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Motivation and the SAT: what factors help determine college success past standardized testing

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MOTIVATION AND THE SAT: WHAT FACTORS HELP DETERMINE COLLEGE SUCCESS PAST STANDARDIZED TESTING

by

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Dedication

I would like to dedicate this to my family.

To my parents, Greg and Gwenn, for believing in my success and supporting me in all my endeavors.

To my sister, Gabrielle, for being my rock and best friend. I truly would not have made it this far without your support.

To my brother, Connor, for showing me unconditional love and making me the person I am today.

Thank you all for your patience, understanding, and support through this process.

Abstract

Alexandra Eve Vartanian

MOTIVATION AND THE SAT: WHAT FACTORS HELP DETERMINE COLLEGE
SUCCESS PAST STANDARDIZED TESTING

2012/13

Roberta Dihoff, PhD.

Master of Arts in School Psychology

The purpose of this study was to examine the effects motivation plays in determining the success of a student in post secondary education. The relationship between high school GPA (HSGPA), SAT Scores, college GPA (CGPA), and motivation factors were examined. Motivation was measured on the Motivational Strategies for Learning Questionnaire (MSLQ) developed by Paul Pintrich and Elizabeth de Groot. Ninety-two participants responded to the survey. Results corroborated findings from previous research. SAT scores correlate with CGPA; relationships were also observed across several other factors, including HSGPA and CGPA, SAT and Motivation, and HSGPA and SAT scores.

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Chapter One

Introduction

The use of standardized tests permeates students' lives from the very beginning of their academic careers. These tests allow the state to monitor educational institutions to ensure that proper education is provided and meets standards decreed by the government. In the United States, these tests begin as early as the first grade and continue each academic year. In recent years, standardized testing has become a much debated topic.

With all of the current knowledge on the impact that standardized testing has on students, one must wonder at what point do standardized tests become a hindrance? Do they correctly measure comprehension? How can the knowledge learned for these tests be applied analytically? Educationally? Do these tests accurately measure student ability? Can they actually predict the future success of a student? With such importance placed on these tests, it is crucial to the educational system that they are properly administered, analyzed, and applied. It is essential to understand whether or not these tests are truly valuable tools with which we can measure the American education system's exceptional achievements or evaluate its shortcomings.

One such test, the SAT, is a standardized test that looms before every college bound high school student. There is much controversy currently surrounding this exam. The scores are supposed to help college admissions officials improve the accuracy of their admissions decisions in admitting those students with higher predicted success rates (Crouse & Trusheim, 1988). Many studies have been conducted to assess this. Evidence has been found to both support and refute these statements. When examined along with

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high school grade point average (HSGPA) and high school records, the predictive validity of the SAT increases. However, there are a plethora of flaws that haunt the SATs continuation, including test bias. "Historically the test did a particularly poor job of predicting how females, students of color, and older test-takers will perform in college" (Fairtest.org, 2007). This fact, among many other imperfections, is entering university mentality so much to the point that many academic institutions are removing the requirement in the admissions process altogether and becoming what is known as "test optional schools". The SAT is a poor predictor of a student's future success in post-secondary education and beyond in comparison to other factors outside standardized testing. A student's HSGPA more closely corresponds to first year grade point average (FYGPA) than does an SAT score. There are a variety of elements that can influence the outcome of the SAT. The desire to succeed in academics and beyond is not measured. Motivation can heavily influence how successful - or unsuccessful - a student will be in post-secondary education. Motivational factors should be examined to aid in determining how well a student will achieve in post secondary education.

This study aims to highlight the shortcomings of the SATs predictive powers by focusing on elements of education outside of standardized testing. High school GPA, FYGPA, SAT scores, and motivational factors will be examined to assess the results of an interaction between factors influencing post-secondary success. College students from within the Rowan University population will be the focus of the study. Available information from academic institutions, archival research, and self-report surveys completed by students will be utilized. Student completion of the survey will be on a

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volunteer basis from the selection of students within the University, which may impact the data received.

It is assumed that the findings of this study will show that elements outside of standardized testing - such as GPA and motivation - will be better predictors of post-secondary educational success than the SAT. These tests do no promote actual learning comprehension, and in fact, measure low-order thinking skills. Critical thinking is a secondary byproduct of the exam setup, as much of the exam is multiple choice; this restricts demonstration in application of knowledge and analytical skills by structuring the students' responses. These tests are not structured to tell everything there is to know about how much a student learns and the quality of their education. Numerical scores garnered from the SAT do not reflect a students desire to achieve and the motivation behind learning; placing the amount of emphasis on one test to determine whether a student will be successful creates an anxiety inducing atmosphere that may impact the students score. Without knowledge of a student's driving forces, it is unrealistic to assume that a test score will highlight the best qualities that are to be offered. Further examination of this style of high stakes testing is necessary in order to support the claims that standardized tests demonstrate the most valuable and accurate prediction of academic success.

Chapter Two

Literature Review

Standardized tests are a common, yearly experience for many students in the United States. Many authorities are still heatedly debating the use of such exams. Some professionals claim they are necessary in order to monitor success, while others claim that they are biased and inefficient measurement tools (Rothstein, Jacobsen, & Wilder, 2006). An overview of standardized testing literature will be reviewed. Focusing on the SAT, the history and uses of the test will be examined. Arguments, both for and against, such tests will prompt the discussion of the limitations and consequences this type of testing encounters. Attempting to understand the underlying causes and perceptions of motivation in students will be addressed in this study.

Standardized Testing in the School System

High stakes tests, or standardized tests, are uniform, multiple choice examinations that are linked to important decisions about a particular student. They can be replicated across an entire domain of students and are scored quickly and cheaply by machines; they are used to make significant educational decisions about schools, teachers, administrators, and students. High-stakes testing policies have consequences for schools, for teachers, and for students (Amrein & Berliner, 2002; Henry, 2007; Popham, 2002). They are utilized in order to measure the success and progress of students, schools, districts, and states. The current role of testing has mutated from a tool in student placement to a method of judging students, teachers, and schools (Kohn, 2000).

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Immense importance has been placed on testing. Previously, such tests were considered an additional instrument in a child's education; a standardized test was used to determine if he or she comprehended learned information and was able to advance to a higher level (Holmes, 2009).

