

STANDARDIZED HIGH SCHOOL ASSESSMENTS AS AN INDICATOR OF ACADEMIC  
PREPAREDNESS IN FIRST-YEAR UNIVERSITY STUDENTS

by

Jessica M. Scott

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University

2018

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## ABSTRACT

SAT scores have a role in whether or not high school graduates get accepted into the school of their choice, as well as the program of study. Pennsylvania requires students to participate in Keystone Exams, assessments concentrating on one subject area at a time, given sequentially upon the students' course completion. Both assessments are used as a projection of how well a student will perform at his or her next level of study. Universities look at SAT scores, ACT scores, high school grade point averages (HSGPA), core subject grades, etc. to evaluate whether or not the student will be admitted into the universities. The quantitative research conducted is to prove or disprove whether not the SAT scores, and more specifically Pennsylvania English Language Arts Keystone (PA ELA Keystone) scores correctly predict university level preparedness. Bivariate correlations and multiple regressions will be completed to measure the correlation between the individual assessments and university preparedness.

*Keywords:* American College Testing (ACT), academic preparedness, college preparedness, Pennsylvania English Language Arts Keystone Exam (PA ELA Keystone), SAT (formally known as the Scholastic Assessment Test or the Scholastic Aptitude Test), self-efficacy, standardized assessment

## **Dedication**

This dissertation is dedicated to my husband, Jason, and my three amazing children Kaleb, Emma and Carson. All of you have inspired me to be my best even when the road to complete this degree has been rough and I thank you for all the support you have given me while I completed this career milestone. Thank you for always having complete confidence that I would one day have my doctoral degree in education. I would never have made it without you.

This dissertation was also made possible because of all of the support from my family, friends and Liberty faculty. A special thank you to my father and mother for continuing to support me to pursue my education and prayed for me along the way. You have taught me to be a lifelong learner and I took your wisdom seriously.

I also dedicate this dissertation to my colleagues who I have had the opportunity to share a passion for education as well as grow professionally with all of our shared classroom experiences.

### **Acknowledgements**

I would like to extend my appreciation to Dr. Christy James, my committee chair, for her diligence, patience and continued support throughout this lengthy process. Your encouraging words continued to lift me up when my frustration overwhelmed me.

Dr. Lunde and Dr. Robinson, thank you for being on my committee. Your advice while I was revising and editing my work was refreshing when I was at a loss for words.

A special thank you to Amanda J. Rockinson-Szapkiw for your statistical advice. Your knowledge base of analyzing data guided me through uncharted territory.

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### **List of Abbreviations**

American College Testing (ACT)

Advanced Placement Courses (AP)

Curriculum-Based Assessment (CBA)

Cooperative Institutional Research Program (CIRP)

English Language Arts (ELA)

Every Student Succeed Act (ESSA)

High School Grade Point Average (HSGPA)

Higher Education Research Institute at UCLA (HERI)

Individual Education Plan (IEP)

Individuals with Disabilities Education Act (IDEA)

International Review Board (IRB)

No Child Left Behind (NCLB)

Preliminary Scholastic Aptitude Test (PSAT)

Pennsylvania English Language Arts Keystone (PA ELA Keystone)

Pennsylvania System of School Assessment (PSSA)

Scholastic Aptitude Test (SAT)

Social Cognitive Theory (SCT)

Statistical Program for the Social Sciences (SPSS)

## **CHAPTER ONE: INTRODUCTION**

### **Overview**

Chapter One will provide background for the study examining standardized assessments and first year academic preparedness at the university level. Students participate in standardized assessments as a requirement to either graduate and/or enroll in a higher educational institution. Students depend on these assessments to determine if they have the academic ability to succeed beyond the high school level. The study examined the scores of the Scholastic Aptitude Test (SAT) and Pennsylvania English Language (PA ELA) Keystone and determine if there is a correlation between their assessment score and how successful they are in their first year English course. Through archived assessment data and feedback from a student survey, the study will measure the predictive value of the SAT, PA ELA Keystone to university preparedness. Chapter one provides background information, problem and purpose statement, significance of the study, research question and definitions.

### **Background**

Across the state of Pennsylvania, high school students have participated in at least one of the following standardized assessments: Scholastic Aptitude Test (SAT), American College Testing (ACT), and/or the Pennsylvania English Language Arts (ELA) Keystone Exam. All three of these assessments measure students' achievement as they prepare to enter the university level. Wallace (2016) explains the SAT as a test that drives fear into the hearts of many high school students across the country. Students who participate in the assessment after March 2016 will notice the assessment underwent more than a facelift. The assessment underwent the biggest change in ten years and the most dramatic overhaul ever of one of the main assessments used by colleges and universities in determining student admission (Wallace, 2016). Colloquial high

school juniors and seniors anxiously await the arrival of their SAT scores in hopes they score high enough to successfully secure a spot within their university of choice. They wait for that score to serve one purpose: the ability to apply and be accepted into college. Donaldson (2013) explains that parents, students and educators believe that the SAT and the ACT plays a significant role in the future of a high school senior (Donaldson, 2013).

The result explanation and score, which the students receive weeks after they complete either the SAT or ACT, does not give a definitive answer to whether or not the student will be successful in college, nor does it measure the student's performance ability when it comes to preparing for assignments, turning assignments in and/or applying their learning to real life situations. The score does measure the individual's academic ability to successfully answer questions on the SAT or ACT in which he or she has been preparing for since his or her sophomore Preliminary Scholastic Aptitude Test (PSAT). This is one facet of measuring potential success as a university student. Vinaja (2016) revealed that high school graduates quickly identify the gaps in the knowledge level they obtained their high school career and the knowledge level they required to enter rigorous university level courses (Vinaja, 2016). For the purpose of the review of research, the histories of the SAT, ACT, and the PA ELA Keystones are all examined to develop a historical progression of standardized assessments, but the research that will be completed will only include the data collected from the participating students' SAT and PA ELA Keystone. The literature review relates student's self-efficacy, as demonstrated through Albert Bandura's Social Cognitive Theory (SCT), when participating in standardized assessments and the expectation of these same students to successfully complete their first-year English course at the university level.

Prior to the SAT/ACT, high school students in the school systems throughout Pennsylvania participate in several Keystone exams to measure proficiency in the subject areas of English composition, algebra, and biology. Passing these standardized assessments is required for a student to graduate. Public schools have allocated funds to develop remediation classes for those students who do not meet the achievement level on their first attempt. These tests were developed to ensure students have mastered concepts taught in these curriculum areas before they are promoted to the next level course. Students who pass these exams are not always as successful on their SATs or ACTs and/or students who are successful on the SATs and ACTs are not always ensured to pass the PA ELA keystones on their first attempt. Both formats are different, as one assesses content knowledge in one particular discipline, and the other assesses an umbrella of skills requiring students to apply their knowledge retained throughout their school career.

The education reform act of 2001, No Child Left Behind (NCLB), laid the groundwork to establish accountability in schools, but currently, schools are not at the same level as other schools throughout the world. Research conducted by Pearson Publishers (2013) compared countries that have a system of formal education and placed the United States 17th in the developed world for education. According to this report, the students enrolled within the public school system in the United States fell short to countries such as Finland, South Korea, Hong Kong, Japan, and Singapore in academic achievement. Looking a little deeper into the dynamics of these other countries' school systems, United States public schools are not identical structures of education when students are evaluated and assigned a mean score of student academic performance.

The United States educational system ensures all citizens are entitled to a free and appropriate education through high school (MBC Times, 2015). All children ages five through 15 are educated through the adoption of Compulsory School Laws. The Digest of Education statistics (2008) defined compulsory attendance laws as a state requirements for school attendance for children of certain ages. Five states require students to begin school at age five, 32 mandate school attendance at age six, and a small number allow children to wait until reaching eight years of age. All children must continue education through high school, with 26 states setting the benchmark at 16, and others at 17 or 18 (Digest of Education Statistics, 2008). All students who have been identified as having a learning disability are mainstreamed in their least restrictive educational environment due to the past provisions of Individuals with Disabilities Education Act (IDEA). All students, no matter what their socio-economic status, are educated within public schools and are afforded the opportunity to attend a facility of higher education through assistance if they choose to. All U.S. student academic achievement is assessed and included in comparison studies of the United States against other countries' educational systems.

NCLB changed the system of education, in a way, allowing all students to be provided with the same curriculum based on each state's adoption of academic standards in each of the subject areas. Schools across America spend a tremendous amount of time revamping their curriculum to ensure each grade specific standard was taught and/or mastered. To measure the student's mastery, state standardized tests were created, utilized, collected and reported to the state's Department of Education regarding how successful students performed on the assessment, as well as all schools' abilities to prepare students to be proficient across the curriculum. Educators, parents and students argue the system is flawed because each teacher's

creativity is stifled to teach to a standardized test. David Kearns, CEO of Xerox, stated large schools are organized like a factory of the late 19th century: top down, command control management, a system designed to stifle creativity and independent judgment (Pearce, 2013).

The creation of rigorous academic standards and school performance scores removed the flexibility a teacher once had when implementing the curriculum. While teachers are clear on the expectation of the material delegated to be taught during the school year, the creativity and hands-on learning approaches are replaced with traditional, lecture-style instruction and continuous formative assessments to measure mastery rather than creativity. A student's uniqueness is suppressed because the state's Department of Education is forcing schools to perform as an assembly line for providing all students with the same information. Students who perform well on standardized assessments demonstrate a high self-efficacy that leads to these same students continuing to master challenges and putting forth extra effort when it comes to academics.

Bandura (1977) states that given sufficient incentive and pre-requisite subskills, self-efficacy judgements determine a person's choice of activities and environmental settings, the amount of effort they expend, and their persistence in the face of obstacles and aversive experiences. Ultimately, allowing students to choose activities closely related to their skill set will build students' self-efficacy to help them progress forward and overcome educational obstacles. The creation of standards and standardized assessments decrease the self-efficacy of the students and instructors who do not test well and therefore lead them to be less motivated. Students identified as having an Individual Education Plan (IEP) or low social-economic status have patterns reported through standardized assessments of scoring low compared to other students. These students self-efficacy is low and until their individual abilities are identified,

they will continue to score low and not want to challenge themselves educationally as Bandura's SCT.

Randi Weingarten, in an article produced by Pearson Publishing (2013), viewed standardized testing as a cross purpose with many of the most important purposes of public education. It does not measure big-picture learning, critical thinking, perseverance, problem solving, creativity or curiosity, and those qualities are what great teaching brings out in a student (Pearce, 2013). The benefit of state standards ensures all educators are accountable to the students for making educational growth, while sacrificing what Weingarten considers big-picture learning. John Holt in an article, *65 Unschooling Quotes about Education Outside the Box*, explains how the education system destroys the disinterested students love in learning. Holt continues to explain that children from an early age are naturally inquisitive and curious. Natural curiosity is a motivational factor for students to continue to learn, but the design of learning in our public schools starts an educational competition from day one with collecting gold stars, report card grades, etc. that students lose intrinsic motivation to think outside of the box. Students begin to feel inferior while working through the curriculum and lose their curiosity levels because the curriculum is streamlined. Holt stated that by the age of ten students begin to question less, and scorn the few students that do (Pearce, 2013). All students have the ability to learn, but at different levels. The initial reform indicated that by 2014, all students would be proficient. Educators quickly found this to be unrealistic and the Pennsylvania Department of Education did as well. So revisions were made to NCLB to include a growth provision. This means that students should be moving to proficiency based on their grade level, but the goal of the provision is to measure if each student is making a year's worth of growth based on his or her individual academic level.

Students in grades three through eight are aware of the importance of annual standardized tests and their anxiety levels are increasing. Holt (2013) also states children are developing anxiety and feel they are constantly being tested. Students have a fear of failure, feel they will be punished and disgraced by their teachers if they are not successful on these assessments. Having this anxiety severely reduces their ability both to perceive and to remember, and it drives them away from the material being studied into strategies for fooling teachers into thinking they know what they really do not know (Pearce, 2013). Younger students are breaking down and not doing their best on the assessment. Bandura (1982) explains successful execution of behavior creates the highest, strongest, and most generalized self-efficacy. Students who experience repeated failure early on lowers it (Bandura, 1982). As student progress through their schooling, they realize these assessments are not a direct measure of whether or not they are going to be successful beyond their high school years. Older students put much more emphasis on grade point average and daily classroom performance knowing state assessment results are not the only factors to get them accepted into college. Their performance in school amongst other things plays a big part in receiving an acceptance letter in the mail. This knowledge increases a student's self-efficacy because their opportunity for success is broader.

There is one obstacle that they still have to complete. The SAT/ACT is still part of the formula to be admitted into college. "The human mind is simply so complex and so multifaceted and fluid, that trying to find a single measurement tool that will be reliable across the enormous populations of American students is simply a trip up a blind alley. I would never say the SATs and ACTs have no predictive value for anyone; they have predictive value for some people. We just don't find them reliable cross populations" (Sheffer, 2014, p. 2). Some feel that the SATs and ACTs are developed for all students to participate in, but certain minorities feel the

assessment is designed for certain gender, race and socioeconomic groups. While all assessments have flaws, the College Board, which is responsible for the creation, administration and scoring of test items, has spent a great deal of resources to continually research the best practices for standardized testing. For example, SATs at one time only tested the subject areas of math and reading until the addition of writing was introduced into the assessment. The most recent change reevaluated the format of the SAT. Klein (2015) reports in March 2016 the SAT format had a new makeover, which eliminated the writing portion of the exam. Specifically, the new version of the SAT is shorter, and fewer answer options on multiple-choice questions will be given to students starting on March 2016 (Klein, 2015).

Previous research conducted by Klopfenstein and Thomas (2005) to determine if high school students enrolled in advanced placement courses are more prepared for university instruction than students who opted out of the rigorous classes. Their research concluded that more research has to be conducted to determine if there is a direct correlation between academic success and advanced placement courses (Klopfenstein & Thomas, 2005). Similar research by Acker and Halasak (2008) on preparing high school students for university level writing through an ePortfolio as a graduation requirement would not a guarantee that students would be prepared for the next level of education. In reality, it served as another means of false security for graduating high school seniors who felt that completing high school graduation requirements leads to being prepared for university (Acker & Halasek, 2008).

Participants of standardized tests follow a social norm as the next requirement to be eligible for university acceptance. As reported by Bandura (1982), social modeling is extremely influential to students in the classroom. Students follow the lead of their peers, and a majority of students participate in standardized assessments. Positive results lead students to continue to

strive for more challenging tasks, negative results lead to students not wanting to leave their comfort zone. In the case of standardized assessments, Bandura's ideas imply to positive scores on the assessments build strong-efficacy in students and lead these students to apply to universities. Students who score low on these assessments become discouraged settling for what they believe is the only option as defined by the assessment score.

