardiography; (e) moderate exercise, muscular strength testing, body composition assessment, and flexibility testing where appropriate given the age, weight, and health of the individual.

(5) Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis). (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(4). This listing refers only to research that is not exempt.)

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)

(8) Continuing review of research previously approved by the convened IRB as follows:

a. where (i) the research is permanently closed to the enrollment of new subjects; (ii) all subjects have completed all research-related interventions; and (iii) the research remains active only for long-term follow-up of subjects; or

b. where no subjects have been enrolled and no additional risks have been identified; or

c. where the remaining research activities are limited to data analysis.

(9) Continuing review of research, not conducted under an investigational new drug application or investigational device exemption where categories two (2) through eight (8) do not apply but the IRB has determined and documented at a convened meeting that the research involves no greater than minimal risk and no additional risks have been identified.

Criteria for Waiver of Consent

§46.116 General requirements for informed consent.

(c) An IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent set forth above, or waive the requirement to obtain informed consent provided the IRB finds and documents that:

(1) The research or demonstration project is to be conducted by or subject to the approval of state or local government officials and is designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs; and
(2) The research could not practicably be carried out without the waiver or alteration.

(d) An IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent set forth in this section, or waive the requirements to obtain informed consent provided the IRB finds and documents that:

(1) The research involves no more than minimal risk to the subjects;
(2) The waiver or alteration will not adversely affect the rights and welfare of the subjects;
(3) The research could not practicably be carried out without the waiver or alteration; and
(4) Whenever appropriate, the subjects will be provided with additional pertinent information after participation.

OFFICE OF RESEARCH COMPLIANCE
Division of Research, Commercialization and Outreach

TEXAS A&M UNIVERSITY
CORPUS CHRISTI

6300 OCEAN DRIVE, UNIT 5844
CORPUS CHRISTI, TEXAS 78412
O 361.825.2497 • F 361.825.2755

Human Subjects Protection Program	Institutional Review Board

APPROVAL DATE:	June 23, 2014
TO:	Ms. Jamie Copeland
CC:	Dr. Randall Bowden
FROM:	Office of Research Compliance Institutional Review Board
SUBJECT:	Initial Approval

Protocol Number:	81-14
Title:	Student Performance Differences between Students Enrolled in a School-Within-School and the General Population in a South Texas School District
Review Category:	Qualifies for Exemption

Approval determination was based on the following Code of Federal Regulations:

Eligible for Exemption (45 CFR 46.101)

Criteria for exemption has been met (45 CFR 46.101) - The criteria for exemption listed in 45 CFR 46.101 have been met (or if previously met, have not changed).

(4)Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Provisions:

Comments: The TAMUCC Human Subjects Protections Program has implemented a post-approval monitoring program. All protocols are subject to selection for post-approval monitoring.

This research project has been granted the above exemption. As principal investigator, you assume the following responsibilities:

1. Informed Consent: Information must be presented to enable persons to voluntarily decide whether or not to participate in the research project unless otherwise waived.
2. Amendments: Changes to the protocol must be requested by submitting an Amendment Application to the Research Compliance Office for review. The Amendment must be approved before being implemented.
3. Completion Report: Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the Research Compliance Office.
4. Records Retention: All research related records must be retained for three years beyond the completion date of the study in a secure location. At a minimum these documents include: the research protocol, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to participants, all correspondence to or from the IRB or Office of Research Compliance, and any other pertinent documents.
5. Adverse Events: Adverse events must be reported to the Research Compliance Office immediately.

6. Post-approval monitoring: Requested materials for post-approval monitoring must be provided by dates requested.

Office of Assessment and Accountability

CORPUS CHRISTI INDEPENDENT SCHOOL DISTRICT

P. O. Box 110 • Corpus Christi, Texas 78403-0110

3130 Highland Avenue • Corpus Christi, Texas 78405

Office: 361-844-0396 • Fax: 361-886-9371

Website: www.ccisd.us

June 4, 2014

Jamie Copeland
5301 Weber Rd.
Corpus Christi, TX 78411

Dear Ms. Copeland:

Formal permission is granted to you to conduct your research entitled *Impact of a School-Within-School Model* in the Corpus Christi Independent School District (District). This permission indicates that your proposal meets all research/evaluation and FERPA standards.

This permission allows the campuses/principals identified in your proposal the option of participating or not. No campus/principal is required to participate in this study.

It is a pleasure to welcome you to the District as you begin this significant research initiative. At the conclusion of your work, please provide my office with a copy of the results.

Should you need additional assistance during your study or have changes in the proposal, please contact me at 361-844-0396, ext. 44250 and/or via e-mail at James.Gold@ccisd.us.

Sincerely,

James H. Gold

James H. Gold
Executive Director

JHG/mdf

cc: Dr. D. Scott Elliff
Dr. Bernadine Cervantes