With the introduction of the federal No Child Left Behind Act (NCLB) in 2001, more focus has been given to standardized testing. The goal of this bill is to raise the achievement levels of all students by focusing schools' attention on improving test scores, providing parents with more educational choices, and ensuring better qualified teachers (Betts & Costrell, 2001; Darling-Hammond, 2004). Consequences now follow for schools that fall below the acceptable score (Betts & Costrell, 2001; Popham, 2001; Wood, 2004). It is believed that the quality of American education will be immensely improved when utilizing a system of rewards and penalties for students' academic performance; large incentives and looming punishments will make educators and students more likely to take school seriously (Berliner, Glass, Nichols, 2005). It is assumed, then, that if there were no yearly high stakes testing, students and teachers would show no motivation and lack intellectual accomplishment. The issue with this notion is that the reward and punishment system is not designed to properly motivate students (Betts & Costrell, 2001; Garrison, 2009). Success and failure are meant to be inspired by internal drives and the NCLB act is attempting to reinforce this, however, by focusing on standardized tests it moves the focus towards external factors (Darling-Hammond, 2004; Wood, 2004; Graves, 2002).

Children are tested in prekindergarten, kindergarten, first grade, and continue to be tested each succeeding year, as our President requested (Graves, p.19, 2002). With

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such importance placed on students to perform well and garner their school with favorable rewards, time must be dedicated to practicing for the tests. Time that would typically be spent learning the arts, promoting social and moral learning, and fostering initiative, sensitivity, and curiosity is being reduced or eliminated in order to 'teach to the test' (Graves, 2002; Kohn, 2000). Testing is not teaching; large quantities of time are dedicated to preparation efforts - simple tasks such as filling in bubbles with correct answers (Graves, 2002). With time spent on such menial tasks, there is less time to be dedicated to valuable educational goals. Some authorities have argued that it seems schools now have no other role than preparing children to take tests (Wood, 2004). Educators are no longer teaching necessary skills for daily life; they have been reduced to enforcing rote memorization for test taking purposes, failing to address how education will impact a student's life (Graves, 2002; Kohn, 2000). Previously, success meant if a child could genuinely grasp a concept and apply it accurately; the definition of success in today's classroom has been reduced to numbers (Berliner & Nichols, 2008; Popham, 2001). The importance of education is now placed on obtaining high scores on state mandated standardized tests as opposed to ensuring a student can apply classroom knowledge in a proper functional manner.

Kohn (2000) states that norm-referenced tests were never intended to measure the quality of learning or teaching; such tests are designed so that about half the test takers will not respond correctly. The objective was to rank students, not gauge the quality of education of a student or school. One fundamental issue is that 100 percent proficiency is an unattainable goal; norm-referenced tests are designed so that, by definition, 50 percent of students must score below the norm (Wood, 2004). The mistake with enforcing

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standardized tests as a tool for educational improvement is that measuring schools is mistaken for fixing them (Wood, 2004). Simple measurement on standardized tests does not test logic and reasoning; it does not question how or why a student reached an answer (Koretz, 2008). Low level thinking and rote memorization are key components to attaining a high score on these tests (Koretz, 2008). There is ample reason to believe that skills needed to test well derive from shallow, superficial learning and at worst indicate only a better ability to take tests (Wood, 2004; Kohn, 2000). Standardized tests are presented in multiple choice format, a question posed and four or five answer prompts given. With this format, it is impossible to comprehensively show a student's ability to apply knowledge. Simply filling in a bubble on an answer sheet does not demonstrate the student's thought process, why or how they arrived at that answer, nor does it provide them with the opportunity to explain the reasoning behind their choice. Measuring a student's education on a superficial level severely limits the extent to which the school system can quantify the motivation behind a desire for higher level thinking. Standardized tests are utilized throughout a student's academic career for various reasons. One such test, the Scholastic Aptitude Test (SAT), is of paramount importance in a student's life. This score determines whether or not they get into college - and not only if, but where as well.

History of the SAT

The SAT has origins dating back to 1925 and is associated with Army Alpha Beta Tests and IQ testing. Carl Brigham and Robert Yerkes created a test during World War I

that would choose officer candidates. The Alpha Beta tests mark the first time IQ testing had mass results (FairTest.org; PBS.org). In the early 1920s the College Board recruited Brigham to develop an adaptation of the Alpha Beta tests that could be used by a wider group of schools (Calvin, 2000; PBS.org). From this the SAT was created. It was originally introduced as an experimental alternative to the written College Boards and was administered for the first time in 1926 (Calvin, 2000). In its original format the SAT consisted of nine subsets: Definitions, Arithmetical Problems, Classification, Artificial Language, Antonyms, Number Series, Analogies, Logical Inference, and Paragraph Reading (Essen, Lawrence, Jackson, & Rigol, 2002; PBS.org). In 1928 the test was reduced to seven subtests, and in 1929 down to six subtests (Essen, Lawrence, Jackson, & Rigol, 2002).

In the 1930s James Conant, Harvard University president, decided to develop a process that would objectively measure student achievement to provide a more diverse pool of applicants for the Harvard National Scholarships program (Calvin, 2000; Holmes, 2009). James Conant and colleague Henry Chauncy were determined to create a scholarship program that would attract students beyond the elite and upper class (Calvin, 2000). In order to broaden the geographical representation and eliminate factors such as family wealth or which prestigious academy the student previously attended, the same test needed to be administered to all applicants (Calvin, 2000; Holmes, 2009; Sternberg, 2010). By removing all outside factors that could impact admission, this process would objectively identify those students that were eligible regardless of background. In 1934 Harvard implemented the SAT to select students for the scholarship program; one year later Harvard began requiring all student candidates to take the SAT (PBS.org). In the

decade following, the SAT was used as a scholarship test for all Ivy League schools and eventually most universities adopted the test as an entrance requirement (PBS.org). From its experimental first stages, the SAT was well received by upper level academia.

Present Day SAT

The Educational Testing Service was formed in 1947 as an agency to administer standardized tests and assess scores nationwide (Crouse & Trusheim, 1988; ETS.org). Additionally, the ETS conducts educational research, analysis and policy studies, and develops customized services and products. Its mission is to provide fair and valid assessments as well as research; these assessments measure knowledge and skills and promote learning and educational performance (ETS.org). Under contract to the College Board, ETS is still the primary producer and administrator of the SAT; it is scored by Pearson Educational Measurement (FairTest.org). One of the major criticisms of this structure is that it turns the SAT into big business (Crouse & Trusheim, 1988; Sacks, 1999). Not only does College Board make a profit from administering these tests, but they profit from the test preparation materials as well. This raises the question of whether the continuation of administering the SAT - and other standardized tests - is actually for the benefit of the public.

