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by

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**Preparing for College:  
Identifying the Learning and Study Strategies  
Associated with Varying Levels of College Preparedness  
in Tenth Graders**

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**Preparing for College:  
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in Tenth Graders**

**by**

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**Dissertation**

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## DEDICATION

This dissertation is dedicated to the men in my life, my husband Russell and my sons Griffin and Grayson. While I lived in Austin for a year and a half working on this degree, Russell held things together on the home front in Houston; he has made sacrifices very few others would have made under similar circumstances. Griff and Grays endured my absentee parenting with maturity, grace and good humor. Thanks guys, you are the best. Now, go clean your rooms and *please*, remember to brush your teeth. Have you done your homework? Has the dog been fed? Who let the hamster out?! ...

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*“When ever you see a turtle sitting on a fence post, you know he didn’t get there by himself.”*

*CCLP Block Wisdom Courtesy of Dr. John E. Roueche, Jr.*

Like that person viewing the turtle on the fence post, I am keenly aware the letters Ph.D. would never appear after my name without the help and intervention of many people.

To my father who taught me about humor, compassion, loyalty, and fairness and to my mother, an intelligent and independent lady who, over the course of her life, has modeled strength and bravery, and taught me well the value and centrality of family.

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started me out on this line of research. As a group and as individuals, the Bridge students have taught me more than they will ever know about how to help students succeed.

**Preparing for College:  
Identifying the Learning and Study Strategies  
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Publication No. \_\_\_\_\_

Carol Leanne Campbell, Ph.D.  
The University of Texas at Austin, 2005

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The problem of underprepared college freshmen has been well documented by a number of researchers. Major reforms of the secondary education system in the United States have been launched and yet little progress seems to have been made as documented by a 2004 ACT study which found that American high school students are no better prepared for college than they were 10 years ago despite education reform.

While policymakers and educators acknowledge the overwhelming number of underprepared traditional freshmen as well as the probability that such underprepared students are seriously handicapped in their efforts to earn a college degree, two nagging

question remains: “Why are so many traditional freshmen underprepared?” and “What exactly should be done to reduce the number of underprepared students?”

This is a quantitative study which seeks to better understand how a freshman becomes prepared or underprepared for college by identifying associations between levels of college-readiness of a group of tenth graders as measured by the COMPASS assessment of college-readiness and the 10 scales of learning and study skills measured by the Learning and Study Skills Inventory – High School version (LASSI-HS).

While few significant differences were noted between the level of preparation and LASSI scale scores, findings of interest included the fact that when participants were grouped by level of preparation in English, reading, writing or math, the most prepared students tended to have lower LASSI-HS scale scores than their less academically-prepared peers. No significant difference was noted between scale scores when participants were grouped by gender. However, men tended to have a less positive attitude toward education and were less motivated than the women in this study.



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## CHAPTER ONE

### INTRODUCTION TO THE STUDY

*“Higher education can do nothing more important or more difficult than helping the underprepared achieve educational parity.”*

**Robert McCabe**

Developmental Education: A Twenty-first  
Century Social and Economic Imperative

#### **A Brief Vignette: A Student and Parent Discover : Developmental Education**

*Val M. was in my office asking me to review the scores from her daughter Sam’s assessment tests which are mandatory for entering freshmen at the college where we both work. Both Sam and her parents had assumed that the assessment exams that Sam was required to take to enroll at the community college were a formality. Imagine their surprise when they learned that despite being an honor student Sam was placed into Math 0306: Beginning Algebra. Three semesters of developmental math now lay ahead of Sam before she could enroll in her first college-level math class.*

*While Sam had been confused and embarrassed by the test results, her mother was flabbergasted. “Sam is a good student. I just don’t understand how this could happen!” Val exclaimed in a mix of emotion that was as much amazement as frustration.*

## **Overview of the Study: Underprepared College Freshmen-Not a New Phenomenon**

Unfortunately, the experience of Sam and her parents is far too common. Nor is the phenomenon of underprepared freshmen a new one within education. Roueche and Roueche (1993, p. 41) noted that “(i)nstitutions of higher education have literally been in the business of remediation for more than 150 years” citing a paper Frank Pintozzi presented in 1987 in which he relayed the story of an 1828 *Yale Reporter* article announcing that the developmental studies program was an uncomplimentary reflection of the university’s practice of enrolling students with “defective preparation.”