Bandura (1982) proposed four mediational processes an individual goes through when establishing a behavior. The first process, attention, is how a behavior is noticed and has to be strong enough to grab someone's attention. When relating this to standardized assessments, the attention comes from schools starting to prepare students for these exams. When doing this, educators use terms such as required, needed, and expected to move beyond the high school level. The second process, retention, is how the behavior is remembered. Students striving to move to the realm of higher education will remember the importance of these assessments and will begin to prepare and stress over the exam. The third process, reproduction, is the student's ability to reproduce the remembered behavior. For example, after preparing for an assessment, the students will complete the task and continue to complete the task until they receive the required score. Having received the required score, the students feel confident that they will be successful at the university level. The fourth process, motivation, is when the students begin to set goals for themselves which this is when self-efficacy is at its highest. Most recently, Vinaja (2016) sought to determine if high school GPAs and English graduation examination scores are an indicator of university English placement and predictor of a student's final university English grades (Vinaja, 2016). A new study needs to be conducted to measure whether SAT and PA ELA Keystone scores can be used to predict a student's preparedness. SAT and PA ELA Keystones can be stressful, but if information can be drawn from the results of both assessments

to gauge whether or not the assessments predict university preparedness, then this study is necessary.

### **Problem Statement**

Blevins (2013) recognized students have a great commitment to attend post-secondary schools and begin planning to move on to the college level at the onset of their high school education. Statistics prove that high school seniors are not prepared for higher education. A study on the *Condition of Education*, completed by Aud, Hussar, Kena, Bianco, Frohlich, and Kemp (2011), revealed 36% of students who attend a four-year institution reported having to take a remedial course as a freshman, while 42% at two-year institutions reported the same dilemma. Throughout high school, students in Pennsylvania are required to score proficiency on a battery of Keystone exams before they are permitted to graduate. Further research is needed to determine whether or not these assessments will prepare these students for the corresponding university course. This simply is a snapshot in time of how students have mastered the content they have been introduced to and instructed in.

The SAT, ACT and PA ELA Keystones are similar in that all examine a student's academic ability; the problem is whether or not the assessments measure a student's preparedness to take on the course load of a university freshman. Vinaja (2016) completed a study on *High School GPA and English Graduation Examinations: Predicting College English Placement and English 101 Final Course Grades* because more research still needs to be completed to understand why graduating high school seniors are not performing as they should be when they enter a college classroom. Research regarding how to transition these students successfully and discover ways to identify learning gaps still needs to be conducted (Vinaja, 2016). More specifically, research needs to be conducted to determine if there is any correlation

between a student's SAT, ACT, and PA ELA Keystone results and student preparedness to be a successful college student. Chester and Freeland (2014) point out that over the past decade, we have learned a lot about learning progressions and expectations for how students need to be prepared for colleges and careers, but recognizing what resources are needed to diagnose and instruct are still a mystery. The problem is high school teachers and administrators are preparing students to be successful as they enter a university classroom, but there is still a transitional gap that needs to be addressed so students are capable of navigating through the rigor and relevance of university curriculum.

### **Purpose Statement**

The purpose of this predictive correlational study was to determine if the results of the SAT and the PA ELA Keystone exam are an accurate predictor of a student's preparedness to enter a classroom at the university level. SAT and PA ELA scores were used to identify predictor variables, and the CIRP Freshman survey will be used to identify criterion variables. This research will provide information for educators, parents, and students on how precise of a predictor these standardized assessments are in determining if a student is ready for the rigor of higher education courses. Durso-Finley (2016) noted that the effectiveness of standardized assessment, including the SAT and ACT, to measure the potential success of students is still mixed. Standardized assessments identifying potential preparedness in students at the university level is evenly split (Durso-Finley, 2016). Despite the mixed results, more diverse populations of students are participating in these standardized assessments. Klein (2015), who conducted research on the population of students who participated in the SAT and PSAT, reported a larger and more diverse group of students took the SATs and PSATs than ever before. With the larger

amount of students participating in these standardized tests, information needs to be collected to determine whether or not these assessments serve as a diagnostic of what is to come.

### **Significance of the Study**

The significance of this study is to answer educator, parent, and student concerns about university preparedness, specifically in a university level English course, and to determine whether or not the SAT and PA ELA Keystone exams predict students' preparedness to be successful within their university's academic setting. Glick-Cuenot (2014) stated that educators within high school and higher education are uncertain where the gap in preparing high school students to enter a university level course without remediation. Students often complete the requirements needed to graduate high school and believe they are academically ready to enter a university classroom, but soon find out that they still need to develop skills. An article written by Caralee Adams (2015) on SAT and ACT scores points out that more students than ever before are taking these standardized tests and relying on the score as an adequate predictor of how they are going to perform in college, when in reality they still needed to participate in remediation courses. Brown and Conley (2007) reported high school graduates need more information on where they are academically before the student commits to entering the university level.

This study on the SAT, since the format change in March of 2016, and the introduction of the PA ELA Keystone compared to whether or not a student is prepared to participate in a university level English class can answer these questions. The results can be used in further research to diagnose and remediate prior to a student graduating from high school. The results of this study will also prepare parents, students and educators with the knowledge and tools to decipher what vehicles of education are the most prevalent to predicting academic success in a first-year English classroom.

## Research Questions

**RQ1:** Is there a significant relationship between student preparedness in the first-year of higher education and the linear combination of the predictor variables (PA ELA Keystone and SAT scores)?

## Definitions

1. *Academic Preparedness* – Academic preparedness refers to the knowledge a student has gained prior to entering credit-bearing, non-remedial courses within 4-year institution and/or 2-year institution, entry-level placement, without remediation, into degree-bearing programs designed to transfer to 4-year institutions (National Assessment Government Skills, 2016).
2. *ACT*- The ACT is a four-hour test covering material taught in grades 7-12. The assessment consists of multiple-choice questions covering skills learned within the following classes: English, mathematics, reading, and science, in addition to an optional writing section. The score the student receives is often considered as a part of college admission decisions (Blevins, 2013).
3. *College Readiness*- College readiness is the level of preparation that a student needs to enroll and succeed in either a credit-bearing course at a postsecondary institution (without remediation) or in a high-quality certificate program that enable students to enter a career pathway with potential future advancement (Conley, 2010).
4. *Compulsory Attendance Laws* – Compulsory attendance laws are crafted by each state to require school attendance for children of certain age. Five states require students to begin school at age 5, 32 mandate school attendance at age 6, and a small number allow children to wait until reaching 8 years of age. All children must continue education

through high school, with 26 states setting the benchmark at 16, and others at 17 or 18 (Digest of Education Statistics, 2008).

5. *Every Student Succeeds Act (ESSA)* – The Every Student Succeeds Act was released in December of 2015 and was signed into federal law. ESSA, a reauthorization of the Elementary and Secondary Education Act, made substantial changes to the previous iteration of the law, known as No Child Left Behind (NCLB) (Understanding ESSA, 2016).
6. *Individual with Disabilities Education Act (IDEA)* – The Individuals with Disabilities Education Act is the nation’s special education law that provides rights and protections to children with disabilities and to their parents (Lee, 2014).
7. *No Child Left Behind (NCLB)* – NCLB was passed by Congress in 2001 and was signed into law by President George W. Bush on Jan. 8, 2002. It is the name for the most recent update to the Elementary and Secondary Education Act of 1965 (Klein, 2016).
8. *SAT*- The SAT assessment covers material taught in grades 7-12. Multiple-choice questions cover mathematics, critical reading, and writing. Scores are often considered as part of a college admissions decision (Blevins, 2013).
9. *Self-Efficacy*- Self-Efficacy is the strength and magnitude of an individual’s confidence to succeed and/or not to succeed (Bandura, 1982).
10. *Standardized Assessment* – Standardized assessments are a form of test that requires all test takers to answer the same questions, or a selection of questions from a common bank of questions, and is scored in a ‘standard’ or consistent manner, which makes it possible to compare relative performance of individuals or groups of students (Hidden Curriculum, 2014)

## **CHAPTER TWO: LITERATURE REVIEW**

### **Overview**

This literature review provides a historical background of the development of PA ELA Keystones and the current format of the SAT and other standardized exams while reviewing the predictability of these standardized test scores to prepare students for academic success in their first year enrolled as university students. The CIRPS Freshman Survey will initially identify high school students' PA ELA Keystone and SAT scores and compare the relationship of students' preparedness for their first year of college. Many studies have been completed following a similar principle, but as the College Board's SAT format has changed and the state developed Keystone exams, it is within reason to compare the test results to identify patterns of success at the university level. This section progresses through the review of literature and the research up to and including the theoretical studies on the history of the PA ELA Keystone Exams, SAT Exams and what previous studies reported on college readiness. The literature review includes information on the ACT as an indication of how significant standardized assessments are to high school and college students.

### **Theoretical Framework**

This section reviews the theoretical framework on which the study is modeled. The design of the study investigates what constitutes college readiness and how others evaluate which students are college ready and which students lack the skills necessary to be successful in a college classroom. Bandura's social-cognitive theory directly correlates with the research that will be conducted within this study. Bandura's initial social learning theory (1977) correlates behavioral change and an individual's perceived self-efficacy. Bandura outlines that self-efficacy is a product of performance accomplishments, verbal persuasion, vicarious experiences

and physiological states (Bandura, 1977). Within the literature review, individual theories of what constitutes a college ready student will be examined, along with how those theories relate to formal assessments that are identified to measure students' mastery of skills. College readiness, as well as entrance exams, is a behavioral change as a student progresses through their high school career and affects a student's self-efficacy based on their educational experience. How they perform on assessments and their emotional state as they complete the exam all fall under self-efficacy.

In the 1970s, social cognitive theory was developed by a Canadian psychologist Albert Bandura and has been marked as the most influential theory when researching behaviors. Along the lines of Skinner and Pavlov's research on behaviors, Bandura approach studies observations and learned behaviors through a social science movement. Two of the most accepted behavior theories, Skinner's work with electrical shock to condition a behavior and Pavlov's work using reinforcement to establish a behavior, have been well known as the top behavioral learning theories where Bandura's work focus on individuals learning a behavior through observations and societal acceptance (McAlister, 2008).

Bandura expanded on behaviors being established through conditioning to individuals learning a behavior through watching others. Through observation, individuals follow the action of others, which in turn affects their behavior. Bandura's (1982) fundamental principles of his theory are 1) finding that learning could also take place vicariously through observations, 2) learning new information must not necessarily lead to behavior change, and 3) cognition and intrinsic reinforcement, as opposed to external environmental reinforcement, also plays an important role in learning. An observed modeled behavior is more important in this theory than experiencing the behavior. Observations can take the following forms: a model, a verbal-

instructional model, and a symbolic model. Bandura also explains that observing these behaviors does not establish the individual to behave in a similar manner unless the observation has meaning to them. The individual has to pay attention to the model, retain what they observed, reproduce the behavior and be motivated to initiate this behavior. Simply, the modeled behavior has to have significance to the individual for them to be motivated to initiate the behavior.

Bandura (1986) continued to expand on his social learning theory eventually remaining his research social cognitive theory to demonstrate the role that cognition plays in translating and performing behaviors. With this additional research, Bandura seeks to explain how personal, behavioral and environmental influences change human behavior. Sherri L. Glick-Cuenot (2014) studied predictors associated with undergraduate academic success and found a clear discrepancy between the opinions of individuals employed within higher education on a student's ability to think and a student's ability to perform within the classroom. "Those within the higher education system, both academic and administrative, are split between traditional methods, such as utilizing a student's ability to think and use their experiences to navigate their new world in order to achieve success" (p. 23). Relying on a student's ability to test proficiently on a standardized test measures a student's academic ability, but what is not assessed is the longevity of how a student navigates through coursework over a period of time. The environmental influences as Bandura (1986) suggests manipulate human behavior are the college entrance exams and the social norms associated with applying to a university. As Glick-Cuenot suggests, individuals are split between what constitutes university preparedness and if an assessment is an adequate predictor of success. Longevity of a student's ability to outperform their peers during their high school career also is an argument academic and college administrators believe is a measure of university preparedness.

The goal of standardized assessments is to not only measure the academic achievement of students, but also to guide instruction to fill in the gaps of student learning. These assessments are utilized as an indicator of whether or not a student is college ready and/or whether they will be successful for the rigor of a college curriculum. Currently, the PA Keystone results are used to schedule high school students into the next progressive course of study. The SATs are used as a means for colleges to accept the most academically prepared students. Typically, requirements for admission into any higher education institution require the student to disclose their high school transcripts and their SAT/ACT results along with all necessary demographics. The ability to succeed on one or all of these assessments has sparked interests amongst high school and university professionals. Relating to the Bandura's SCT, people learn through observations and the environment in which they grow up. Part of an individual's environment is the assessments they have prepared for as they enter high school, the coursework they have been exposed to and the interactions with their instructors and peers.

In addition to university requirements, students in Pennsylvania schools also have to participate in and successfully score proficient or above on their PA Keystone exams. Students who score basic or below basic are required to participate in remedial classes until they have achieved success on the Keystone. The students who have to take remediation classes eliminate the flexibility to take elective courses, preventing them from broadening their educational skill sets. Students are mandated to pass their PA Keystone exams as a graduation requirement. Relating to Bandura's research on self-efficacy, individuals who believe they have mastered a skill have the motivation to succeed. With the help of the remediation courses, students will have a more concrete experience with the skills being taught therefore performance will increase on future assessments.

In terms on standardized testing and university admissions, students have observed the process of completing high school and moving into the university level, retaining all of the information that they have learned, and reproducing the behavior by participating in standardized assessments and other admission processes and be motivated to complete the task efficiently and successfully. Additionally, Bandura explains self-efficacy as the belief in one's ability to achieve a goal, directly affects one's ability to learn. Self-efficacy can be high or low depending on the reinforcement and/or consequences of the action they took.

### **Related Literature**

#### **Rigorous Demands of the University Learning Culture**

Students are accepted into college because they have met or exceeded the requirements set by each individual university's admissions office. Some believe the rigor and relevance of their education are represented within their HSGPA, PA Keystone Exams, and SAT/ACT, where others feel there needs to be more of a performance measure added to the pre-requisites to avoid the risk of a student not passing his or her first year of college courses. Mishook (2012) states the economic growth of our future depends on the standard of first-year university students possessing the skills and knowledge to enter and succeed in a postsecondary institution. These college bound students are responsible not only for their personal success, but are the individuals that are going to contribute to the future of our economy when fulfilling their aspirations of their career opportunities. Producing students who are academically prepared for their first year enrolled within the university level may not be identified through standardized testing.

Within the review of research, students may have high HSGPAs and SATs, but are not prepared for the university student role. Students may have the ability to produce proficient results on the PA ELA Keystone and SAT, but proficiency in the classroom is a performance

measure that is not measured on these assessments. Adams (2015), author of 2015 SAT, ACT scores who suggests many students aren't college ready states, observing that more students are taking the SAT and ACT than previously reported, yet their performance suggest that most of them are ill-prepared for the academic rigor of university courses. Students graduate the high school level confident that they will have a positive experience in a university classroom.