Since the 1930s, the structure and composition of the SAT has undergone several revisions. The original name, Scholastic Aptitude Test, was changed to Scholastic Assessment Test. Currently, the SAT is an empty acronym due to the fact that there is no real clear definition of what the test measures (Sternberg, 2010). The current basis for

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the structure of the SAT dates back to 1952 after the first set of revisions was made to its original structure. It is made up of two sections, Verbal and Mathematics, each scored on a 200-800 point scale. Nearly all 171 questions are multiple choice (FairTest.org). The information is designed to be independent from information learned in high school. The verbal section is described as "a measure of the fundamental academic skill of constructing meaning out of the English language in such a way as to be able to understand and participate in certain kinds of formal discourse"; the math section is described as "a measure of the ability to use mathematical concepts and skills in order to engage in problem solving" (Essen, Lawrence, Jackson, & Rigol, p 12, 2002). It includes questions that aim to measure reading comprehension, vocabulary, basic writing techniques, algebra, geometry, and statistics and probability. Advanced topics in mathematics and higher-order thinking and reasoning skills are not assessed; in fact it has been found that such tests are positively correlated with shallow approaches to thinking and learning (FairTest.org; Kohn, 2000). In their attempt to quickly and cheaply assess the student population as a whole, the test falls short on measuring what they claim; it is impossible to truly assess a student's knowledge base when examining superficial thinking processes (Koretz, 2008; Ravitch, 2010).

In March 2005, the College Board implemented a series of changes to the SAT. The 'Verbal' section was renamed to 'Critical Reading' and now includes short Reading Comprehension passages instead of Analogies; the Mathematics section removed the Quantitative Comparison items and added Algebra II (FairTest.org, 2007; Sternberg, 2010). A Writing component was added in response to criticisms that the test is too far removed from classroom learning (FairTest.org, 2007; Sternberg, 2010). This section

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still incorporates multiple choice questions, allowing a short period of time to draft a brief essay (FairTest.org, 2007; Sternberg, 2010). Scoring is still graded at the 200-800 point scale and test time increased from three hours to 3 3/4 hours; the cost of the test increased as well (FairTest.org, 2007; Sternberg, 2010). College Board initiated these changes in order to appeal to more schools in the market in response to many universities removing the requirement of the SAT. Despite these structural changes, the questions on the SAT and the underlying skills measured have hardly changed (Sternberg, 2010). The officials administering the SAT have given the test a superficial revision but the concepts tested remain the same.

Uses and Misuses

The SAT is currently used as an integral piece of information during the admissions process. The SAT is validated for one purpose: predicting first year college grades; it is supposed to measure a student's potential for academic success in college (Kobrin, 2008; FairTest.org, 2007). The SAT is ascertained to assess fundamental skills in math and reading that are crucial to success in college and adult life (Essen, Lawrence, Jackson, & Rigol, 2002). Additionally, such tests moderately predict skills essential outside of the academic sphere (Sternberg, 2010). The validity of such claims has been under heated debate for years. It has been acknowledged that there is an uncertainty to what the test measures as it is not based on scientific and psychological constructs, but on a judgment of potential scholastic success in college (Sternberg, 2010; Crouse & Trashier, 1988). Advocates of standardized testing suggest that students with higher SAT

scores tend to earn higher grades in college and provide additional information to a student's high school record (Geiser & Santelices, 2007). Therefore, the continued use of SAT scores is claimed to be necessary in determining admission to a university. Many authorities state that the SAT should be an occasional accompaniment to a broader range of student performance to obtain a greater picture of achievement (Crouse & Trusheim, 1988; Sacks, 1999). Assessing the student as a whole by examining past work, GPA, and previous scholastic achievements would provide a more complete picture of a student's ability as opposed to interpreting the student's ability based on a one time test.

Norm-referenced tests, such as the SAT, were not designed to measure the quality of learning (Kohn, 2000). The use in admissions contradicts this fact. Majority of relevant experts condemn the practice of basing important decisions on a single test - and no exam should be used as the sole factor in making a high stakes decision. Additionally, cutoff scores and minimums for scholarship qualification are routinely overlooked (FairTest.org, 2007; Kohn, 2000). One of the major issues surrounding the use of the SAT in this sense is the correlation of scores with social class and race (Sternberg, 2010; Crouse & Trusheim, 1988; Sacks, 1999; Geiser & Santelices, 2007). Basing such decisions on one time tests that may not reflect a student's true ability is gross misuse of a tool that is ascertained to objectively measure a student's potential grades in college (Geiser & Santelices, 2007; Koretz, 2010). Scholarship programs routinely assess a potential recipients' eligibility based on SAT scores. This is in clear violation of the test maker's guidelines (FairTest.org, 2007). Applying a one time test to be the basis of a life altering decision skews the true picture of the whole of a particular student. The issue at stake is whether the SAT is a valid tool in establishing the whole picture of a student's

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abilities. Exams such as the SAT do not prove that knowledge can be applied to given situations that may be faced in the real world, only that the student knows how to apply knowledge in a limited setting. Understanding the motivation behind a student's desire to be successful in college is not examined.

Correlation of SAT Scores and College Success

The SAT is authorized for one purpose: predicting first year grades. According to Fairtest.org (2007), it doesn't even do this well. It has also been found that the SAT predicts graduation rates even more poorly (FairTest.org, 2007).

The earliest predictive validity studies were conducted between 1950 and 1960 (Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008). Multiple studies have been conducted since with a majority of the studies reporting that there is a positive correlation between SAT scores and FYGPA, and FYGPA only - these scores have limited to none predictive qualities for aptitude past the first year of college. Despite the positive correlation reported, when the SAT score is used in addition to HSGPA as opposed to being used alone is when the predictive capabilities of the test become significant; additionally prior grades alone were more effective in predicting subsequent grades than SAT scores alone (Crouse & Trusheim, 2010; Geiser & Santelices, 2007; Sacks, 1999; Zwick, 2007). Crouse & Trusheim (1988) argue that the increase in predictive validity is so small that SAT scores are almost useless. With admission test scores being the second most important factor in admissions decisions, the validity of the testing should provide a

better prediction rate than several other factors that are not considered as crucial. The controversy surrounding the SATs predictive validity alludes to the fact that it may not be as necessary as some authorities, mainly ETS and College Board, claim it is.