In the ensuing 150 years, remedial education (or developmental education as it is more commonly referred to in current literature) has continued to grow as a focus within higher education. Colleges have built elaborate intervention systems to address the problem of “defective preparation,” employing assessment tests to ensure the college-readiness of entering freshmen, mandatory placement in developmental classes for underprepared students and the establishment of extensive developmental, tutorial, and academic enhancement programs to help bring underprepared students up to speed. This has been particularly true among the nation’s public community and junior colleges as state policymakers look to contain costs by shifting the burden of delivering developmental education to two-year institutions where the cost of instruction is far cheaper than at four-year institutions (Lewis & Farris, 1996, p. 28-29).

The 1996 National Center for Education Statistics (NCES) study of *Remedial Education at Higher Education Institutions in Fall 1995* provides one of the most comprehensive snapshots of remedial education within higher education as it currently exists.

- About three-quarters of higher education institutions that enrolled freshmen offered at least one remedial reading, writing or mathematics course in fall 1995 with 100 percent of the two-year public institutions offering remedial courses.
- Sixty percent of institutions utilized placement exams to determine which students needed remedial coursework.
- Forty-one percent of first-time freshmen at public two-year institutions were enrolled in at least one reading, writing or mathematics course compared to 22 percent of first-time freshmen at public four-year institutions. For those colleges which serve large numbers of first generation college students and students needing financial aid, the percent of entering freshmen needing remediation is even higher.
- Across all institutions, entering freshmen were most likely to need remedial coursework in mathematics.
- Within public two-year institutions, a little more than 70 percent of students generally complete remedial courses in reading and writing (72 percent and 71 percent respectively). The level of successful course completion drops to 66 percent in remedial mathematics. These completion rates are lower than

those at public four-year institutions (82 percent - reading; 81 percent - writing; 71 percent - mathematics).

- Overall, there is a general pattern of higher remedial enrollments and lower remedial pass rates at public two-year and high minority-enrollment institutions.
- Seventy percent of institutions offering remedial courses give institutional credit.
- Roughly one fourth of the institutions reported that there was a limit on the length of time a student may take remedial courses at their institutions.

(Parsad & Lewis, 1996, p. i-iv)

In 1995, 54 percent of Texas students failed at least one of the three major sections of the state's college-readiness exam and were required to take developmental classes in college (THECB, 1999, p. i). The resources being channeled into efforts to grapple with underprepared students is also well documented. During the 2000-2001 biennium, Texas spent approximately \$160 million providing developmental education through its two-year college system (THECB, 2000). "In many two-year institutions, over 10 percent of all instruction is devoted to developmental education, and the percentages range as high as 25 percent" (THECB, 2000, p. 1).

Major reforms of the secondary education system in the United States have been launched and yet little progress seems to have been made in terms of students being better prepared for college. According to a study prepared by ACT (2004, p. 3),

American high school students are no better prepared for college than they were 10 years ago despite education reform.

To date, higher education has adopted a strategy of after-high school-graduation remediation to preserve academic standards and promote students success. Rather than addressing the root of the problem, community colleges have instead built elaborate developmental programs designed to help incoming freshmen relearn (or learn) material they should have mastered well prior to high school graduation. Furthermore “(d)ata on the reported time spent in remediation ... suggest an increase in the average length of time that students spent in remedial education courses. For example, between 1995 and 2000, the proportion of institutions that reported an average of one year of remediation for students increased from 28 percent to 35 percent, while the proportion indicating an average of less than one year of remediation for students decreased from 67 percent to 60 percent” (Parsard & Lewis, 2003, p. iv). Given that “most institutions (82 to 88 percent) place some restrictions on the regular academic courses that students (can) take while they (are) enrolled in remedial reading, writing or mathematics courses” (Parsard & Lewis, 2003, p. 27), the time needed to earn a degree is greatly extended for the vast majority of students who enter college underprepared. It is hard to argue that college-based developmental coursework is a time-efficient strategy for helping students master material they should have learned in high school.