Lauren Camera (2016), U.S. News Reporter, reported high school seniors are not ready to enter a college math and/or reading related course and a majority of these students need remediation as they enter the university level. A 2015 survey of 1000 12th grade students from 740 schools reported that 25% of students are prepared for a university level math class and 37% of students are prepared to enter a reading related course. Camera (2016) stated that only about a third of high school graduates are prepared for math and reading university course curriculum. The other two-thirds of students will spend significant time remediating themselves to be at the skill level of their peers.

Sean M. Preston (2009), who completed research on advanced placement courses as an indicator of academic success in first-year college students, found that students who participate in advanced placement courses as another avenue to prepare for the university classroom may not be as prepared as assumed. Preston notes that for the majority of high school graduates, a four-year timeframe at a college or university is the logical and anticipated next step. Unfortunately, reality is beginning to take shape; some high school graduates are not prepared for the rigor of a college environment (Preston, 2009). The research is reporting the move from the high school level to the university level is the logical next step, but it is not a seamless transition as anticipated. Students are not performing at the level of rigor and relevance demanded of the university curriculum. First-year university students have to enter the

classroom with the idealism that completing university courses and ultimately receiving a degree is not guaranteed; completion of university course work towards a degree requires perseverance, hard work, and dedication. David T. Conley (2010), a leading researcher in the field of college readiness, defined college readiness as the level of participation that a student needs to enroll and succeed in either a credit-bearing course at a postsecondary institution (without remediation) or in a high-quality certificate program that enables students to enter a career pathway with potential future advancements. Whether or not university students need a certain amount of remediation to be successful, they have to have the willingness to pursue assistance beyond the coursework and devote extra time to go beyond the requirements of the class to exceed expectations and to better prepare themselves for future courses.

A study completed by Thomason and Joshua-Shearer (2002) suggested that students should advocate for additional skilled-based and career training. Students who prepare and are knowledgeable about what course of study they will be pursuing could spend their latter part of their high school career taking courses that will apply to their university course of study. More specifically, of the students surveyed by Thomason & Joshua-Shearer (2002), almost 60% suggested they would be better prepared for university level courses if their high school career had involved better instruction on critical thinking and study skills. Both critical thinking and study skills are not included within the current standardized assessments. *PBS Newshour* held a segment on whether SAT and ACT scores were an indicator of college success. Within the segment, Judy Woodruff interviewed William Hiss, the former Dean of Admissions at Bates College who spent his 30-year educational career reviewing the issue of whether or not SAT/ACT is the most accurate tool to predict college success. The overall theme of Woodruff's (2014) segment was of the 33 public and private colleges and universities that the researchers

examined it was optional for applicants to submit their test scores. The study examined 123,000 students from more than 20 states and the research found that test scores did not correlate with how well a student did in college based on grades and graduation rates (Woodruff, 2014). The results of standardized tests play an important part of acceptance to a university level, but performance in the classroom is what defines a successful student against an unsuccessful student.

With the last decade, the federal and state government funded numerous attempts at curriculum reform and professional development within K-12 classrooms, have allocated funds to build advanced placement courses, and have supplied schools with the tools necessary to ensure college and career readiness. Barnes, Slate and Rojas-LaBouef (2010) stated the federal government has continually raised the level of academic expectation in the high school curriculum for the better part of twenty years, but college-readiness rates of high school graduates are still not where they need to be to be successful in a university classroom. The instruction within public schools is monitored closely, the curriculum is rigorous and assessments are aligned to student learning, but studies similar to Barnes, Slate and Rojas-LaBouef (2010) continue to find that college-readiness rates are still not where they need to be. There is agreement that preparing students to be college and career ready heightened as research results report students are underprepared and the United States education system is not performing globally as other high performing countries. Mishook (2012) commented we have now moved into an era of college readiness, where a broad range of influential individuals in the Obama administration, multi-state collaborations, local policymakers, major foundations, researchers, and community-based organizations have agreed ensuring that all young people are prepared to succeed in college, whether or not they decide to pursue that path, is going to be an

important strategy for the United States to remain globally competitive (Mishook, 2012). United States policy makers and educators have to keep increasing the bar to ensure our high school graduates entering the university level are as equally prepared as other high achieving countries.

Kerri E. Hoppe (2014) looked more specifically at a student's writing ability at the end of their high school career and their perceptions of the quality of preparedness at the college level. Students surveyed with Hoppe's research noted that there is a large gap between how they were prepared as writers at the high school level and what was expected of them when they entered the university classroom (Hoppe, 2014). This contributes to the research within this study because students are passing the PA ELA Keystone examine, but still find obstacles when enrolled in a college level writing class. Conley (2008) suggested that the best change that could be made to help better prepare students for college is to increase the writing students do and the quality of that writing (Conley, 2008). Working and preparing students, who are digital natives, leave educators having to reinforce a student's ability to compose information, as well as communicate to their peers. Starting at the early grade levels, students have to be given the opportunities to write, compose, and present, as well as grammatically correct their work.

Gaps in students' writing ability between high school level and university level needs to be examined between administrators from both levels of instruction. Hjortshoj (2009) explains the manner in which as a high school writing course is taught and how a college level writing course is taught is a determining factor of a student's lack of university preparedness (p. 10). K-12 school districts are so focused on students' performance on standardized assessments that the basic ideals of the writing process and creatively are neglected. Hjortshoj (2009) stated that many high school courses prepare students to pass standardized tests, but college courses do not function in the same way. The movement to integrate technology into high school classrooms

eliminates basic courses that mold students' ability to write. So much focus is on rote memorization and higher level thinking skills, that writing has been pushed out of the curriculum. Only recently, writing across the curriculum has gained momentum as standardized test scores report that student performance on open-ended writing prompts are not proficient.

As far as a student's reading ability, in the article *Five Reasons Why Your Students May Not Be Prepared for College-Level Course Work*, Stephanie Farah (2013) list reasons why students are not as prepared as parents and educators believe. Farah states many students do not have the drive to challenge themselves as readers. These students read at a level that they are comfortable and do not chose books that increase in difficulty. Farrah noted that the top 40 books read by high schoolers in 2013 were all below grade level (Farah, 2013). The days of classic literature may be introduced in the language arts curriculum, but with popular search engines, reading the material is not often necessary. Technology encompasses a student's life and any free time beyond required schoolwork is spend on social media sites, video games, etc. The time that could be spent reading grade level literature to increase fluency, comprehension, and vocabulary is non-existent.

Libraries have been renamed multi-media centers and the use of a dictionary and thesaurus has been replaced with technical applications. Farah mentioned that dictionaries have become obsolete and have been removed from libraries to the recycling bin since spell check has taken over our technological savvy students. These students by the time they reach the university level do not have the ability to navigate through a dictionary (Farah, 2013). Lacking these basic research skills might not directly surface when participating in the PA ELA Keystone exam and/or the reading portion of the SAT/ACT, but participating in college level English courses will show gaps when resourcing higher level thinking skills. Dr. Hansen, Executive

Director of the Johns Hopkins Center for Talented Youth, believes “college faculty have to reach ‘digital natives’ and adjust curricula and teaching to the expectations and abilities of students who are taught the Common Core State Standards” (Farah, 2013, p. 4). University instructors have had to adapt to teaching the current generation of students. The curriculum reform of the common core has changed the processes in which students learn, as has the elimination of constructivism and learning by doing.

Research on university readiness can go both ways, even if the student scores high on the SAT/ACT, passes the battery of Keystone exams, and maintains an acceptable GPA. High school professionals are checking off the items on each student’s college preparedness to do list and giving students a false sense of security. Preston (2009) state students are receiving mixed messages from their high school educators about their preparedness for the next level of education. These students have satisfied all of their high school’s graduation requirements and passed all the required state-mandated assessments to only enter a university classroom and struggle through the curriculum (Preston, 2009). Students are scoring adequately on the state assessments and have for the most part maintained high HSGPA amongst their peers, but there are no clear-cut measures to identify students who are ready for the academic cultural change. The rigor of a university course environment is not measured through standardized testing and not necessarily accurately predicted based on the student’s HSGPAs.

Admission counselors are trained to look for students who will be academically successful based on traditional methods of academic achievement including and usually with the most emphasis on, high school grade point average (HSGPA) and standardized testing such as Scholastic Assessment Test (SAT) and/or American College Test (ACT). Other factors that play into admissions include faculty recommendations,

extracurricular activities and community service projects. However, these additional requirements are institution specific and not measured uniformly; the weight given to these requirements is usually not the same as HSGPA and SAT/ACT. (Glick-Cuenot, 2014, p. 24). The consideration of these additional requirements will help to ensure the university is admitting well-rounded students.

Students participating in the SAT rely on the results to ensure that they are university ready, but if the assessment is not an accurate measure, then the assessment is only doing a disservice to our graduating seniors. Students are relying too much on the PA ELA Keystone and SAT/ACT feedback and assume these state assessments are accurate when it comes to measuring students' achievement. Hoppe (2014) what is expect of a student at the university level is more stringent they what high school policies have prepared students for as they graduate (Hoppe, 2014). Students graduating from high school, who have high HSGPA and proficient scores on standardized assessments, feel they have all necessary skills to enter a university classroom. Clinedinst, Hurley, & Hawkins (2011) stated according to the *2011 State of College Admissions Decision Report*, Act and SAT scores are not considered with the same importance as they once were to about 90% of universities.

University professors, identified through the research conducted by Pearson (2008), notice students lack the skills necessary to write and those same students have poor learning/study habits. These same professors believe that students lack the motivation necessary to be successful at the college level. If this is the case, it will be the responsibility of the university professors to fill the gap in academic rigor to keep students enrolled in college and to create a safety net to prevent them from failing. Preston (2009) pointed out the reality and the responsibility to prepare students for the university level is becoming one of the university

professors and not high school educators. This is another factor that university students are not performing at the level needed to be successful in their course curriculum (Preston, 2009). The first year as a college freshman is critical for students to continue and graduate. Professors, who have to spend time remediating, run the risk of not completing the course requirements and students fall further behind. Glick-Cuenot (2014) noted students who complete their first semester successfully increase their chance of enrolling in a second semester and working towards completing their degree (Glick-Cuenot, 2014). Discouraged students run the risk of becoming unsuccessful students. Completing the first and second semester of their freshman year on target with their specific degree completion plan has students striving to do well subsequent semesters. Mishook (2012) stated that academic tenacity and college knowledge arm students with the ‘soft’ skills necessary to understand the process for accessing higher education and the cognitive and meta-cognitive strategies that allow students to succeed in the university environment.

### **History of the Keystones**

The researcher’s review of the literature proves there is a substantial amount of information on SAT/ACT scores and college readiness. PA ELA Keystone Exam purpose aligns with that information and if this assessment administered in 10th grade proves valuable to the students on their path to the university level. Students preparing for post-secondary education are familiar with the SAT and the importance of the score from that assessment, but Keystone Exams are something new the state of Pennsylvania adopted as an additional graduation requirement. Smith (2016) states the main goal of these assessments is to prepare all students for the university level even if they decide they are not going to enroll. Students need to have this level of preparedness not only for university courses, but to obtain the skills needed to be

successful in any of their career choices (Smith, 2016). Ultimately, the goal of public education is to prepare students to be successful post-graduation, whether they choose to further their educational career or join the work force. Making sure students have successfully mastered the skill sets to do either is measured by standardized assessments and student performance in grades 9-12.

The goal, in part, created the Keystone Exams, a series of three tests meant to measure student performance in algebra, biology and English. Prior to a change earlier this year, students graduating in 2017 would have been required to pass all three before graduation. However, lawmakers approved legislation delaying the requirement until 2019 allowing PDE to examine the effectiveness of the tests in meeting the college-readiness goal. (Smith, 2016, p. 1)

The PA Keystone that is being used for this study is the ELA, which PA piloted in 2011 and released to students in 2012.

The Pennsylvania Department of Education developed a Keystone Exam to replace the once used PSSA. The PA Keystone Exams serve as an end of the course assessment to make sure that the students are hitting the standard proficiency rates in each subject area. The assessments were released gradually starting with Algebra I and continuously piloted to include all of the subject areas. The PA Keystone Exams have been adopted to measure proficiency rates, but Pennsylvania has added more relevance to the exam by making the successful completion of the battery of tests as a high school graduation requirement. The Pennsylvania state House met to review the concerns of the educators throughout the state of PA to work the fine details of the exams. Being that these exams carry a great weight on whether or not a student graduates, the validity and reliability of the assessment has to be evaluated. Right now

the assessment is still being field tested under the bill that was passed at this particular meeting. Rodgers (2016) recognized specifically the PA Keystone graduation requirement was adopted and scheduled to go into effect with the class of 2017, but with the passage of House Bill 880 in February 2016, the implementation of the requirement was delayed until the 2018-2019 school year. With the amount of funds and importance for students passing these state assessments, all of the mechanics have to be near perfect and the validity and reliability have to be tested and verified before the assessment is used as a graduation requirement. Poryzline (2015) stated with the passing of this bill, state legislature starting with the class of 2019, requires students to pass all three Keystone exams- algebra I, biology, and literature in order to graduate. The goal is to make sure Pennsylvania is producing students who are prepared to enter college and the workforce.

Specifically, the Keystone assessments measure student mastery in specific subject areas. Portzline continued to report the Keystone exams, designed to measure a student's proficiency in algebra, biology, and literature, were designed to be the final obstacle for students of the class of 2017 to be eligible to graduate. The revision of bill delayed the requirement to give the Department of Education time to find alternatives to the tests and support schools and students for the change (Portzline, 2015). Dr. George Steinhoff, Superintendent of the Penn-Delco School District adds to the debate on whether or not the PA keystones should be considered as a graduation requirement. Rodgers (2016) reported Steinhoff belief that the original goals presented in the development of the Keystone exams may have merit, but those goals became a requirement that counter to needs of the students, gets in the way of the necessary preparation for college and career success, and inhibits our ability to develop the skills that colleges and the business community desire from our graduates. Jerry Oleksiak, president of

the Pennsylvania State Education Association (PSEA) also has concerns on the graduation requirement and mandated assessments. He believes high-stake exams students are required to participate and pass have districts reallocating funds, needed in other areas of education, to develop curriculum and remediation courses to support students to pass each Keystone exam. Students, who do not pass the assessment on their first attempt, are mandated to participate in a remediation course until they are successful. To participate in a remediation course, students have to eliminate electives to make room for remediation (Rodgers, 2016).