Kobrin, Patterson, Shaw, Mattern, & Barbuti (2008) examined the impact of the revision of the SAT had on predictive validity. It was found that the revision did not substantially change how predictive the test is of first year college performance. However, it was found that the writing section was the most highly predictive of the three individual SAT sections (Kobrin, 2008). A combination of SAT scores and HSGPA were the best predictors of FYGPA (Geiser & Santelices, 2007; Kobrin, 2008). SAT and HSGPA are related in predicting FYGPA, but it is suggested that each measure a different aspect of academic achievement (Kobrin, Patterson, Shaw, Mattern, & Barbuda, 2008). Originally developed to assist in admissions, tests such as the SAT are more widely perceived to be a more accurate and reliable indicator than high school grades (Geiser & Santelices, 2007; Koretz, 2010). Contrary to this mentality, it has been proven that HSGPA is a consistently better indicator of how a student will perform throughout their college career (Geiser & Santelices, 2007). Supporting the inverse of this statement, Sackett (2008) asserts that specifically designed tests are generally valid for intended use and predict a variety of scholastic and job related performance in high-stakes testing. One of the problems with this statement is that while intention remains pure in administering the SAT, at times it is interpreted or applied in a manner not consistent with the original purpose. Geiser & Santelices (2007) concede that tests such as the SAT provide a small statistically significant addition to the predictive powers of HSGPA. The issue lies with the limitation of predictability. This is especially evident when examining

individual as opposed to group outcomes (Geiser & Santelices, 2007). The fact that singular scores are subject to larger margins of error provides evidence that these factors of predictability are flawed (Rothstein, 2003). Examining SAT scores of an individual does not seem to provide as clear a picture as examining the student's school: the average SAT score from a particular school provides more information about a potential student's FYGPA than their own score (Rothstein, 2003). The whole provides a better understanding of an individual than does a singular piece. It has been shown that SAT scores are a valid measure of predicting the FYGPA of students, however, it is not the strongest. It is one piece of information that should be an aid to determining the aptitude of a student; the problem lies with the amount of importance officials unduly place on the SAT. Additionally, the SATs predictive potency stems from its correlation with demographics and can only be applied to the first year of college (Rothstein, 2003).

SAT scores have a higher correlation to socioeconomic background characteristics; inversely, SATs predicted from demographic information more closely relate to FYPGA than do actual SAT scores (Geiser & Santelices, 2007; Rothstein, 2003). While found to be valid in its predictability, SAT scores are more closely related to demographic information. HSGPA is the better of the two in predicting FYGPA, however the SAT strengthens the HSGPA in its predictability. HSGPA represents a particular student's capabilities in motivational work over an extended period of time whereas the SAT provides only a brief glimpse into the abilities of a student on a given day. Geiser and Santelices (2007) have found that while HSGPA shows a weak correlation to socioeconomic status; the SAT has shown a strong, positive correlation to family income, parent education, and school API rank - all indicators of socioeconomic

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status. School districts that have better resources are better able to prepare their students for high stakes tests such as the SAT. Students hailing from lower economic districts do not have access to the same test preparation materials and courses; therefore, if teachers begin 'teaching to the test' in preparation for the SAT, those with better resources are bound to score higher (Arneson, Cooper, Kuncel, & Sackett, 2009; Graves, 2002). Socioeconomic status has been substantially related to admission test scores in an unrestricted population (Arneson, Cooper, Kuncel, & Sackett, 2009).

Perception and Motivation

Throughout these studies, a measure of motivational factors is missing. While such demographics as socioeconomic status are examined, student perception of success is largely ignored. None of the authors previously mentioned examine the effects that standardized testing has on a student's motivational factors. Kourosh, Motlagh, Zalani, & Parhon (2011) found that motivational factors play a crucial role in academic achievement and since academic achievement of students is related to the society's development, it is suggested that more attention be paid to the components of motivation by administrators and educational planners. The distinction between internal motivators and external motivators are also pertinent to how well a student will do. Thus far, the education systems tends to rely on external factors to motivate students to learn and this system of reward/punishment - similar to the concepts behind NCLB - does not work well enough for the majority of students (Sullo, 2009).

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Examining whether or not students perceive their potential for success lies internally or externally is necessary in considering a test such as the SAT to be a predictor of success. Geiser & Santelices (2007) state that student qualities such as motivation, personal discipline, and perseverance are critical for achieving and maintaining a strong GPA - yet these factors were not examined in their studies. Tests such as the SAT have no means to assess these qualities in a student during the test. The necessity of placing less importance on the SAT is demonstrated in the outlying factors of a student achieving high HSGPAs and FYGPAs. A student's GPA represents a level of mastery of a wide range of skills past academic abilities - motivation to succeed being the primary factor in attaining a high GPA (Sternberg, 2010). Motivation for doing well on the SAT is also necessary in order to achieve a high score, the main difference in these instances is that the SAT is a singular, 3 3/4 hour test whereas GPA calculations require grades across a several year span across many subjects. Understanding the motivational factors that encourage a student to perform at their highest ability throughout their post-secondary career is a facet of admissions that needs to be expanded.

Overall, most of the studies use the same parameters for methodology and data pool - the only subjects involved in these studies come from an existing pool of students who have already been accepted to colleges with scores being reported from admissions offices. SAT scores have been found to validly predict success in the first year of post-secondary education. However, other factors of great importance are often overshadowed by professionals when stressing the importance of high scores on such exams. The estimations of predictability fail to take into account other variables that predict college performance and are therefore uninformative about the source of the

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SATs predictive power (Rothstein, p. 3, 2003). There are a number of problems with the disparities in demographic scores. What is not reviewed by previous professionals are factors of motivation, not only behind obtaining high scores on such exams, but in maintaining a high GPA throughout a student's post-secondary education career. .

Purpose

The purpose of this correlational study was to test whether HSGPA or SAT scores are more closely related to FYGPA. Upper level student's GPAs are also examined to determine if there is a relationship between motivation, HSGPA, and SAT scores. This study reviews literature on the broad subject of standardized testing, focusing on the SAT and its consequences.   As previously studied, correlations between SAT scores and HSGPA vs. FYGPA are examined to understand the relationship with this subject pool. As many authors have indicated, factors outside of SAT scores are pertinent in the admissions process. However, examining the effects of perception and motivation for success are not addressed. This study aims to examine the motivation behind academic success and the relationship between success – in terms of GPA – and SAT scores. It is necessary to understand the student's concept of success in relation to SAT scores and current GPA in order to aid in comprehension of student motivational factors.