While educators at both the secondary and post-secondary levels and policymakers acknowledge the overwhelming number of underprepared freshmen as well as the probability that such underprepared students are seriously handicapped in

their efforts to earn a college degree, two nagging question remains: “What exactly should be done to reduce the number of underprepared college freshmen and how should those intervention strategies be implemented?”

McCabe (2000) as well as Crowe (1998) have argued that much could be done to stem the tide of underprepared students if the secondary and post-secondary systems were more integrated. However differences in organizational structure and values, degree to which the secondary and post-secondary systems are subject to legislative oversight, and even mundane logistical hurdles such as teaching schedules and finding times when faculty from the two systems can meet all conspire to make such collaborations difficult.

Early in 2001, McCabe, a senior fellow with the League for Innovation in the Community College and former president of Miami-Dade Community College, founded the Bridge Partnership program in an effort to increase the number of college-ready high school graduates through the fostering of secondary and post-secondary partnerships. Funded through the Lumina Foundation, the Bridge Partnership is modeled after the groundbreaking work done by the Community College of Baltimore County (CCBC) in which strategies of tenth grade college-readiness assessment, intervention and counseling and curriculum alignment were used to smooth the transition between the secondary and post-secondary systems in Baltimore. With a single-minded focus on ensuring that high school students are ready for college, the CCBC program has had remarkable successes on multiple levels. “(D)uring the 2002-2003 school year, 1040 students from the Baltimore County Public Schools enrolled in



classes at CCBC. Generally, high school students enrolled in college courses experienced greater success than college students enrolled in similar courses. High school students had significantly higher completion rates and higher grades than the college students. CCBC also found that over 50 percent of high school students enrolled in classes at the college campuses subsequently enrolled in classes at the CCBC after graduating” (McCabe, 2003b).

In 2003-2004, North Harris Montgomery Community College District (NHMCCD) joined the Bridge Partnership as one of 12 college systems implementing pilot Bridge Partnerships with local high school partners. During this first year, NHMCCD paired two of its five colleges with two high schools. Eighty-seven tenth graders were tested for college-readiness and received one-on-one advising to help them select the classes they would take during their junior and senior years. They also participated in college tours and received assistance in selecting a career and planning for college. Based on the early successes with the first two high school partners, in Fall 2004, NHMCCD expanded the Bridge Partnership program to all five colleges in the district and increased the number of high school partners from two to seven. At the original two high schools, NHMCCD is currently recruiting a new group of tenth grade Bridge students.

The availability of COMPASS diagnostic scores for Bridge students has made determining the students’ academic level in relationship to college-readiness fairly straightforward. Some students, even in the second semester of the tenth grade, test college-ready in English, and in fewer cases, both English and math. What is not so

well understood at this point is, given the limitations of funding as well as the constraints of time and organizational culture within Texas high schools, is how to best assist those students who have a considerable ways to go before they are college-ready. Of particular concern are those students who are testing low in reading since reading is the core skill required in the vast majority of high school and college classes. As the Bridge Partnerships moved into their second year, attempting to identify a collection of services and support systems to be offered to those students who had been recruited during the pilot year became a major focus.

Proposed strategies for assisting the academically underprepared Bridge students have varied. There are those faculty and administrators who argue for working to better align curriculum between the secondary and post-secondary levels and the elimination of calculators in the lower levels of math. There are also those who propose offering college prep courses based on the NHMCCD developmental curriculum as well as the creation of college-transition classes in reading and math at the high school although finding funding for faculty to teach these new courses is an issue. While these proposals are viable solutions, they will take a number of years to implement, leaving few available options for current Bridge students.