### **History of the SAT**

The SATs have a history of measuring student achievement. Albert (2016) outlined the history of the SAT from when the test items were first drafted in 1899 by the College Board. The College Board was responsible drafting the test items, distributed them and scoring them. As mentioned earlier, the SAT was originally drafted as an Army IQ test, but ended up serving 12 universities, some of which were Ivy-League institutions. The College Board enlisted three advisors from private high schools. The purpose of the assessment was to determine what students should have been taught in high school and also to create a standard assessment to measure students across multiple schools. The prototype was release in 1901, but was not successful. The College Board began to re-write the assessment and in 1926 the SAT was released and revised as educational policies and curriculum have changed over the years.

The history of the name of this assessment is interesting and has evolved over time. Initially, the “S” stood for scholastic because the assessment had everything to do with the principle of education. The “S” has maintained it original meaning even though some believed it was once changed to standardized once more standardized assessment became accessible. Most recently, the “A” stood for assessment, but prior to 1993, the “A” stood for aptitude because the

assessment measured a student's natural ability and/or talent. The "T" was originally to stand for test to complete the acronym for Scholastic Aptitude Test, but once the "A" transitioned to Assessment, the acronym lost its original meaning. Albert (2016) stated in 1997, the College Board settled the debate once and for all. So what does SAT stand for? Nothing. It literally means nothing anymore (Albert, 2016). The SAT is simply just the SAT.

Beginning in the 1930s, the development of the SAT was rolled out as a tool used in Ivy League schools to test for academic scholarship. Westervelt (2014) stated the SAT was developed as an Army IQ test that got the attention of presidents at two prestigious Ivy League schools. In the late 1930s, the SAT became a scholarship test for all the Ivy League schools (Westervelt, 2014). The creation and adoption of the SAT followed the format of the commonly used Army IQ test that assisted in the process of identifying individuals that measure high in achievement, but not necessarily applied to college because of their socio-economic status during this time period. Sheffer collaborates with this thought on the SAT as "it was meant to help those who came from more humble backgrounds to be noticed by prestigious schools" (Sheffer, 2014, p.2). As the years progressed, so did the intention and the format of this standardized assessment. Throughout the years, the developers of the SAT assessment instrument have followed the progression of school curriculum and school reform. Changes occurred first in 2005 and most recently in March of 2016.

Kobrin (2008) specifically identifies the changes in the SAT during 2005. The revised SAT added an additional section that measures the student's writing ability, which is now identified as the SAT-W. Not only were open-ended questions added to this assessment, but also multiple-choice items were added to assess the student's ability to master basic grammatical usage. During this revision, the critical reading section SAT-CR replaced the former verbal

section. Another notable change was that the analogies were eliminated to make room for reading passages followed by questions pertaining to what the test taker just read. Kobrin (2008) reports the results of all the changes to the SAT did not notably change how well the assessment predicts a student's first-year college performance. What did result from the changes in the assessment is that the writing portion of the assessment was the most predictive of university preparedness. (Kobrin, et al., 2008). In a 2014 article, *More Than Half of the SAT Test-Takers Unprepared for College*, the benchmark score of 1550 was set by the College Board, who manufactures the SAT. Bidell (2014) pointed out students who score a 1500 on their benchmark assessment have an approximate 65% chance of having a B- average GPA or higher during the first year of college. Having a score of 1500 or above allows for a higher likelihood of enrolling at a four-year college and graduating from college within four years" (Bidell, 2014). The article references the scores of the 2014 assessment reporting "the average scores were 497 in reading, 513 in math and 487 in writing" (Bidell, 2014, p. 2). These combined totals just meet the set benchmark. The year prior, "only 43 percent of the test takers this year met or exceeded the benchmark score of 1500 out of a possible 2400" (Doubleday, 2013, p.1).

Many studies have been completed on the accuracy and validity of the SAT when measuring the success of students during their first year of college, but the College Board continues to revisit the current format of the assessment and make adjustments to better depict the readiness of high school students to enter the next chapter of their life. The most recent change occurred in March of 2016, which opens up the window to begin to study the predictability whether this format prepares students for the university level. Wallace (2016) believes main motivation behind all the changes implemented to the SAT is more consistent with what students are learning in their high school courses and more specifically what they will be

learning in a university classroom as opposed to questions and information on concepts they might only be exposed to when taking the SAT (Wallace, 2016). The SAT “is undergoing the biggest changes in 10 years, perhaps the most dramatic overhaul ever of one of the main exams used by colleges and universities in determining student admissions” (Wallace, 2016, p. 1). This format change eliminates the writing section, which Kobrin (2008) noted in his research the best predictor of college success. Wallace notes the vocabulary section has been removed eliminating the unsure feeling that words on the SAT that you would never see again in your educational career. The essay is now optional and calculators will no longer be allowed during some portions of the math sections. Also the number of possible choices for answers have dropped from five to four (Wallace, 2016). With students just making the benchmark scores, the change of the testing format will provide students will familiarity on content knowledge that they have acquired over their years in public school education. The College Board recognized the stagnation of test scores and plateau of growth and adapted the assessment to sustain interest in using the exam as well as produce scores that are more competitive based on student prior knowledge. Westervelt (2014) noted the private test preparation market for the SAT and the ACT is a \$2 billion-a-year industry in the U.S. Critics of the test have long said the exams better reflect a family’s income and a student’s speed at test-taking than aptitude, competency, or intelligence (Westervelt, 2014).

The 2016 assessment format updates reflect content that was introduced to all students, which grants each student an equal opportunity to produce benchmark or higher scores.

There are many courses and tutoring programs to prepare for the SAT or ACT, but nothing takes the place of challenging coursework. According to the College Board, students who took four years of English, three or more years of mathematics, three or

more years of natural science, and three or more years of social studies and history (which constitutes a ‘core curriculum’) scored about 150 points more on their SATs than students who did not take the core courses. (Cooper, 2015, p. 2)

Preparing for the SAT and other standardized assessments is not as easy as participating in SAT/ACT and Pennsylvania Keystone prep courses, but the hours spent in the classroom learning attributes to higher test scores. Cooper article continues stating students who participated AP courses scored better on the SAT than other students (Cooper, 2015).

### **History of the ACT**

The ACT has gained a great deal of attention over the last decade. Adams (2015) noted 59% of students graduating in 2015 attempted the ACT. The amount of students participating in this exam is up from 1.85 million in 2011 to 1.92 million in 2015. Within the same testing year 1.7 million students took the SAT compared to the previous year participation of 1.67 million students (Adams, 2015). See figure 1. “The ACT is a national college entrance examination lasting four hours covering material taught in grades 7-12. Multiple-choice questions cover English, mathematics, reading, and science, in addition to an optional writing section” (Blevins, 2013, p. 3).

Bob Wise, President of the Alliance for Excellent Education, reports the nation’s schools still have a lot to do to prepare students to be college ready. “As for the increasing popularity of the ACT, Wise credits ACT Inc.’s expansion with being in the markets earlier with products that test students in the lower grades and catering to employers who are looking for workforce readiness indicators” (Adams, 2015, p. 2). Scott Thomas, Dean of the School of Education Studies at Claremont Graduate University in California explained that minority students’ participation in the ACT greatly increased after the 2005 redesign of the SAT due to the misinterpretation of the

SAT scoring scale. With that information and the recorded participation of the SAT and ACT in 2015, it is understood why the ACT has gained such momentum. Thomas also points out that both standardized assessments still have improvements to make to get a clear picture of college readiness.

The ACT College Readiness Benchmarks are based on actual grades earned by students in college. It sets a minimum benchmark score on each subject area that is tested. If a student meets that benchmark, it is estimated that the student has a 50 percent chance of earning a B or higher in that area in college. The student also is estimated to having a 75 percent chance of earning at least a C in the first-year course in that area. (Cooper, 2015, p. 3)

Adams (2015) noted research showed that students' high school grades and the rigor and relevance of the courses they take in high school are the best predictors of university grades and success (Adams, 2015).

Figure 1. 2015 SAT, ACT Scores Suggest Many Students Aren't College Ready

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Note: This figure originally appeared in *Education Week* on September 9, 2015. Reprinted with permission from Editorial Projects in Education.

Adams, C. J. (2015). 2015 SAT, ACT scores suggest many students aren't college ready. *Education Weekly*, September 9, 2015.

<http://www.edweek.org/ew/articles/2015/09/2015-sat-act-scores-suggest-many-students.html>

## **Vertical Alignment of Standardized Assessments**

Students participate in standardized assessments as a measure of achievement. The PA Keystone Exams are administered to ascertain whether students have mastered the English curriculum and have met all of the standards related to the Pennsylvania State Standards. The SAT is also an assessment to measure students' academic success in their high school career, but ultimately the purpose is to examine if a student is ready for the rigor associated with university courses. If positive results are reported from the student's performance on the Keystone, he or she will produce the same positive results when taking the SAT. If either assessment yields negative results, high schools spend time designing courses to remediate until the student is successful. The primary purpose of the SAT is to delegate that students are college ready; it is assumed that these students will perform positively in the college classroom. Avoiding discrepancies between leaving high school and transitioning into the college environment should be a shared effort between high school administrators and college level professors. It is suggested that high school and college curriculums should be vertically aligned to make that transition smooth and not place the burden of the educational gap on the shoulders of the university professors. Educators have seen a movement in this direction with the addition of Advanced Placement (AP) courses and the option for high school students to be dual-enrolled during their junior and senior high school years.

It is extremely common for school districts to adopt an AP curriculum for students who have proven during their academic high school career that they are ready to meet the challenges of rigorous university courses. The researchers who compose the SAT and other familiar standardized tests turned their attention to developing these specific AP courses.

The College Board, best known for its creation, production, and supervision of the SAT and ACT college admissions tests, should have possessed the foresight to anticipate that a program that allows qualified high school students to take what amounts to a college course, and potentially earn college credits, while still enrolled in high school might affect the student's HSGPA and the college admission process. (Preston, 2009, p. 40)

Students who have had the experience of participating with at least one AP course and passed the AP exams are starting as freshman prepared for university workload, but not all students have the opportunity to enroll in these high school offerings. Ideally, the curriculum associated within the AP courses should be adapted to the other academic courses that high school seniors are participating in.

Zahner, Ramsaran & Steedle (2014) relay that for students to be successful within their college career, they have to have been enrolled in a high school that prepared them to be successful. Through the monitoring of high school grades, overall HSGPAs, PA Keystone exams, SAT, as well as extracurricular activities, administrators have the means to prepare students to be successful at the university level. Beyond the monitoring process, how school officials evaluate the reports and then plan instruction and activities to reflect what the students' academic needs are at that current time is necessary to keep the students progressing on the continuum for college readiness. Zahner, et al. (2014) highlight the importance of preparing high school students with 21st century skills, career awareness and specific content demands well before they leave the realm of high school. Students must have to demonstrate that they are able to communicate, exhibit creativity, have the ability to problem solve, and most importantly be motivated to be successful. "This type of assessment may improve the accuracy of the

prediction of college GPA since HSGPA and college entrance exams may not capture these higher-order skills” (Zahner, et al., 2014, p. 4).

The research completed by Atkinson and Geiser (2009) argue the SAT was a good predictor of GPA for a student’s first-year of college, but was not as accurate when comparing the same student’s GPA as a college senior. As the students move through their college career, the results of the SAT seem to fade into the background as far as measuring student achievement. In recent college reform, some universities are eliminating the SAT as an admission requirement and relying solely on the student’s high school achievements and HSGPAs. It might be true that each high school performs at unique levels offering different curriculum and academic opportunities and students are not all receiving the same amount of resources or classroom experiences, but their grades and overall GPA still prove to be reliable in predicting college success. Atkinson and Geiser (2009) remarked grading standards vary by school, but in the end, grades instead of standardized assessments still maintain a more accurate predictor of college success. Cumulative grade-point averages in academic subjects in high school have proven consistently the best overall predictor of student performance in college (Atkinson & Geiser, 2009). Longevity in academic performance ultimately is an important factor in how students will continue to persevere in a college classroom. “Repeated academic performance over a period of time gives insight into a student’s ability to be successful in particular course of study” (Glick-Cuenot, 2014, p. 6). The movement for standardized testing might be dwindling in the college realm, but it is still a topic of discussion in the K-12 arena.

The skills assessed on the SAT/ACT and PA Keystone measure the ability for students to recall specific facts and computations that are a result of the academic standards outlined by NCLB of 2002 and ESSA of 2016, but the skills necessary to be successful in a student’s career

cannot be measured by filling in the bubbles. Business leaders measure the success of their employees based not only on academic ability, but also on presentations skills, public relations, and so on. Standardized testing including K-12 assessments, PA keystones, SAT, and ACT do not measure the skills that create a well-rounded 21st century student needed to be successful in college, their future careers, and overall citizenship of the country.

Glick-Cuenot (2014) stated, “Over the last several decades, the need for students and workers to think critically, to decipher information quickly and rise to immediate challenges, has led to the need for embracing different forms of intellectual capital” (p. 12). For example, a student’s ability in mathematics is extremely important, but lacking the ability to think critically, decipher information, etc., might not be evident as a student moves through their college classes and careers. Ultimately, universities are preparing graduates to be successful in the work force, but the priorities measures in the SAT/ACT and the content specific PA Keystone exams have yet to evaluate motivation, persistence, academic goals, etc.

Tony Wagner (2008) identifies seven survival skills that he compiled after spending many hours observing the education system and interviewing corporate CEOs inquiring about what skills make a candidate appealing to universities and corporate positions.

In a major study of 400 employees (*Are They Really Ready to Work?*), among expectations for new employees who are high school grads, two-year college grads, and four year college grads, knowledge of mathematics did not even make the top-ten list of skills employees deemed most important for any of these groups. (Wagner, 2008, p. 91) Mathematics did not make the top-ten list, but mathematics is a major SAT/ACT indicator measuring which individuals are college ready. Within this study, employers were looking for more than rote memory skills. What the report referred to as ‘applied skills’ dominated the top-

ten list of the most important skills for all three groups of students, a list quite similar to the (Wagner's) Seven Survival Skills. The seven skills developed from Wagner's research are as follows: critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analyzing information, and curiosity and imagination.

Of these seven skills, not one of them is a product of skills measured on the SAT/ACT. In fact, all of the skills Wagner lists might need an educational foundation of calculations and memorization measured by this standardized assessment, but "there is absolutely no evidence that knowledge of calculus causes greater success in college; there is only an association" (Wagner, 2008, p. 93). There so much emphasis on SAT/ACTs and success within the university level. Skills needed to be successful in our 21st century global society and workforce are not measured on a test and should not be considered for universities to measure whether or not a student will be successful at the university level. Universities are preparing our future generations for the work force and should measure their abilities in 'soft skills' instead of success on a multiple-choice assessment (Wagner, 2008, p. 92). Of those skills, SATs/ACTs do not address or assess professional and work ethics, oral communications, teamwork and leadership, and ethics and social responsibility. "Thus, synthetic and creative thinking are now seen as complementary and as necessary as critical thinking skills in order to make sound judgments, identify innovative solutions, and for transforming oneself and their organization" (Glick-Cuenot, 2014, p. 12).