Chapter Three

Methods

Participants

This study was conducted at Rowan University. Participants included 100 students 18 years of age or older who were currently enrolled in an undergraduate psychology course; however, due to eight participants reporting no CGPA, six males and two females were eliminated from the data set. This set the number of participants at 92 (N=92); there were 41 female and 51 male subjects. Participants volunteered to complete the self-report survey as part of the requirements for their undergraduate psychology course credit; no grades were earned by participation and there were no consequences if a student did not participate.   A self report survey was administered to the students to ascertain demographic information including ethnicity, age, gender, etc. The survey also scaled the students' SAT scores, HSGPA, and CGPA in correlation to motivational factors of success based off of the Motivated Strategies for Learning Questionnaire.

Design

The research design of this study was correlational. The relationship between a students' GPA - both high school and college - and their SAT scores were examined. Additionally, this relationship was compared to their rating of

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motivational factors and learning strategies from the Motivated Strategies for Learning Questionnaire (MSLQ). Variables in this study include high school GPA, SAT score, college GPA, and motivational and learning strategy scale scores. The student's GPA and SAT scores were self-reported by the student. The MSLQ was provided as a Likert scale survey; the student's scores were scored based on the scale each question represented.

Materials

Alternate informed consent forms were used detailing information on procedure, voluntary participation, the risks/rewards involved in participation, and contact information; the alternate version was used in order to fully ensure anonymity of the students' responses. Research materials included a self-compiled survey and the Motivated Strategies for Learning Questionnaire (MSLQ) adapted from Pintrich & DeGroot (1990) Motivational and self-regulated learning components of classroom academic performance. The survey is comprised of nine demographical questions, including age, gender, grade, hometown, major, ethnicity, high school GPA, college GPA, and SAT score. The MSLQ section of the survey is a Likert-scale style survey comprised of 44 questions, divided into a Motivation section and a Learning section. The Motivation section is comprised of three subgroups: a value component measuring goal orientation and task value; an expectancy component measuring learning beliefs and self-efficacy; and an affective component measuring test anxiety. The Learning Strategies section is made up of two subcategories:

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cognitive and metacognitive subgroup that includes scales of rehearsal, elaboration, organization, critical thinking, and metacognitive self-regulation; as well as a resource management strategies component measuring environment, effort regulation, peer learning, and help seeking (Pintrich, Smith, Garcia & McKeachie, 1991;Pintrich, Smith, Garcia & McKeachie, 1993). The MSLQ is used to measure students' motivation and use of learning strategies. Combined, each aspect of the survey reported information regarding the students' attitude toward high school GPA and experience, attitude and motivation regarding the SAT experience, and attitudes and motivation for their current college experience.

Procedure

Participants were recruited on a volunteer basis through Rowan University's psychology department. The survey was posted by the researcher on the SONA systems website. After signing up to participate, the students were required to sign an alternate consent form and were debriefed on the nature of the study.   The survey was then completed by the participant in an online session that lasted no more that 15 minutes. The survey was available to students for a one week period in which data from 100 participants was collected. Eight participants were eliminated based on their answering of the college GPA; those who did not have a GPA to report at the college level were removed from the data set bringing the number of participants to a total of 92. The MSLQ was scored to find the average for each subcategory; the average from the self-efficacy scale under motivation was used for the comparison between GPA, SAT, and motivational

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factors. Self-efficacy consisted of nine items regarding perceived competence and confidence in performance of class work (i.e., "compared with others in this class, I think I'm a good student", "I think I will receive a good grade in this class", I know that I will be able to learn the material for this class", "my study skills are excellent compared with others in this class" cf,. Pintrich & De Groot, 1990). These nine items were used in comparing the relationship between factors.

As a correlational study, there was no assignment into specific experimental conditions. A bivariate correlational design was used to determine the relationship between HSGPA and CGPA, SAT and CGPA, and motivation and CGPA. The interaction between HSGPA and motivation on CGPA was also assessed.

Chapter Four

Results

Demographic Data

The sample was comprised of 100 undergraduate students at Rowan University, 43 Female and 57 Male; due to lack of CGPA for eight participants, six males and two females were removed from the data set bringing the total number of participants to 92 (N=92). Participants ranged in age from 18-25, with a mean age of 19.96. The majority of participants were first year students (43%) followed by 29% sophomores, 20% juniors, and only 5% of participants were seniors. The majority of participants originate from suburban regions (68%) and a majority was White (81%). Those coming from rural and urban areas comprised 14% and 18% of the participants, respectively. Other ethnicities identified included African-American (12%), Hispanic (5%), and Other (2%).

Descriptive Statistics

High school GPA (HSGPA), SAT scores, College GPA (CGPA), and motivation were examined for each participant. The majority of participants reported HSGPA in the 3.0-3.4 range (42%) followed by 30% reporting HSGPA in the 3.5-4.0 range, 23% in the 2.5-2.9 range, and 5% reporting 2.4 or below (M=3.96). SAT scores were also reported. Majority of participants scored in the 1500-1749 range (38%); 25% scored between 1250-1499, 24% scored between 1750-2000, 12% were between 1000-1249, and only 1% scored in the top range of 2100-2400 (M=3.78). CGPA showed a similar trend to the data from HSGPA. Majority of participants reported CGPA in the 3.0-3.4 range (39%);

27% were between 2.5-2.9, 18% between 3.5-4.0, 9% were between 2.0-2.4, and less than 10% were 1.9 and lower (*M*=3.59). The self-efficacy subscale from the MSLQ motivation scale was analyzed for each student (*M*=5.27). A composite of this data is presented in Tables 1-4.