As a short-term solution, efforts have been made to open up the NHMCCD learning assistance resources to Bridge students. Learning assistance opportunities at the colleges range from on-line and computer-based review and tutorial programs to individual tutoring session lead by faculty as well as specially trained part-time tutors. The colleges offer writing labs on each campus in which English faculty are available to

assist students in preparing research papers, proofing, and improving the overall quality of their writing. The idea behind opening the campuses' learning resources to Bridge students was that since the colleges' hours of operation are considerably longer than the average high school, Bridge students who wished to improve their academic skills could access the majority of the learning resources after school, in the evening, and on weekends - times when high school students normally don't have access to tutoring.

In Fall 2004, each student in the Spring High School/North Harris College Bridge Partnership was issued an authorization form for a college ID which would provide the student free access to the colleges' libraries, learning centers, writing labs and tutoring centers. Four months after the authorization forms were presented to students as part of a presentation on college resources and learning styles, only two of the 64 Bridge students have followed through and picked up their ID's.

Early experience with the Bridge Program has lead the researcher to speculate that perhaps the problem with underpreparedness (at least for some students) is not so much a lack of access to curriculum or quality instruction but a lack of willingness to engage in and to take advantage of the learning opportunities which are available. If level of preparation was tied strictly to access to curriculum, offering Bridge students access to the colleges' learning assistance resources and tutoring programs taught by trained college faculty should have had a greater impact than it did. Furthermore, given that 40 percent of Texas students do enter post-secondary education prepared for college, it can be argued that the curriculum needed to prepare a student for college is already available in the high school. For example, most high schools across Texas offer

courses in precalculus and calculus yet the overwhelming majority of students do not avail themselves of these classes. It appears that becoming prepared for college is more than just a question of access to curriculum and instruction.

## **Theoretical Foundations of the Study**

In attempting to understand why some students succeed while other students in similar circumstances do not, Wong, Wang, Astin, Tinto, Weinstein and others have theorized that there are factors beyond curriculum, pedagogy, instruction, and innate intellectual ability which impact student success. These academic success factors can be thought of as internal to the student's own psyche or personality. Wong, Maxwell, and Meara (1995) studied the impact of what was defined as emotional intelligence on student success. Factors which have been grouped under the heading of emotional intelligence include:

- Social perception – the ability to perceive the moods, perspectives and needs of other individuals;
- Practical intelligence – common sense;
- Interpersonal ability – the ability to distinguish among and label feelings as well as the ability to use emotion about feelings to guide behavior;
- Adaptability-the skills related to change management as well as the use of realistic and flexible coping strategies; and

- Stress management-the ability to manage stressful situations in a calm, proactive manner.

While associations between student success and social perception and practical intelligence were weak or nonexistent in a study by Sternberg, Wagner, and Okagaki (1993) a study by Newsome, Day, and Catano (2000) found stronger linkages between interpersonal ability, adaptability, stress management and overall student success.

Wang along with Gordon (1994) described successful students as educationally or academically resilient. Like Astin (1964) before them, these researchers found significant relationships between students' levels of motivation and willingness to persist and college outcomes. In other words, high levels of motivation and a willingness to persist, even when material and circumstances were difficult, were hallmarks of the academically resilient (and successful) student.

Tinto (1998) found that college students who are academically and socially engaged in the learning environment are likely to persist and certainly, for a student to succeed, he must persist from semester to semester until the coursework required for graduation has been mastered. As a result of his work, Tinto has strongly advocated for the establishment of mechanisms within colleges and universities by which the student can become engaged, both in the classroom and socially. However, even when opportunities for engagement exist, the student must at some point take the initiative and act on those opportunities.

A limitation of Tinto's work in regards to what community colleges can do to improve student persistence, and by extension student success, is that his work focused

on college students within the traditional residential senior institutions. Community colleges are largely commuter campuses, with far less opportunities for social engagement and tend to serve a population that is more likely to be working, and more likely to have a family than students at senior institutions.

Weinstein (2000, 2004) theorized that students fail because they have never mastered the art of learning and that they often lack a “will” to succeed academically. College students who fail tend to be poor independent learners, have poorer attitudes and lower motivation levels and lack few learning and study strategies which would enable them to adjust to new instructional and testing styles, to master difficult material or to cope with the stress and independence found in college.