The Pennsylvania Keystone exams were designed to progress Pennsylvania towards increasing the educational achievement of all students within Pennsylvania school districts to meet the challenges of 21st century economy (PDE, 2016). The Department of Education also

recognizes that there were definite learning gaps between students graduating from Pennsylvania high schools and those same students readiness for university success (PDE, 2016). Either way, Pennsylvania has to prepare all students progress to the university level, whether they choose to attend or not, as they will need these university level skills no matter if they enroll in a university or progress to the workforce (PDE, 2016). The current Pennsylvania Governor, Tom Wolfe, and Pedro Rivera, the Secretary of Education of PA believe postsecondary success looks different for each student and different measures of readiness for postsecondary success are valid and appropriate as graduation requirements for the state of Pennsylvania (PDE, 2016). Mishook (2012) suggested the move toward preparing students to be college ready has taken several forms. More rigorous academic standards, aligned with the knowledge and skills required for college, have been voluntarily adopted by most states. These Common Core State Standards have been developed for math and English language arts and are in the early stages of implementation (Mishook, 2012).

The article continues to postulate that students who are going to enroll in a four-year educational institution should be evaluated on the domains needed to be prepared in that academic area. Students who are going to career institutes, two-year community colleges, the workforce, etc. should also have the opportunity to be evaluated on domains pertaining to their future careers. Should more than one assessment be used as graduation requirements based on the career path a student chooses? Is it acceptable to require students to pass a state assessment to graduate that is geared to all students attending a four-year college? Because of these questions, the Pennsylvania Keystone exam is continually being revamped to meet the needs of our students. What the state is finding out is that proficiency levels produced by Keystone exams, not just in literature, but also in biology and algebra are “not necessarily the evidence

given the greatest weight in their analysis of student readiness for postsecondary success” (PDE, 2016, p. 7).

This article conveys the message current law established by Pennsylvania Department of Education does not provide students with adequate opportunities and options to demonstrate readiness for graduation and postsecondary success. PDE’s urgency was generated by the high number of students defaulting to the time consuming and resource intensive performance based assessments (PDE, 2016). The Pennsylvania Department of Education report (Act 1) “offers an opportunity for Pennsylvania policymakers to more broadly conceptualize what a profile of readiness could look like for different students with different strengths, interests and postsecondary goals” (PDE, 2016, p. 7). While the state is gathering information and resources to meet the needs of all students, students are still participating in the Keystone exams, but they are not a requirement for graduation.

The National Assessment Governing Board (NAGB) argues that academic preparedness is only one factor influencing the measurement of how prepared students are for college. The SAT and the PA Keystone exams measure academic ability alone. What is not measured is what NAEP identifies as Non-Cognitive Skills and Environmental Factors. One can argue that students who are successful within their academic courses and on standardized assessment do have the Non Cognitive Skills of motivation, study habits, etc., but there is not a rubric to measure these skills specifically on an achievement test. Environmental factors are not as easy to calculate within the frame of these assessments because demographic information such as parental information and the quality of a rigorous curriculum of their high school courses is not addressed.

Predictors of academic success are multi-faceted. Blevins (2013) states that assessing college readiness include more than one variable of metrics including test scores, GPAs, and quality of courses the students have participated, but also motivation, background, and ‘non-cognitive’ or ‘soft’ skills play an important role for academic success (Blevins, 2013). With the uniqueness of each individual student, it would be difficult to measure his or her abilities on all four of the above mentioned success theories if such assessment is deemed appropriate to measure a student’s ability to think, their motivation levels, emotional intelligence, etc. High School grade point averages still remain the best indicator of university success being that the score is cumulative over a period of four years. A high school GPA is the most relied predictor variable because of the scores convenient to collect and the score represents achievement overtime (Glick-Cuernot, 2014). Patterns in a student’s academic ability can be easily identified over a period of time. Standardized assessments are just the opposite, in which the tests are a one-time testing snapshot of a student’s ability that does not take into consideration the student’s frame of mind during the testing session. According to Glick-Cuernot (2014) A majority of high school students who have high HSGPA have mastered the coursework of their high school curriculum, but have difficulty with success on the SAT/ACT (Glick-Cuernot, 2014). Students, who maintained high GPAs through high school, often struggle with the SAT/ACT because of the weight that it carries within the college admission process.

Today, some 800 of the roughly 3,000 four-year colleges and universities in America make SAT or ACT submissions optional. For both those students who submitted their test results to their colleges and those who did not, high school grades were the best predictor of a student’s success in college. And kids who had low or modest test scores,

but good high school grades, did better in college than those with good scores but modest grades. (Westervelt, 2014, p. 1)

### **Summary**

The question still remains, what is the best national and state initiative that predicts university prepared students? Through this study of relationships, information will be analyzed to see how the Keystone and SAT/ACT clear the path and provide direction on preparedness of high school students beginning their journey at the university level. According to Wagner (2008) educational stakeholders including parents, students and policymakers believe that high assessment scores are the most reliable avenue to measure of a quality school system. Test scores are still the most relied upon determinant of a community's real estate values (Wagner, 2008). For students planning on entering the world of higher education, standardized assessments are not the only determining factor of who is prepared for the challenge of these academically intensive classes. A student's GPA, study habits, and utilization of support systems all play a part in a student's ability not only to be prepared for college, but to be successful as well. Assessments geared to measure student effort and/or the grit factor have not been identified and would be hard to measure prior to a student entering a college classroom.

For now, standardized assessments in academia are what society is familiar with and a lot of weight is still placed on the results of the SAT/ACT and for Pennsylvania, the Keystones. Measuring the correlation between the assessment results and the data collected through the CIRPS Freshman Survey is just one more resource that can be used to evaluate the process of determining university preparedness. Glick-Cuenot (2014) states that academic success can be measured in many different ways, however by most college and university standards, academic success is usually measured by grades and the ability to earn a degree within

a recommended timeframe (Glick-Cuenot, 2014). Gilkey, Seburn, and Conley (2011) suggest that schools help students build schedules that align with collegiate expectations to increase collegiate aspirations. Mishook (2012) explained the sense of urgency is students need to be ready for the rigor and relevance of university curriculum, but the plan to better prepare these students needs to be addressed. Interventions and other effective supports need to be implemented in time to ensure student success (Mishook, 2012). Until then, Cooper (2015) suggested, along with the College Board, educators should be preparing students for university success prior to their junior and senior year. Students should be on a preoperational path starting in grade school and it is recommended that their educational courses should be adjusted to meet their specific needs (Cooper, 2015).

## CHAPTER THREE: METHODS

The purpose of this predictive correlation study was to determine if SAT and PA ELA scores predict university preparedness. This chapter will discuss the research design, research questions and hypotheses, participants, setting, instrumentation, and research procedures.

### Design

This study utilized a quantitative, predictive correlational design to examine the relationship between standardized test scores and university preparedness. A predictive correlational design along with archived student achievement data was designated to complete this study. The reason a quantitative method is chosen for this study is to examine the relationships among variables. This type of research is best completed through the use of quantitative methods (Gall et al., 2007; Pallant, 2007; Creswell, 2009). Gall, Gall, & Borg (2010) explain comparative research, more specifically correlational research, is used to measure cause and effect relationships between independent and/or dependent variables. Researchers tend to utilize group comparison research design when the variables cannot be manipulated (Gall et al, 2010). In this study, the student scores on the SAT and the PA ELA Keystone cannot be manipulated thus a correlational design is the best choice for methodology.

Gall (2010) stated correlational research is often used in education to help educators address a problem in current instructional practices (Gall et al, 2010). The outcome of this research will predict whether or not standardized assessments are useful tool to measure a student's university preparedness. The analysis of the data collected within this study will produce a correlation coefficient. Gall, Gall and Borg (2010) explains a correlation coefficient as a mathematical expression resulting in value between -1.00 and +1.00 used to evaluate the strength and direction of relationships between predictive and criterion variables (Gall et al.,

2007; Pallant, 2007; Creswell, 2009). The collection of this information tells the researcher how well they can predict the score of the individual on variable y, student preparedness, if the researcher knows the individual score on variable x, SAT and PA ELA Keystone scores. The higher the correlation coefficient, whether in the negative or positive direction, the better the prediction (Gall et al, 2010).

### **Research Question**

The research questions guiding this study was the following:

**RQ1:** Is there a significant relationship between student preparedness in the first-year of higher education and the linear combination of the predictor variables (PA ELA Keystone and SAT scores)?

### **Hypotheses**

The null hypotheses for this study were:

**H<sub>0</sub>1:** There is no statistically significant predictive relationship between student preparedness in the first-year of higher education and the linear combination of predictor variables (PA ELA Keystone and SAT scores).

### **Participants/Setting**

The participants for the study were selected from the 2016 and 2017 graduating class of a rural school located in southwestern Pennsylvania. Gall, Gall, & Borg (2007) stated that quantitative researchers seek to measure results from a large population of individuals, but use a smaller sampling of those individuals for the purpose of research (p. 166). In correlational research, the larger the sample of participants is desirable, but a minimum of 30 individuals is necessary (p. 167). For this study, 550 individuals were invited to participate in the study with a goal being set of 66 individuals who continued to the university level the fall after graduating

from high school. For this study, the number of participants sampled was 66 students which according to Gall et al. (2007, p. 145) exceeded the required minimum for a medium effect size with statistical power of .7 at the .05 alpha level. The graduating class of 2016 consisted of 214 students and 2017 consisted of 225 students.

Permission to acquire information on the participants of this study was obtained from the district superintendent. Request for School District Participation was emailed to the superintendent requesting permission to access student's educational records and demographics through the high school guidance office. The Request for School District Participation is documented in Appendix A. Documentation of the Superintendent's permission to use the assessment scores and demographic information of the district's graduating class is documented in Appendix C. Before compiling the data used for this study, the following steps were followed. First, the list of all students and demographics from both graduating classes were collected. Next, assessment results obtained for the purpose of this study were extracted from OnHands EdInsight Instructional Management System, a program utilized to archive the district's performance data. This system collects data and assists district administrators to interpret data to design specific educational learning paths for individual students who produce patterns of skill deficits.

OnHands School (OnHands, 2016) software and professional development solutions are used to integrate student data into the curriculum instructional design. This data is connected to classroom curriculum and assessments resulting in higher student achievement (OnHands, 2016). Next, the results of the PA ELA Keystone Exam were recorded during the participant's 10<sup>th</sup> grade school year (2014-2015) and the SAT were recorded during the participant's 11<sup>th</sup> (2016-

2017) or 12<sup>th</sup> (2016-2017) grade school year (the later of the SAT attempts were used for the purpose of the study).

The participating school district guidance staff mailed the participants an Invitation to Participate explaining the study and relevance of research by accessing the student's addresses retrieved through the OnHands School software. The Invitation to Participate letter is documented in Appendix B. Accompanying the Invitation to Participate was the CIRP survey and a self-addressed envelope for the students to return the information to the researcher. The CIRP survey is documented in Appendix D. The students and survey were assigned a number that corresponds with their assessment data to ensure that the results of the study remain anonymous. All data was organized in a Microsoft Excel document including the number assigned to each student, SAT score, PA ELA Keystone score, HS English grade averaged over high school career, gender, IEP status, socio-economic status, and preparedness Likert scale result. Only data collected from the participants who enrolled in a university immediately following their 12<sup>th</sup> grade school year was used in the research.

The sample consisted of 50 males and 66 females, 109 students identified as non-minority, 7 students identified as minority, 72 students not considered socio-economic disadvantaged, 44 students identified as socio-economic disadvantaged, 115 students not identified as receiving special education services, and 01 students identified as receiving special education services, 71 students recorded non-participation in an English remediation course, 45 students recorded participating in an English remediation course.

Table 1

*Descriptive Statistics*

Variable	Category	<i>N</i>	%
Gender	Male	50	43.1
	Female	66	56.9
Race	Non-Minority	109	94
	Minority	07	06
Special Education	Regular Education	115	99.1
	Special Education	01	0.01
Socio-Economic Status	Non-Disadvantaged	72	62.1
	Disadvantaged	44	37.9

**Instrumentation**

Archival data from two instruments were used to measure the relationship between SAT scores, Pa ELA Keystone scores and first year academic preparedness. The instruments used were the SAT scores and the PA ELA Keystones. Information obtained from the CIRP survey was used to measure the criterion variable, student preparedness.

**Pennsylvania English Language Arts Keystone**

The PA Keystones assess various subject areas but this study reviews only the English language arts portion of the Keystone assessment. Pennsylvania students participate in the English language art Keystone during their sophomore year in high school. The assessment is administrated at the end of the school year after the students have been exposed to the entire 10<sup>th</sup>

grade English curriculum that follows the state's standards. Students who pass this particular Keystone on their first attempt have fulfilled the requirement and have room for more electives the following year. Students, who do not pass initially or after several times, have to continually be enrolled in remediation courses until they are successful.

The assessment was initialized to ensure all students have acquired the knowledge base of the English language arts curriculum and in turn will be ready to succeed in subsequent English courses. The assessment is separated into two modules and each module consists of three passages, 23 multiple-choice and four constructed-response questions for a total of six passages, 46 multiple-choice questions and eight constructed-response questions. Of those four passages, 34 multiple-choice questions and six constructed-responses are operational where the remaining are field test questions. Students are scored only on the identified operational test items. Each multiple-choice question is worth one point and each constructed-response is worth 3 points, totaling 52 points. The Keystone Technical report lists a Cronbach's alpha coefficient of .91, standard deviation 10.65, and the standard error of measurement 3.15 (Data Recognition Corporation, 2015).

The estimated time to complete both modules is 146 minutes, where 104 minutes are set aside for the operational questions and 42 minutes are allocated for field questions. The assessment is collected using specific test security measures specified by the Pennsylvania Department of Education, where the tests are packaged and shipped back to their origin. The assessments are scored and evaluated prior to the students individual results are mailed back to the testing school. Subscales are developed by the Department of Education to determine if a student score advanced, proficient, basic, or below basic. To pass the assessment, students have to score advanced or proficient. The cut scores are developed after all of the assessments are

administered and evaluated. This study seeks to find if there is a correlation between the student's scores earned on the PA ELA Keystone and how prepared those same students are during their first year English university course.

## **SAT**

The SAT originated in 1930 as an Army IQ test to ensure that all young men entering the armed force did not have the intelligence levels that would have ensured them a place in the ivy league school. Unfortunately, individuals that did not come from an affluent family predetermined to be university material. Since then, the SAT has gone through a multitude of changes from the acronyms of the name to the content and scoring details. The most recent change occurred in March of 2016.

This assessment is administered primarily to high school juniors, but can be taken at any time during a student's high school career. Students may take the assessment as many times as they feel necessary to receive a score that they are satisfied. Universities look at these scores as a pre-requisite to being admitted into their institution. The SAT is not a requirement for high school graduation, but is highly suggested for individuals who are pursuing a university degree.