Table 1. Means of Descriptive Data

	Mean
HSGPA	3.97
SAT	3.77
Motivation	5.28
CGPA	3.58

Table 2. Frequency of High School Grade Point Average (on a 4.0 Scale)

HSGPA	Frequency
1.9 and Below	1
2.0-2.4	4
2.5-2.9	23
3.0-3.4	42
3.5-4.0	30

Table 3. Frequency of College School Grade Point Average (on a 4.0 Scale)

CGPA	Frequency
1.9 and Below	5
2.0-2.4	9
2.5-2.9	27
3.0-3.4	39
3.5-4.0	18

Table 4. Frequency of SAT Scores (Standard Deviation Intervals)

SAT	Frequency
1000-1249	12
1250-1499	25
1500-1749	38
1750-2000	24
2100-2400	1

Empirical Data

Results from the bivariate correlation analysis revealed several relationships among all four factors. It was expected that there would be a positive relationship between HSGPA, motivation, and CGPA; it was also expected that there would be a positive relationship between SAT and CGPA, but at a less significant level. It was found that the strongest relationship was between HSGPA and SAT scores ($r=.43$, $p<.01$), as shown in Figure 1.
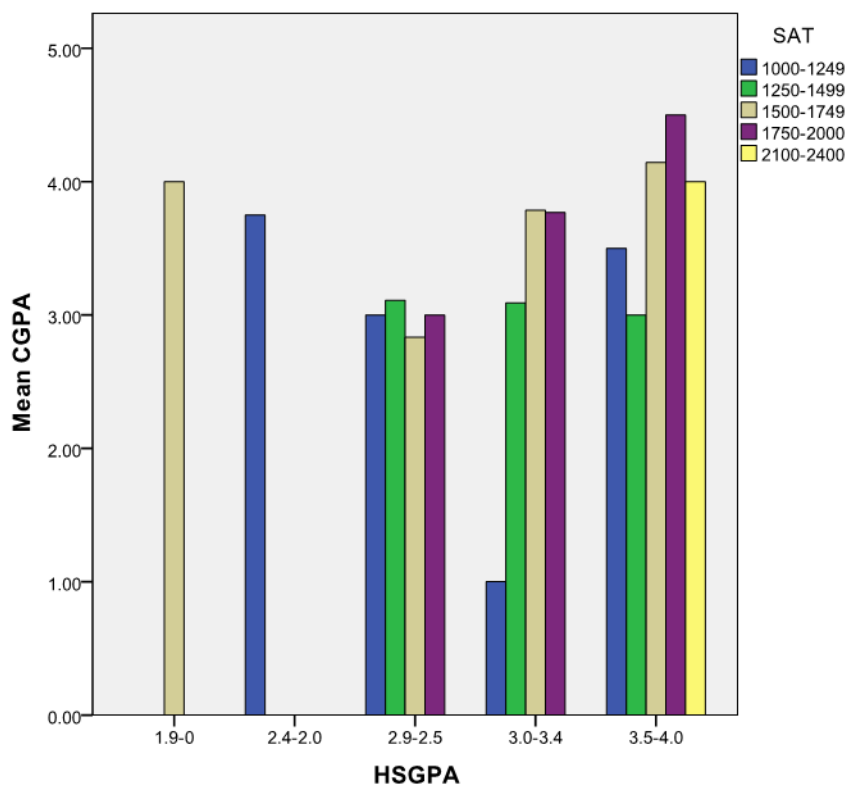

Figure 1. Correlation of HSGPA and SAT Scores (as a function of CGPA)

There was a strong, positive correlation between SAT and CGPA (*r=.32, p<.01)*. Positive correlations were also observed between HSGPA and CGPA *(r=.27, p<.05)* and between SAT and motivation *(r=.24, p<.05)*. Figure 2 demonstrates the relationship between SAT and CGPA. Figure 3 demonstrates the correlation between HSGPA and CGPA.
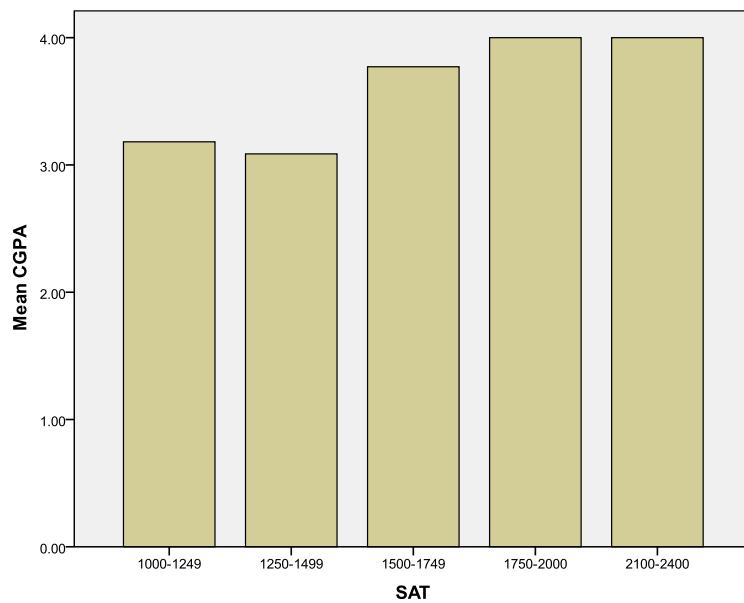

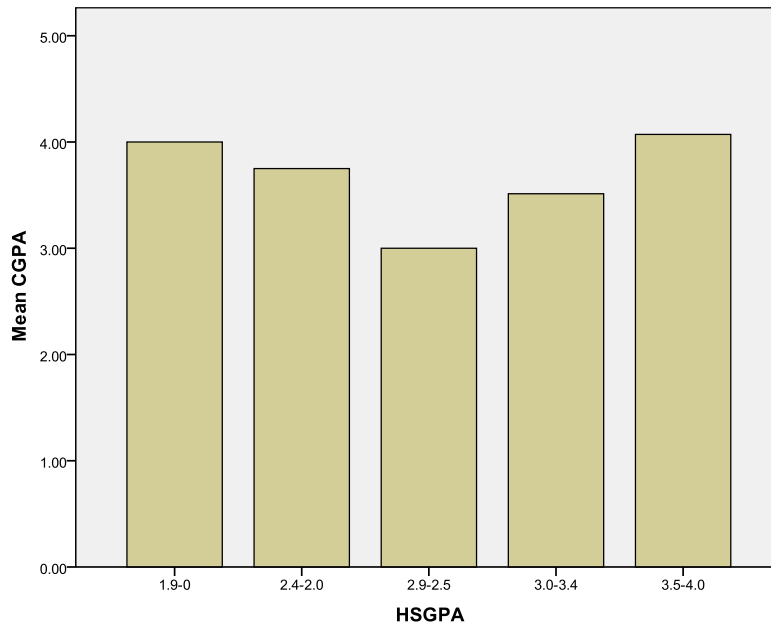Figure 2. Relationship of SAT Scores to College GPA

Figure 3. Relationship of High School GPA to College GPA

Several other relationships were observed between factors, however, not at the significant level. The positive relationships between HSGPA and motivation (*r=.18)* and motivation and CGPA (r=.*18)* suggest there is a relationship among these factors, but do not correlate as strongly as HSGPA, CGPA, and SAT scores.