In Weinstein’s model of student success, the student must master specific learning and content skills. Furthermore, the student must learn self-regulation which enables him to make decisions which support rather than undermine his educational goals, and the student must possess the will and determination to learn. These three broad elements tend to encompass elements from the success models of emotional intelligence, academic resilience, and engagement. It is around these three elements (learning skills, self-regulation and will) that Weinstein and Palmer (1990) crafted the Learning and Study Skills Instrument (LASSI) which can be used as a diagnostic, counseling, and evaluation tool when attempting to design intervention strategies for struggling students.

There is a degree of overlap among the student success factors which comprise the emotional intelligence, educational resilience, engagement, and Weinstein’s

learning and study skills models. Weinstein's model is the most comprehensive, encompassing the majority of the elements of emotional intelligence (social perception was omitted since research has shown little association between this skill and overall academic success) and Educational Resilience. The chart below briefly summarizes those similarities:

**CHART 1.1: COMPARISON OF ACADEMIC SUCCESS MODELS**

<b>Emotional Intelligence</b>	<b>Educational Resilience</b>	<b>Learning and Study Skills</b>
	Positive perception of one's ability to master difficult material	Attitude
Common Sense		
Interpersonal ability	Delay immediate gratification to achieve goals	Self-regulation
Adaptability	Drive and perseverance	Motivation
	Time Management	Time Management
Stress Management		Anxiety
	Focus	Concentration
		Will to learn
		Information Processing
		Selecting Main Ideas
	A willingness to access help and learning resources	Use of Study Aids
		Self Testing
		Test Strategies

The link between Tinto's model of engagement and Weinstein's model of learning and study strategies is less straightforward since Tinto's work has focused on correlating the degree to which a student is engaged in the learning environment with student success. However, the link between these two models becomes much clearer when one recognizes that for a student to take advantage of opportunities for academic engagement, he must have the positive attitude and motivation to put forth the effort to

become engaged. Because Weinstein's learning and study skills model for why students succeed comprises the majority of the elements of these other three models of student success as well as incorporating elements of how students acquire knowledge (information processing, selecting main ideas, etc.) the researcher selected it as a theoretical foundation for this study.

Underpreparation for college is the consequence of numerous decisions which are made well prior to the students entering college. During the critical four final years of secondary education, students make decisions and choices which undermine the probability that they will be ready for college-level work upon graduation. For example, in 2003 Gill of the RAND and Schlossman of Carnegie Mellon University cited data collected by the National Assessment of Education Progress (NAEP) in which it was noted that "teachers are more likely to assign homework than in the past" (p. 326) however, "high school students...are far more likely than younger students to ignore homework that is assigned – a finding that will surely come as no surprise to high-school teachers" (p. 321). Teachers assign the homework but the student makes the decision to complete the assignments. These students opt for less rigorous classes and shy away from AP and honors classes. Rather than taking four years of math in high school and other rigorous courses, they opt for electives or early release/late arrival during their senior year. Rather than being fully engaged in learning and earning A's, they opt to scrape by with B's and C's. The end result is that these students are underprepared for college when they graduate.



As a measure of college-readiness and academic skills, the COMPASS test, when given during the tenth grade, serves as an early warning that a student may likely be unprepared for college when he graduates. This study will attempt to find an association between level of academic preparation (or lack there of) in tenth graders as measured by the COMPASS and the learning and study skills enumerated in Weinstein's model of student success.

### **Purpose and Significance of the Study**

In an effort to add to the body of knowledge about underpreparedness in traditional college freshmen "in the making," this study seeks to identify the learning and study strategies associated with varying levels of college-level academic preparedness among a group of high school tenth graders. Should such an association exist between early indications of academic preparedness and mastery of study and learning skills, information learned in this study will offer college and high school partners expanded options for intervention strategies which can increase the college-readiness of traditional college freshmen.

### **Hypotheses**

The hypotheses which this study tested are as follows:

1. The Spring High School students' scores on each of the 10 LASSI scales will compare similarly to national norms published by the LASSI-HS authors.

2. There exists a positive correlation between the Spring High School students' self-reported mastery of learning and study skills as measured by the LASSI-HS assessment and the students' level of college preparedness as measured by the COMPASS assessment in reading, writing (objective writing or grammar and the essay), and math.
3. On each of the 10 LASSI scales, are there is no significant differences in the scale scores when students are grouped by gender.