The most recent revision of the SAT, which was released in March of 2016, consists of 52 reading questions, 44 writing and language questions, 58 math questions and one optional essay. For the purpose of this study, data was collected from the participating students reading and writing/literature scores. The reading section has an allotted 65 minutes to complete where the writing and language sections have 35 minutes. The combined possible score for reading, writing and literature sections range from 200-800 points. This assessment is published by the College Board, who experts outlined test procedures and administration. All assessments are collected, following test security procedures. The assessments are sent back to the publishers for

assessment, evaluation and scoring. This study seeks to find if there is a correlation between the student's scores earned on the SAT reading, writing and literature section and how prepared those same students are during their first year English university course.

### **Cooperative Institute Research Program (CIRP) Freshman Survey**

The CIRP survey is the researcher's identified instrument used to gauge university preparedness in correlation to the Pennsylvania English Composition Keystone and the Scholastic Aptitude Test (SAT). The CIRP's survey instrument just celebrated a historic half-century of research on college students as 2015 marked the 50th administration of the CIRP survey (UCLA, 2016). The survey was developed by Dr. Alexander "Sandy" Astin to promote institutional improvement on preparing students for higher education. This instrument, designed by the Higher Education Research Institute, was assessed for reliability and validity. Both validity and reliability were determined. The instrument has been used as a tool to measure university preparedness and other aspects of higher education since 1966. This instrument is appropriate for this study as it encompasses a magnitude of topics: tests for behaviors in high school, academic preparedness, admission decisions, students' values and goals, expectation of the college experience, and interactions with peers and faculty. The instrument consists of 24 questions yielding results recorded on a four-point Likert scale that ranged from strongly agree to strongly disagree and results in a categorical/demographic nature that were be coded in similar likenesses. Responses recorded from the Likert Scale were as follows: Strongly Agree = 4, Agree Somewhat= 3, Disagree Somewhat = 2, Strongly Disagree = 1.

Being that the CIRP survey has a large participation sample, developers from UCLA report the calculated standard error associated with any particular response percentage will be small, as will its confidence interval (UCLA, 2016). The calculated confidence interval at the

99 percent probability level the critical  $t$ -value is 2.56 (UCLA, 2016). Kemp (2004) reported the CIRP Survey is held in high-esteem by many institutions across the country because of the 50 years of successfully surveying college freshman. This is the only survey program designed specifically for longitudinal assessment (Keup, 2004). Calculating the number of repeat participation runs (Keup, 2004) the CIRPS Survey has a reliability rate of .90. This survey is considered to be highly reliable. Kemp (2004) reports the CIRP Freshman Survey is widely accepted as reliable, as it has been used for nearly 50 years by many institutions. The pretest/posttest model that is often used for the survey shows consistent results across the four years of a student's college career. The Freshman Survey is intended to collect information on a wide range of cognitive and affective measures, and establishes a baseline of students' interests, activities, and academic pursuits prior to their immersion into the college campus" (Keup, 2004). Permission to use the survey was granted by the research department of UCLA and is documented in Appendix C. The CIRP Survey is documented in Appendix D.

### **Procedures**

The research study adhered to the following organizational stages: (1) defense of the proposed study (2) submission of application to the IRA (3) preparation and requested approval, (4) collection of assessment data, (5) releasing the survey to participants, (6) data gathering and analysis, and (7) result reporting. Preparation and approval included a proposal that was submitted to the Liberty University Institutional Research Board (IRB) (see Appendix G) including a proposal explaining the research study was supplied and approved by the participating school district (see Appendix A). Collection of assessment data was retrieved from the EdInsight, an electronic storage warehouse contracted by the participating school district,

where scores from the Pennsylvania ELA Keystone and the Scholastic Aptitude Test (SAT) were cross-referenced to identify participants who participated in both assessments.

Participants were identified through the following: year of graduation, completion of the SAT and the PA ELA Keystone exams, confirmed enrollment in a four-year university. All information explained above and the students's mailing address were collected through the participating district's EdInsight program. Upon identification, the researcher worked with the guidance staff to mail a welcome letter incorporating an "Invitation to Participate" (see Appendix B), a letter of informed consent (Appendix E), and the CIRP Freshman Survey (see Appendix D), along with a stamped return envelope addressed to the researcher.

A six-week survey participation window was available for all participants to review the informed consent form and complete the survey. At the conclusion of the four-week mark, a reminder notice was mailed out reminding the participants that they still have the opportunity to participate and complete the survey. All individuals who opt to participate in the survey remained anonymous through the guidance department randomly assigning a number to the participants for identification purposes. The students SAT scores, PA ELA Keystone scores, and demographics retrieved from OnHands Data System were assigned and organized by number instead of identifying information. Survey results and informed consent were assigned the matching number prior to being mailed to the participants to remain organized and detailed in the collection spreadsheet.

The data collection and analysis stage included the organization of the collected data from the Pennsylvania ELA Keystone, the SAT, and the survey results. The data was entered into the Statistical Package for the Social Sciences (SPSS) for analysis. The final stage reviewed the reports supported by SPSS software. The review of analysis is defined in detail in chapter

four. This quantitative study was used to collect data on the students who participated in both the SAT and PA ELA Keystone. The students' scores on both assessments were recorded and compared to the data collected from the same students who volunteered to participate in the Cooperative Institutional Research Program (CIRP) Freshman Survey. See Table 2 for variable descriptions.

Table 2

*Variable Table*

Variable	Data Source	Coding	SPSS Label
SAT Scores (predictor)	SAT score from archival data	Total score: 400– 1600	SAT
PA ELA Score (predictor)	PA ELA score from archival data	Total Score: 1200- 1800	PA_ELA
Sex	Please indicate your sex.	Male (0) Female (1)	Sex
Ethnicity	Please indicate your ethnicity.	Non-minority (0) Minority (1)	ETHN_DESC
Socio- economic Status	Socio-economic Status from archival data	Identified No (0) Identified Yes (1)	SOC_ECO
Special Education Status	Special Education Status from archival data	No (0) Yes (1)	SP_ED
CIRP Score	Please indicate whether or not you participated in a English Remediation Course prior to your University English course	Total score: 0-100	CIRP
English Course Grade	Please indicate your final grade of English Course	A (5) B (4) C (3) D (2) F (1)	GRADE

## Data Analysis

A multiple regression was used to examine if there is a predictive relationship between standardized test scores and university preparedness. A multiple regression is utilized when researchers want measure how scores of a set of independent variables predict scores of dependent variables and how well the combination of scores for all measured independent variables predict the scores of measured variables (Gall et al, 2010). A multiple regression was used to test the first null hypothesis ( $H_01$ ) that examines the predictive relationship of college preparedness and the linear combination of the Pennsylvania English Composition Keystone and the Scholastic Aptitude Test (SAT).

The researcher sorted the data on each variable and scanned for inconsistencies. Prior to running the multiple regression, a few assumptions that must be met in order to use a multiple regression. First, box and whisker plots were used to detect outliers on each dependent variable. Next, the researcher employed a test for linearity setting the confidence intervals at 95%. The assumption of linearity of variance was examined using the Levene's test. This statistical procedure delivered a scatterplot representation of the variables along a straight line representing a positive incline or a negative decline. Next, the assumption test identified homoscedasticity on the variability in scores in both variables, which are similar. This procedure produced a scatterplot representation where homoscedasticity is plausible when a cigar shape was formed based on the inputted data. After the results of assumption testing has been completed and reported, the final tests were completed to report on the multiple regression.

The study sets out to accept or reject the null hypotheses identified at the onset of the research study. The research questions ask to identify a relationship between standardized testing and university preparedness. The bivariate correlation and multiple regression procedures were

identified as the most appropriate statistic analysis to test for relationships of the multiple variables. All results are reported in Chapter Four.

## CHAPTER FOUR: FINDINGS

### Overview

As stated in Chapter One, the study examined whether the SAT and/or PA ELA Keystone exams predict academic students' success during their first-year enrolled as a university student. The purpose of this chapter is to present the findings. Chapter Four is organized into two sections. The first section is the description of the participants. The second section provides the results of the data analysis for the following research question and corresponding hypotheses.

### Research Question

**RQ1:** Is there a significant relationship between student preparedness in the first-year of higher education and the linear combination of the predictor variables (PA ELA Keystone and SAT scores)?

### Null Hypothesis

**H<sub>0</sub>1:** There is no statistically significant predictive relationship between student preparedness in the first-year of higher education and the linear combination of predictor variables (PA ELA Keystone and SAT scores).

### Descriptive Statistics

The variables, their coding, and descriptive statistics for the data set are contained in Table 3.

Table 3

*Descriptive Statistics of Variables*

	<i>M</i>	<i>SD</i>
SAT Scores	531.29	84.44
PA ELA Scores	1532.68	39.23
CIRP Scores	71.47	7.55

**Results**

**Data Screening**

The data was first screened for errors and inconsistencies. None were found, so boxplots were created to determine if any outliers existed. One slight outlier was found in SAT scores, but the researcher retained the data point as multiple regression is robust to slight outliers (Warner, 2007). Figure 2 represents SAT scores and Figure 3 represents PA ELA Keystone scores.

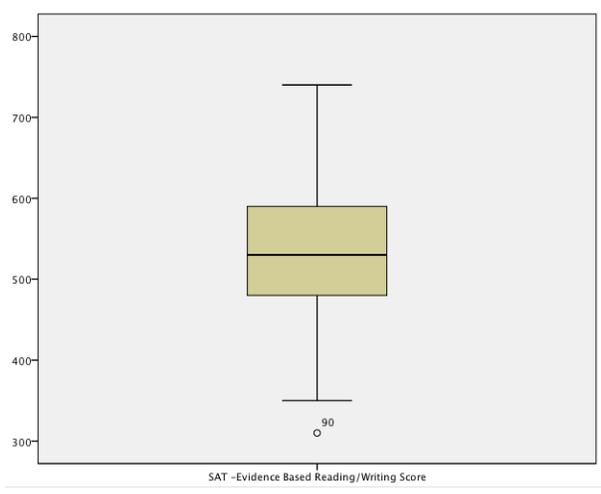


Figure 2. *Boxplot of SAT scores.*

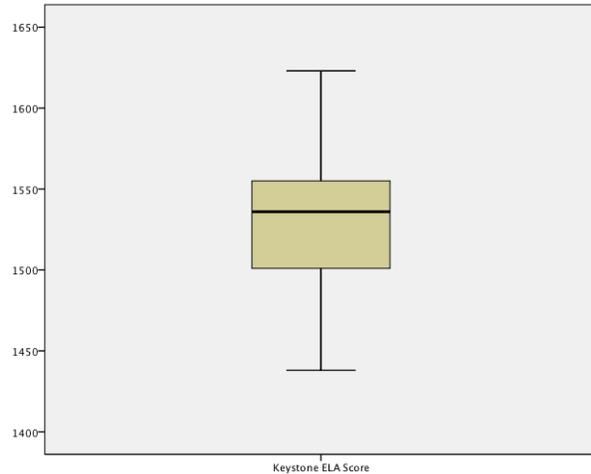


Figure 3. *Boxplot of Keystone ELA scores.*

### **Assumption Testing**

Multiple regression requires that data meets several assumptions including bivariate outliers, multivariate normal distribution and linearity. After analysis computing descriptive statistics and prior to conducting the analysis, assumption testing was conducted. After viewing the scatterplot, it was determined that there were not any extreme bivariate outliers and the assumptions of multivariate normal distribution was tenable (see Figure 4). Finally, the assumption of non-multicollinearity was examined by computing Pearson's bivariate correlations among all independent variables to insure that the magnitudes of all correlation coefficients are less than .80. The correlation between SAT scores and Keystone ELA scores was  $r = .678$ , indicating that they were not correlated. Thus, the assumption was met (see Table 4).

Table 4

*SAT and Keystone ELA Correlation Statistics*

		SAT Score	Keystone ELA Score
SAT Score	Pearson Correlation	1	.678
	Sig. (2-tailed)		.000
	<i>N</i>	116	116
Keystone ELA Score	Pearson Correlation	.678	1
	Sig. (2-tailed)	.000	
	<i>N</i>	116	116

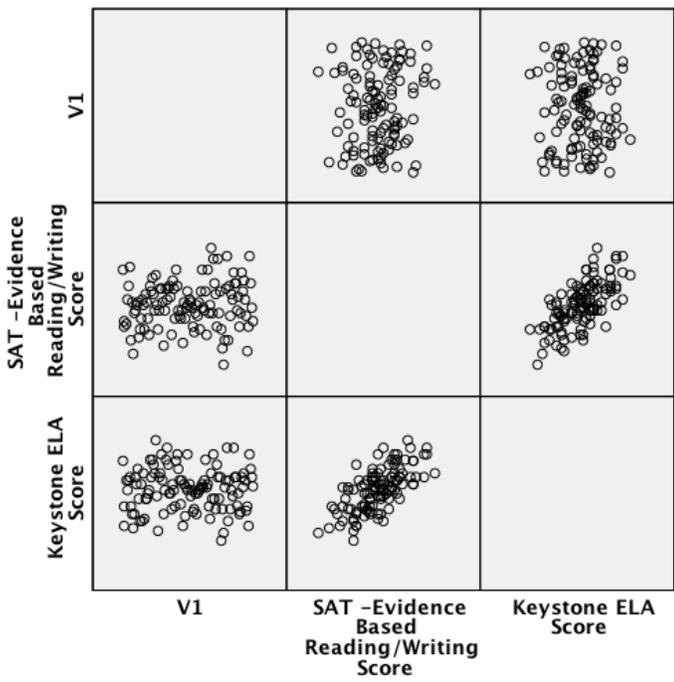


Figure 4. Scatterplot between each set of variables.

Next, the assumption of linearity was examined using scatterplots. The assumption was met as can be seen in Figures 5 and 6.