Chapter Five

Discussion

The present study examined the correlations of HSGPA, SAT, Motivation, and CGPA. Volunteer participants were recruited from Rowan University undergraduate programs. Previous research has been done in regards to correlations of SAT and college performance; many of these studies support the findings that the SAT is correlated with FYGPA, but has no association with GPA past the first year alone (Crouse & Trusheim, 2010; Geiser & Santelices, 2007; Sacks, 1999; Zwick, 2007).

Results indicate that there is a positive relationship between HSGPA & CGPA, HSGPA & SAT, Motivation & SAT, and SAT & CGPA. The relationship between HSGPA and SAT scores showed the strongest positive relationship from all samples collected ($r=.43$, $p <.01$). This suggests that having a high HSGPA can predict the student will obtain a higher SAT score than students who have a lower HSGPA.

The relationship between HSGPA and CGPA can be considered a weak positive correlation ($r=.27, p <.05$). This relationship, while still significant, is contradictory to several studies in the past; it has been proven that HSGPA is a consistently better indicator of how a student will perform throughout their college career (Geiser & Santelices, 2007). Additionally, when examined in comparison to effectiveness of SAT predictive capabilities, it was found that prior grades alone were more effective in predicting subsequent grades than SAT scores alone (Crouse & Trusheim, 2010; Geiser & Santelices, 2007; Sacks, 1999; Zwick, 2007). This weak relationship

SAT scores and CGPA also held a positive relationship, however, it was in the moderate range ($r=.33, p <.01$). This is concordant with previous findings concerning a

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relationship between these factors. As both first year students and upperclassmen participated in the survey, it is difficult to determine if this relationship appears weak due to the suggestion that SAT scores are more closely related to GPA in a student's first year of college; the SATs predictive potency stems from its correlation with demographics and can only be applied to the first year of college (Rothstein, 2003). Both SAT and HSGPA prove a positive correlation to CGPA, however, it is suggested that each measure a different aspect of academic achievement (Kobrin, Patterson, Shaw, Mattern, & Barbuda, 2008). As the strength of the relationships varies, this assessment can be inferred from the results found in this study. However, in terms of predictive strength, both SAT and HSGPA are weak to moderate at best.

When examining the effects of motivation on these factors, the only relationship observed was a weak correlation between motivation and the SAT. Examination of Motivation and the SAT revealed a weak positive relationship was observed ($r=.24, p <.05$). These results suggest that motivation is a driving force behind achievement on the SAT. It can then be inferred that high levels of motivation to succeed on the SAT leads to higher SAT scores. It is interesting that there was no significant relationship between motivation and CGPA as there was a relationship between motivation and SAT score and SAT scores and CGPA; here it would be assumed that the positive correlation would prove to transfer across all variables.

Several other relationships were observed, however, there was no significance in these correlations. Motivation factors correlated to SAT scores at a significant level, however, correlation to HSGPA and CGPA were weak to non existent and not significant. As there was small evidence for correlation, it can be assumed that various

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aspects of motivation are necessary to pursue high GPAs, but does not directly impact or relate to earning a high GPA. The results imply that motivation is a component in the assessment of success in post secondary education, but that its influence is related to the particular defining factor of success.

Limitations

Several limitations within this study exist and should be taken into account. First, the population the sample was selected from provides information from only one post-secondary institution. Perhaps data collected from a larger number of universities would provide a wider range of motivational scale scores, reflecting a slightly different outcome in the relationship between these variables.

Second, only one scale from the MSLQ was utilized in the interpretation of motivation as a factor of success. The self-efficacy scale (most closely related to the defining items of motivation for this study) was examined in relationship to HSGPA, SAT, and CGPA scores. The inclusion of the remaining subscales on the MSLQ – intrinsic value, test anxiety, cognitive strategy use, and self-regulation – may possibly skew the data to reflect differently. The basic concept involves students' beliefs that they are able to perform the task and that they are responsible for their own performance (Pintrich & DeGroot, 1990). This suggests that measurements such as GPA and SAT scores would reflect this belief; however, with the application of just one aspect of the MSLQ, it is difficult to determine the entire relationship between motivation and success as defined by SAT and GPA scores.

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Third, the scores were obtained from students on a self-report and Likert scale survey. This style of data collection relies heavily on true and honest reports of student HSGPA, SAT scores, and CGPAs by the student. The assumption is made that these numbers reflect true and accurate answers to the questions and that answers were not skewed to provide a better reflection of the student's past work efforts.

Fourth, several of the relationships observed were weak or had almost no correlation. As motivation was measured solely on the self-efficacy scale, this may have impacted the results where motivation was concerned.

Fifth, the current research did not compare the relationship of SAT scores of first year students to upper level students. The research did not include a section regarding the validity of the SATs predictability of FYGPA alone as previous research has indicated. Without the separation of first years and upperclassmen, it cannot be determined if the results are skewed due to consolidating all participants across grades.

Lastly, the surveys completed by students contained nine demographical questions and 44 Likert scale questions on the MSLQ. Majority of the participants completed these surveys in less than 7 minutes, which suggests that the participants may not have fully read or honestly answered each question. Additionally, the demographic questions pertaining to HSGPA, CGPA, and SAT scores were given as a range (e.g. 3.0-3.4 for GPA scales and 1500-1749 for SAT scales). This may impact the quality of the data collected in that it does not reflect exact scores for either variable.

Implications for Future Research

The results from this study are consistent with past studies finding a positive relationship between SAT and CGPA scores when HSGPA is also assessed (Crouse & Trusheim, 2010; Geiser & Santelices, 2007; Sacks, 1999; Zwick, 2007). However, the findings of this study suggest that motivation plays an important role in attaining high scores on the SAT as well as GPA levels. The present study explored the interaction of motivational factors on these previously studied factors, which were deemed "critical student qualities for achieving and maintaining a strong GPA" (Geiser & Santelices, 2007).