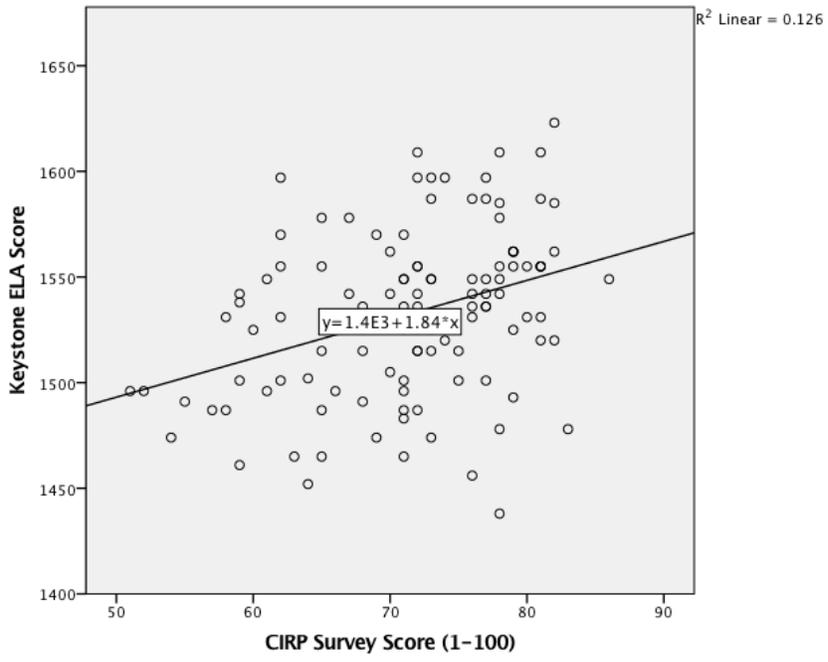


Figure 5. Linearity Scatterplot between PA ELA scores and CIRP

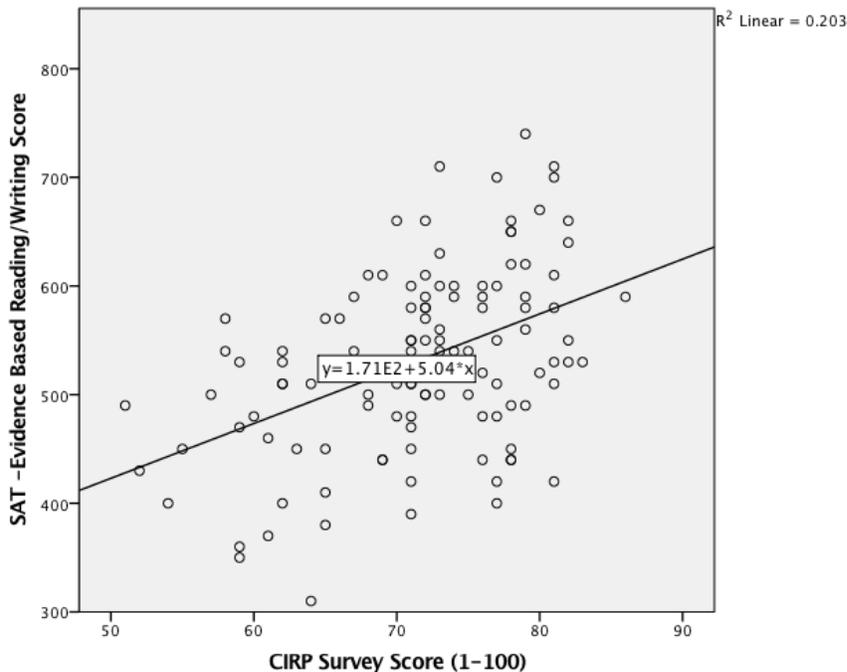


Figure 6. Linearity Scatterplot between SAT scores and CIRP

### Null Hypothesis One

Null Hypothesis One focused on if a predictive correlational relationship could be found between any predictor variables (SAT and PA ELA Keystone scores) and the criterion variable, university preparedness, measured using the results of the CIRP survey.

Once all the assumptions had been met, a test of multiple regression was performed to determine if a significant relationship could be found between the criterion and any of the predictor variables. The multiple correlation coefficient,  $R$ , represents the quality of the prediction of the dependent variable,  $R = .456$ . The coefficient of determination,  $R^2$ , is the proportion of variation in the dependent variables (SAT and PA ELA Keystone scores) that can be explained by the independent variable (CIRP Survey). In this case, the  $R^2$  value of .208 shows the independent variable explains 20.8% of the variability of our dependent variable. The

model was statistically significant as  $F(2, 13) = 14.821, p .000$ . This, the null hypotheses was rejected. This value tested the overall statistical significance of a correlational relationship between the criterion variable and the combined effect of both predictor variables. This data can be found in Table 5.

Table 5

*Model Summary*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	<i>F</i> Change	<i>df</i>	<i>df</i> <sup>2</sup>	<i>P</i>
1	.456	.208	.194	14.821	2	13	.000

a. SAT Scores

PA ELA Scores

b. Dependent CIRP Scores

To better understand the individual contributions each predictor variable made to the analysis, the standardized coefficient score was investigated. This score represents the contribution an individual variable had to the overall model. As noted in Table 4, neither predictor variable, on their own, had a statistically significant correlation with university preparedness. Further investigation of Table 6 also shows the statistical significance scores for each of the predictor variables. The predictor variable PA ELA scores standardized coefficient beta value,  $t = .794$ ,  $p = .429$ . Thus, PA ELA scores was not a significant predictor of preparedness. The predictor variable SAT scores standardized coefficient beta value  $t = 3.419$ ,  $p = .001$ , which was a statistically significant predictor of university preparedness (see Table 6).

Table 6

*Coefficient Table*

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	95% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
Constant	26.261	30.210		.869	.387	-33.590	86.112		
Keystone ELA Scores	.017	.022	.090	.794	.429	-.026	.061	.540	1.852
SAT Scores	.035	.010	.390	3.419	.001	.015	.055	.540	1.852

A measure of the predictive value of the SAT and PA ELA Keystone was measured by the use of the CIRP survey. Table 7 indicated the mean and standard deviation for predictive value was ( $M=71.47$ ,  $SD 3.442$ ).

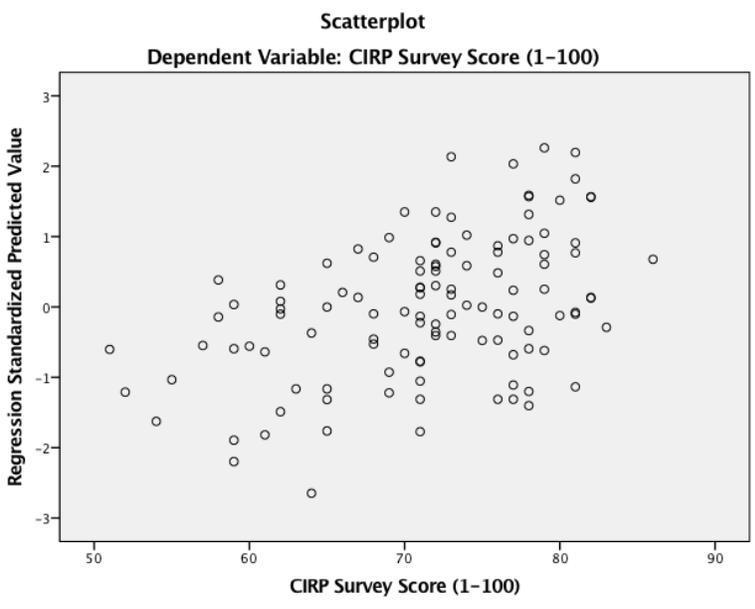
Table 7

*Residual Statistics*

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	<i>N</i>	Min.	Max.	Mean	Standard Deviation
Predicted Value	116	62.35	79.25	71.47	3.442
Residual	116	-18.388	13.441	.000	6.721
Std. Predicted	116	-2.648	2.261	.000	1.000
Std. Residual	116	-2.712	1.982	.000	.991

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*Figure 7. Scatterplot of the regression model.*

## **CHAPTER FIVE: CONCLUSIONS**

### **Overview**

The intent of this study was to determine if the SAT and/or PA ELA Keystone scores predict a high school students' level of preparedness as they enter a university level English course. This chapter provides a summary of the research findings, implication for practice, and recommendations for future research.

### **Discussion**

The increased demand for students to be prepared and successful as they enter the university level has resulted in increased attention to assessments, HSGPA, AP, and remediation courses. Particularly, the SAT has served as an entrance exam for universities since 1926 and has been adapted and reformed based on the needs of the university standards. The significance of SAT scores play an important part in the lives of high school graduates when preparing for their future. The U.S Department of Education and What Works Clearinghouse (2016) lists the SATs as the exam upon which most universities base their admission of students, higher test scores increases a students chances of being admitted into select schools, and the scores determine scholarships and financial aid opportunities (WWC, 2016). Those three factors alone can determine the future of high school students, but a student's success once accepted into a university is may or may not be determined or predicted by SAT results. Now designed to measure a student's likelihood of success at the university level, the original importance of the SAT was designed to simplifying the admission process where universities required a criterion score to apply. This was important for students who were applying to more than one school (WWC, 2016). The intent of the SAT has been altered and money and resources are allocated to assist students to score high on an exam in the hopes a students' score predicts success rates.

Based on the research completed, the efforts to enhance the SAT have proven to be cost effective.

Pennsylvania, in an attempt to better prepare students for success beyond high school, rolled out a battery of assessments to measure student performance within a particular subject area, including algebra, biology, English language arts, etc. Currently, Pennsylvania is preparing school districts to continue to develop high school remediation courses for students to participate in order to pass these assessments to graduate. The current remediation model requires students to complete a yearlong remediation course for each subject area course not passed deemed by the Pennsylvania Department of Education. Portzline (2015) stated student who scores below the proficiency level on these exams will have to get additional academic support within their school day so that they can retake the exam, which is offered three times a year. In reality, adding these remediation courses to a students' schedule is limiting a students' ability and/or opportunity to participate in elective classes geared to their future career choice. Students who are not exposed to career preparation courses will have a harder time determining a major early on in their university experience.

Preparing high school students for the academic rigor of a university environment has been debated since the system of higher education has been adopted. High school educators across the nation have been afforded the opportunity and responsibility to educate students to be successful beyond the high school classroom. As stated previously, high school graduates follow the pattern to transition into a university classroom. In reality, universities across the United States have been facing the challenge to remediate students who are not quite ready for the challenges related to being a university student. These students have passed their high school level courses and have been exposed to numerous standardized assessments focusing on applying

to a university. Statistics on students failing their freshman general knowledge courses as well as dropout rates and current research support the idea that students are not prepared for the university classroom. Standardized assessments are used to guide students when making important decisions when deciding on universities to apply to, as well as maintaining a positive success rate while enrolled. Preparing students to be successful on these assessments has led educational companies to develop numerous programs to assist students with tips, quizzes, study guides, etc. (WWC, 2016), only for students to be admitted pending the passing of a prerequisite remediation course.

According to Atkinson (2009), admission tests would be beneficial for high school educators to differentiate instruction to meet the needs of the students if they were criterion-referenced rather than norm-referenced. Admission assessments should be used to gage whether or not a student is academically ready for university courses, and not measure how they score compared to other students who took the same assessment. Criterion-referenced assessments certify a students' knowledge or establish a baseline to identifying if a student is on the correct path to be college ready. These same tests should have a diagnostic tool to assist high school educators in implementing curriculum relevant to what the students need; specifically to areas recognized as not mastered by the assessment tool. Another suggestion of Atkinson (2009) is assessments should not only have a predictive validity but face validity. The assessment tool should be transparent to what is needed to be successful at the university level and just basic knowledge and skills. Assessments should measure mastery of skills and not whether or not a student has completed enough test-taking preparation courses on how to answer questions they are not sure of and still get a high score. Assessments should also serve to reward students for

hard work and dedication to their high school curriculum and provide them with direction on whether or not they will be successful in college.

This intent of this study was to answer whether or not there is a significant relationship between student preparedness in the first year of higher education and the linear combination of the predictor variables (PA ELA Keystone and SAT scores). The null hypotheses stated there is no statistically significant predictive relationship between student preparedness in the first year of higher education and the linear combination of predictor variables. The study suggests that neither predictor variable, on their own, had a statistically significant relationship with university preparedness. The results of this study supports a relationship between student preparedness and the combination of the results of the PA ELA Keystone and the SAT. The study supports the decision to reject the null hypotheses.

SAT and PA ELA Keystone exams can be used as an accurate predictor of how well a student will perform in a college English course. Both assessments serve different purposes and based on this research, the purpose of the SAT is to evaluate the level of preparedness a student has acquired while in high school. The purpose of the PA ELA Keystone is to measure how well a student has mastered PA State academic anchors and eligible content for ELA, which are specific to the Pennsylvania Department of Education standards (Data Recognition Corporation, 2015). More specifically, the SAT evaluates student's mastery of English curriculum over the course of their high school career specific to the recommendations of the college boards (Woodruff, 2014; Westervelt, 2014) and the PA ELA Keystone is specific to course content. Both play a significant role as high school student assessments and depending on what high school educators what to measure, both assessments can be beneficial. The research in this study can serve as recommendation on which assessment is more reliable when preparing students to

be college and career ready. Furthermore, the information and results presented in this study can assist educators to differentiate instruction to meet the needs of their students, as well as evaluate curriculum planning to include the skills necessary for students to be successful on the PA ELA Keystone and SAT.

### **Implications**

It is unrealistic to believe a single study can provide a definitive conclusion to whether or not standardized assessments serve as an appropriate predictor of first-year students' academic success particularly within the English education discipline, but this study has proven the participants were academically prepared for their first-year university English-course. According to this study, SAT scores are more accurate than the PA ELA Keystones when predicting whether or not students are going to be prepared for a university course.

This study helped fill the gaps in the literature regarding whether or not high schools assessments predict college preparedness and the possibility of disconnect between high school curriculum and university level curriculum in the realm of English composition. Previous research has been conducted on the SAT and the implications of a student's success at the university level (Bidwell, 2014), but there was a lack of research on the PA ELA Keystone. Information has also been collected on specific high school English courses and how successful students who participate in those courses are prepared for the university level (Klopfenstein et al, 2005). Information has also been collected on students who are not successful in their university English course (Brown et al, 2007). Reviewing the research from these previous studies, as well as the results from this study, high school educators and administrators can continue to prepare students to take the SAT prior to applying to a university and confidently rely on the assessment results advise students of their options for continued education and career readiness. The SAT

has proven to be the more accurate assessment compared to the PA ELA Keystone when measuring university preparedness. The PA ELA Keystone is a state mandated assessment but based on the results of this study, this assessment needs some revisions if it is going to be used as a measure whether or not a student is ready to enter a first-year university English classroom.

Curriculum reform is another avenue of research to compare the role high school courses have on preparing students for higher education. Allensworth (2017) mentioned the expectation for schools to continuously implement new and improved curriculums and assessments to produce positive outcomes without adequate data and resources on proven college-readiness milestones and it is evident in the number of students not prepared for university coursework (Allensworth, 2017). At one time, high school curriculum was designed to prepare students for entry-level jobs or a specific trade, but over the last decade, the high school curriculum primary goal is to prepare students for college. Allensworth (2017) research found that less than half of the U.S. students meet state standards measuring readiness for college, but stakeholders should not be surprised that high schools are not meeting the needs of these students. Preparing students to be university ready was added to the long lists of expectations that come with a high school diploma without additional support and continued unfunded mandates. Allensworth (2017) also pointed out in 2020 projections show that one and three jobs will require at least a bachelor's degree, but one of every three students who aspire to receive a bachelor's degree are successful (Allensworth, 2017).

### **Limitations**

There are a few limitations to this study important enough to mention due to the fact that the data could be negatively or positively affected if conditions were as such. Because this study was based on archival data, the researcher assumed all data of all participants was entered, and

entered correctly, this study was limited by the fact human data-entry error may have caused some participants to not be accounted for, or that some participants were accounted for incorrectly. Another limitation to this study is the university required SAT score for admittance and the pre-requisites for a student to be scheduled in a first-year English course without remediation or placement exam, but most students completed the SAT during their sophomore and junior year of high school. Having an additional year of English instruction would have changed the success rate of the student's desired scores.

This study was also limited by threats of validity. As a regression study, one threat to internal validity was the statistical inferences about any predictive effects are valid only for the population being studied. The study consisted of only 116 participants, but the amount of students eligible for the study is of a larger population. Also, a threat to internal validity was the requirements of each university might be different when scheduling students in English courses. Preparedness at one university may be different at another. Other threats to the internal validity of regression analysis include omitted variable bias (if a casual factor was left out), errors in variable bias (if variables were improperly identified or if data was entered incorrectly), and simultaneous bias (if another factor influencing the outcome). External threats to validity included population validity and generalizability. The findings are limited by the sample size participating in the survey. Also to be considered is students participating in the study applied and attended different universities and different pre-requisites. Adding a controlled variable, such as students all attending the same university could help the study's external validity.

Steps were taken to reduce the impact of these limitations. To reduce errors related to the survey, questions were chosen from the CIRP Freshman Survey to be specific in nature where students did not have to speculate their answer selections, for example, the question pertaining to

participation in college remediation was a simple yes or no answer. Future research implementing a replication study would also assist in measuring the validity of this research.

### **Recommendations for Future Research**

This research study specifically looked at assessments administered to students in Pennsylvania, more specifically southwestern Pennsylvania. One recommendation for further research would be to expand the research across Pennsylvania and/or within different states. Research should be conducted on a larger sample size of participants to measure the outcomes of their results. Currently, at least 28 states require high school graduation tests, with more states heading in that direction (Center on Education Policy, 2010). The completion of additional studies throughout the country can assist in determining what if any changes need to be made to assessments to mold them to be more in line with measuring academic preparedness.

Also, remediation rates at the university level can be studied to see which educational disciplines need curriculum adjustments to continue to prepare our students for success beyond the high school classroom. The idea of restructuring may seem like an overwhelming task to school districts across Pennsylvania, but even simple tasks as gearing students more toward college readiness may make a huge impact on student preparedness. Research on how well assessments are linked to high school curricula can be assessed from general education courses to advanced placement courses. Farah (2013) also referenced the following five reasons students may not be prepared for college workload as students not concentrating on core curriculum classes. Creating students who are well-rounded has led the discussion of whether or not schools should be preparing students to be academically sound in the areas of math, reading, English, and science and limit the electives students are participating in. Another reason for students not being prepared is higher achieving students are not receiving an adequate amount of enrichment

time because their lower-achieving peers are receiving extended time with their instructors to make sure they have basic knowledge of the new skill sets. This is allowing students to be lackadaisical in the classroom as they are waiting for others to catch up.

Farah (2013) listed the third reason as students not challenging themselves as readers. Students at the high school level are exposed to novels with a reading level way below their current grade level. Literature classes exposing students to challenging vocabulary and complex reading structures have been eliminated to allow students to read based on interest and not complexity. The fourth reason is students are used to smart devices where acronyms and figures replace the use of proper English. Smart technology is allowing students to use spell check, emojis, etc. instead of applying correct English. Students have been introduced to media technology instead of the basics of research and libraries. The fifth reason students are not prepared for college level courses as suggested by Farah (2013) is that universities not adjusting to the way 'digital natives' adapted to learn. Universities expect students to adapt to the traditional learning style of higher education but have classrooms full of students who do not have the learning path to succeed in a traditional learning atmosphere. Currently, high school and university curriculums have been altered to utilize current technologies, but student surplus the knowledge base of instructors with software, applications, technology shortcuts, and coding. As more generations are progressing through education, the gap of technology literacy should begin to close.

Research in the avenue of advanced placement courses is also imperative and studies linking advanced placement course curriculum with the results of the SAT and PA English Keystone can be used to guide instruction to ensure students are more prepared for the academic rigor of first-year university courses. The actual preparation of assignments, outlines, and the

rigor or relevance may or may not have an effect on student preparedness. There is often disconnect between what is happening in our high school classrooms and what is demanded on the students with a university classroom. With that being said, research on measuring a students' preparedness is in the realm of advanced placements courses. Atkinson (2009) states AP exams have the strongest foundation of any university entrance assessments and university admissions officers often find the students' scores on these assessments are more predictive of how a student will perform in those curricular areas (Atkinson, 2009). Currently, AP exams are used to determine if a student has met the needs to pass these specific courses at the high school level giving them college credits prior to entering a university classroom. Considering the significance of these assessments in determining whether or not a student has to participate in a like university course, it seems a more appropriate measure on whether or not a student is university ready. More research on whether or not Advanced Placement (AP) courses predict a students' university readiness is an area of research that needs to be explored. More research needs to be completed to assist in preparing our high school graduates for university courses.

Continuing research to identify a successful assessment tool or a college preparation curriculum/program predicting whether or not a student has the academic mastery to move to higher education classroom is necessary. High school administrators and educators are diligently working to make sure the content of their subject area is taught to their students and college administrators and educators are spending a great deal of time remediating students to be able to perform in a rigorous classroom setting, but the solution to close the gap in instruction is still to be determined. Bidwell (2014) referenced more than two dozen universities have changed their admission policies to admit students without using SAT scores or other standardized assessments. Doubleday (2013) reported the number of students reaching the benchmark score

has been stagnated over the last five years. As academic leaders, approaches to education and how to meet the needs of our students needs to move at a faster pace to make the most use of our resources whether it be in a high school setting or university atmosphere. Expectations of what students should be learning from kindergarten to a fourth year English classroom needs to be aligned to close gaps in the education practice. Avenues of instructional practices need to match the learning styles of 21<sup>st</sup>-century students. Instructional tools to predict and prepare students for higher education need to produce accurately assessments and educational practices that are not meeting current educational standards need to be reevaluated, revitalized, and reinvented as the needs of our student population shift.

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## APPENDICES

### APPENDIX A

#### Request for School District Participation

Dear Dr. Wallace,

I am writing to request permission to conduct a research study within your school district. I am currently enrolled in the Doctor of Education Program at Liberty University. I am conducting research for my dissertation entitled, Standardized High School Assessments as an Indicator of Academic Preparedness in First-Year University Students. The purpose of this research study is to investigate whether or not standardized testing results accurately predict student preparedness as a student progresses through their first-year English course at a university level.

I am seeking your permission to contact the high school principals to request their permission and support to access graduated student's SAT scores and PA ELA Keystone scores. I would be asking for the assessment results of all students who participate in the SAT and PA English Keystone since 2016. For the confidentiality of the participants, I am requesting that the staff of the guidance department mail the request to participate within the study, consent form and a copy of the CIRP Freshman Survey and a self-addressed return envelope. I have attached a copy of the survey for your review.

Students who agree to participate in the study will be provided a consent agreement as part of the survey with the understanding that all responses will remain confidential and anonymous.

If approval is granted, participants will be asked to complete the survey at their convenience. The survey will take approximately twenty-five (25) minutes to complete. No costs will be incurred by the participant or your district.

If you grant your permission for your district to participate in the study, please respond to this email acknowledging your consent and permission for me to conduct this study within your district. I appreciate your consideration to participate in this endeavor. If you have additional questions or concerns regarding the survey and/or this study, please contact Jessica Scott as indicated below.

Thank you for your time and consideration,

*Jessica M. Scott*

Jessica M. Scott, Ed. S.  
Doctoral Candidate, Liberty University  
[jmscott5@Liberty.edu](mailto:jmscott5@Liberty.edu)  
2 Lone Pine Drive, Uniontown, PA 15401

**APPENDIX B****Recruitment Letter****Standardized High School Assessments as an Indicator of Academic Preparedness in First-Year University Students**

August 1, 18

Graduate of Laurel Highlands School District  
304 Bailey Avenue  
Uniontown, PA 15401

Dear Graduate of Laurel Highlands School District:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to determine how accurate the SAT and PA ELA Keystone predicts a student's preparedness to be successful in a first-year university English course and I am writing to invite you to participate in my study.

If you graduated high school in 2016 or 2017, have taken the SAT and PA ELA Keystone, as well as completed your first year English course at the university level, and are willing to participate, please complete the Cooperative Institute Research Program (CIRP) survey. A third party employee of Laurel Highlands School District will provide the researcher with linked SAT scores, PA ELA scores, high school grades, and student demographics that will be stripped of student identifiers. It should take approximately 25 minutes for you to complete the procedures listed. Your participation will be completely anonymous and no personal, identifying information will be collected.

To participate, complete and return the survey to the researcher before August 15, 2018 in the included self-addressed return envelope. Please do not include your name on the survey or a return address on the return envelope.

A consent document is attached to this letter. The consent document contains additional information about my research, but you do not need to sign and return it to the researcher.

Sincerely,

Jessica M. Scott, Ed. S.  
Doctoral Candidate  
Liberty University

## APPENDIX C

## Permission Granted by Participating School District



Jessica Scott &lt;jessica.scott@lhsd.org&gt;

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**Request for School District Participation**

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Jesse Wallace &lt;jesse.wallace@lhsd.org&gt;

Wed, Apr 18, 2018 at 4:33 PM

To: Jessica Scott &lt;jessica.scott@lhsd.org&gt;

Ms. Scott,

Please consider this correspondence as approval for your study request. I would like to view results once obtained if possible.

Thank you,

***Dr. Jesse T. Wallace, III******Superintendent***[jesse.wallace@lhsd.org](mailto:jesse.wallace@lhsd.org)**724-437-2821**

**APPENDIX D**  
**CIRPS SURVEY**

Survey been removed for copyright purposes

## APPENDIX E

### CONSENT FORM

The Liberty University Institutional  
Review Board has approved  
this document for use from  
8/1/2018 to --  
Protocol # 3311.080118

### CONSENT FORM

Standardized High School Assessments as an Indicator of Academic Preparedness in First-Year  
University Students  
Jessica M. Scott  
Liberty University  
School of Education

You are invited to be in a research study to evaluate SAT and PA ELA Keystone scores effectiveness and determine how prepared students are for university language courses. You were selected as a possible participant because you have graduated high school in either 2016 or 2017 and participated in both the SAT (after March 2016) and PA ELA Keystone. You have also had the opportunity to complete your first year English course enrolled in a university. Please read this form and ask any questions you may have before agreeing to be in the study.

Jessica M. Scott, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

**Background Information:** The purpose of this study is to determine how accurately the SAT and PA ELA Keystone predicts a student's preparedness to be successful in a first-year university English course.

**Procedures:** If you agree to be in this study, I would ask you to do the following things:

1. Complete the Cooperative Institutional Research Program (CIRP) survey. The survey will take approximately 25 minutes to complete.
2. A third party employee of Laurel Highlands School District will provide the researcher with linked SAT scores, PA ELA scores, high school grades, and student demographics that will be stripped of student identifiers.

**Risks:** The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

**Benefits:** Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include assisting current and future educators in instructing high school students to be prepared for the rigor of the university classroom. The information established from this study may provide students and parents with information on the value of these particular assessment scores.

**Compensation:** Participants will not be compensated for participating in this study.

**Confidentiality:** The records of this study will be kept private and anonymous. The researcher will not have access to any identifying information. Research records will be stored securely, and only the researcher will have access to the records.

- Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted.

**Voluntary Nature of the Study:** Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or Laurel Highlands School District. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

**How to Withdraw from the Study:** If you choose to withdraw from the study, please inform the researcher that you wish to discontinue your participation prior to submitting your study materials. Your responses will not be recorded or included in the study.

**Contacts and Questions:** The researcher conducting this study is Jessica M. Scott. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [jmscott5@liberty.edu](mailto:jmscott5@liberty.edu). You may also contact the researcher's faculty chair, Dr. Christy James, at [cmjames2@liberty.edu](mailto:cmjames2@liberty.edu).

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 1887, Lynchburg, VA 24515 or email at [irb@liberty.edu](mailto:irb@liberty.edu).

*Please notify the researcher if you would like a copy of this information for your records.*

**Statement of Consent:** I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

## APPENDIX F

### Permission to use Figure 2 Trends in College-Admission Testing

Maya Riser-Kositsky <[mriser-kositsky@epe.org](mailto:mriser-kositsky@epe.org)>  
To: Jessica Scott <[jessica.scott@lhusd.org](mailto:jessica.scott@lhusd.org)>

Wed, Dec 6, 2017 at 10:16 AM

Hello Ms. Scott,

Thank you for your interest in *Education Week* and for contacting the library.

We are happy to give you permission to use the graphic in your dissertation. However, if in the future you plan to publish your dissertation as a book, please let us know at [library@epe.org](mailto:library@epe.org) and there may be a fee associated with that use.

Please include this attribution language with the figure in your dissertation:

This figure originally appeared in *Education Week* on September 9, 2015. Reprinted with permission from Editorial Projects in Education.

Please let me know if you have any questions.

Sincerely,

Maya Riser-Kositsky

Maya Riser-Kositsky

Librarian

[Education Week](#)

301-280-3100

## **APPENDIX G**

### **IRB Approval**

Dear Jessica M. Scott,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption categories 46.101(b)(2 and 4), which identify specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

(2) 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 the 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.

(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.

Please retain this letter for your records. Also, if you are conducting research as part of the requirements for a master's thesis or doctoral dissertation, this approval letter should be included as an appendix to your completed thesis or dissertation.

Your IRB-approved, stamped consent form is also attached. This form should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document should be made available without alteration.

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at [irb@liberty.edu](mailto:irb@liberty.edu).

Sincerely,

**G. Michele Baker, MA, CIP**

*Administrative Chair of Institutional Research*

**The Graduate School**



*Liberty University | Training Champions for Christ since 1971*

## APPENDIX H

### Permission by UCLA to Use Survey Items from the CIRP Survey



Jessica Scott <jessica.scott@lhsd.org>

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#### Jessica Scott Survey

Ellen Stolzenberg <stolzenberg@gseis.ucla.edu>  
To: Jessica Scott <scott@lhsd.org>

Thu, Feb 23, 2017 at 2:26 PM

Hi Jessica,

This request is typically broader than what we normally approve (usually at most a couple dozen items), but it's OK for the stated purpose and listed items only.

Thanks,

Ellen

Ellen Bara Stolzenberg, Ph.D.  
Assistant Director for Research  
Higher Education Research Institute  
UCLA Graduate School of Education and Information Studies  
3005 Moore Hall, Mailbox 951521  
Los Angeles, CA 90095-1521  
Voice 310-825-6991