Future research should continue to explore the extent to which motivation plays a role in the success of a student in post-secondary education. The application of the full motivation scale in comparison to HSGPA and CPGA should also be of interest. Additional studies that reevaluate the difference in the SATs ability to reliably predict success for first year students compared to upperclassmen should remain a topic of interest, particularly in regards to the effects of motivational strategies on SAT, HSGPA, and CGPA.

As many schools are still opting out of requiring the SAT as part of the admission process, other measurements of success should be examined. Other factors that contribute to the assessment of student success should be examined in relation to SAT and CGPA scores.

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Appendix A
Survey Completed by Participants

PERSONS UNDER THE AGE OF 18 **STOP** HERE! PERSONS 18 OR OLDER
PLEASE CONTINUE.

The purpose of this survey is to evaluate motivational factors and perceptions behind success in regards to GPA and SAT scores. The research, titled "Motivation and the SAT: What Factors Help Determine College Success Past Standardized Testing" is being conducted by Alexandra Vartanian of Rowan University in partial fulfillment of her M.A. in School Psychology. For this study you will be required to complete a survey collecting data regarding demographical information, GPA, SAT scores, and a short survey regarding motivation factors. Your participation in this survey should not exceed 20 minutes. There are no physical or psychological risks involved in this study and you are free to withdraw at any time without penalty. Your class standing will not be affected should you chose to withdraw or not participate. The data collected in this study will be combined with data from previous studies and will be submitted for The data collected in this study will be combined with data from previous studies and will be submitted for publication in a research journal. Your responses will be anonymous and all the data gathered will be kept confidential.

By taking this survey you agree that any information obtained from this study may be used in any way thought best for publication or education provided that you are in no way identified and your name is not used. Participation does not imply employment with the state of New Jersey, Rowan University, the principal investigator, or any other project facilitator.

If you have any questions or problems concerning your participation in this study, please contact Alexandra Vartanian at vartan78@students.rowan.edu, or her faculty advisor, Dr. Roberta Dihoff, dihoff@rowan.edu.

If you have any concerns that arise from participation in this study, please contact Rowan counseling services, Laurane McGlynn at mcglynnl@rowan.edu or Todd Stryd at stryd@rowan.edu.

Motivation and the SAT: What Factors Help Determine College Success Past
Standardized Testing

PERSONS UNDER THE AGE OF 18 **STOP** HERE!
PERSONS 18 OR OLDER PLEASE CONTINUE.

Please place a check mark or an 'X' next to the category that most fits your
answer

1.   Age:

2.   Gender:
____ Male
____ Female

3.   Ethnicity:
____ African-American
____ Hispanic
____ White (Non-Hispanic)
____ Asian & Pacific Islander
____ Other

4.   Grade:
____ First Year
____ Sophomore
____ Junior
____ Senior

5.   Hometown:
____ Urban
____ Suburban
____ Rural

6.   Major:

7. High School GPA:
____ 3.5 - 4.0
____ 3.0 - 3.4

_____ 2.9 - 2.5
_____ 2.4 - 2.0
_____ 1.9 and lower

8. College GPA (if applicable):
_____ 3.5 - 4.0
_____ 3.0 - 3.4
_____ 2.9 - 2.5
_____ 2.4 - 2.0
_____ 1.9 and lower

9. SAT Score:
_____ 2100 - 2400
_____ 1750 - 2000
_____ 1500 - 1749
_____ 1250 - 1499
_____ 1000 - 1249
_____ 750 - 999

Motivated Strategies for Learning Questionnaire

Please rate the following items based on your academic behavior. Your rating should be on a 7- point scale where 1= not at all true of me to 7=very true of me

6.   I prefer class work that is challenging so I can learn new things.   _____

7.   Compared with other students in this class I expect to do well   _____

8.   I am so nervous during a test that I cannot remember facts I have learned _____

9.   It is important for me to learn what is being taught in this class   _____

10.   I like what I am learning in this class   _____

11.   I'm certain I can understand the ideas taught in this course   _____

12.   I think I will be able to use what I learn in this class in other classes   _____

13.   I expect to do very well in this class   _____

14. Compared with others in this class, I think I'm a good student   _____

15. I often choose paper topics I will learn something from even if they require more

    work   _____

16. I am sure I can do an excellent job on the problems and tasks assigned for this

    class   _____

17. I have an uneasy, upset feeling when I take a test   _____

18. I think I will receive a good grade in this class   _____

19. Even when I do poorly on a test I try to learn from my mistakes   _____

20. I think that what I am learning in this class is useful for me to know   _____

21. My study skills are excellent compared with others in this class   _____

22. I think that what we are learning in this class is interesting   _____

23. Compared with other students in this class I think I know a great deal about the

    subject   _____

24. I know that I will be able to learn the material for this class   _____

25. I worry a great deal about tests   _____

26. Understanding this subject is important to me   _____

27. When I take a test I think about how poorly I am doing   _____

28. When I study for a test, I try to put together the information from class and from

    the book   _____

29. When I do homework, I try to remember what the teacher said in class so I can

    answer the questions correctly   _____

30. I ask myself questions to make sure I know the material I have been studying ___

31.   It is hard for me to decide what the main ideas are in what I read   _____

32.   When work is hard I either give up or study only the easy parts   _____

33.   When I study I put important ideas into my own words   _____

34.   I always try to understand what the teacher is saying even if it doesn't make

sense.   _____

35.   When I study for a test I try to remember as many facts as I can   _____

36.   When studying, I copy my notes over to help me remember material   _____

37.   I work on practice exercises and answer end of chapter questions even when I

don't have to   _____

38.   Even when study materials are dull and uninteresting, I keep working until I finish

_____

39.   When I study for a test I practice saying the important facts over and over to
myself   _____

35.   Before I begin studying I think about the things I will need to do to learn   _____

36.   I use what I have learned from old homework assignments and the textbook to do

new assignments   _____

37.   I often find that I have been reading for class but don't know what it is all about.

_____

38.   I find that when the teacher is talking I think of other things and don't really listen

to what is being said   _____

39.   When I am studying a topic, I try to make everything fit together   _____

40.   When I'm reading I stop once in a while and go over what I have read

_____

41.   When I read materials for this class, I say the words over and over to myself to

help me remember   _____

42.   I outline the chapters in my book to help me study   _____

43.   I work hard to get a good grade even when I don't like a class   _____

44.   When reading I try to connect the things I am reading about with what I already

know.   _____