## **Definition of Terms**

Throughout the study several key words and phrases are used. The definitions below are offered for intent of the study.

1. The Bridge Partnership is a nation-wide joint project of the League for Innovation in the Community College, the American Association of Community Colleges and the Lumina Foundation. Community colleges and high schools work together to increase the number of students who aspire to go on to college, to accelerate their preparation and smooth the transition to college entry and success. The program specifically focuses on those students who fall into the middle 60 percent of the high school graduating class. Strategies used to increase college-readiness include early assessment of academic and learning and study skills in tenth grade including diagnostic testing for students who are not yet college-ready, one-on-one advising to

ensure that students take the prerequisite math and English classes needed to be prepared for college, guidance from faculty and staff as students work to shore up areas of academic weakness, and seminars and short classes on study skills, preparing for college, financial aid, etc. The program works with parents to provide the information they need as they guide their children through college. A final component of the program involves building partnerships between the faculty of the high school and college. During working sessions, curriculum and pedagogy are reviewed and aligned to better ensure a smooth transition from high school to college.

2. College-ready refers to “the level of preparation a student needs to be ready to enroll and succeed - without remediation - in a credit-bearing course at a two-year or four-year institution, trade school or technical school” (ACT, 2004, p. iii). Most often within community colleges, the student is determined to be prepared for college-level coursework in math, reading and writing via a college placement exam. Within NHMCCD students may demonstrate college readiness by scoring at or above defined levels on any one of five accepted assessment instruments: SAT, ACT, COMPASS, ASSET or the Texas Assessment of Knowledge and Skills (TAKS, formerly the TASP) exam. For the Bridge Partnership, the COMPASS assessment and diagnostic tools are used primarily.

3. Parents, for the purposes of this study, refers to the students' legal guardians, whether they be the child's biological parent, a step or grandparent or another adult who is primarily responsible for the overall care and nurturing of the child.
4. Traditional college freshmen are defined as students in their first year of college who matriculated to college no later than the first year following high school graduation. These students are roughly between the ages of 17 and 19 years old and for the overwhelming majority, their entrance into college marks their first tentative steps into adulthood.

## **Overview of Research Methodology**

### **Need for the Study**

To date, school reform has focused on high stakes testing, elementary and secondary curriculum improvement, enhanced teacher education training and expanded professional development for faculty already in the classroom. While curriculum review and on-going teacher training are critical, both are strategies which take a considerable amount of time to implement. Furthermore, these efforts have not been wholly successful as indicated by the fact that more than 50 percent of Texas high school graduates still enter college each year underprepared.

This study attempted find associations between students' level of preparation for college as measured by the COMPASS exam and factors internal to the students (i.e.

attitude, use of study strategies, perseverance, etc.) as measured by the high school version of the Learning and Study Skills Inventory (LASSI). Weinstein (2000) has been able to show that when college students are exposed to training modules which help them improve and expand their learning and study skills, their academic performance improves, even after only one semester of exposure to the material. If such associations can be shown to exist between high school students' mastery of learning and study skills and academic performance, the implementation of high school-based study and learning skills training similar to Weinstein's college-level program, could possibly provide a relatively quick way to help students enhance their academic performance, to acquire greater knowledge during their high school years and to enter college better prepared, ultimately increasing their chances for academic success within the post-secondary environment.

Additional research would be necessary to determine the true causal relationship between these two variables (study and learning skills and college-readiness) but identifying the existence of such associations is a first step in exploring learning and study skills intervention training as a solution to the high percentage of underprepared high school graduates entering college each year.

## **Methodology**

This study is a quantitative study which sought to better understand how a freshman becomes prepared or underprepared for college by identifying associations between levels of college-readiness of a group of tenth graders as measured by the

COMPASS test and the 10 scales of learning and study skills measured by the LASSI-HS. The COMPASS exam is an ACT product designed to assess a student's academic knowledge in the core areas of reading, writing and math. The COMPASS exam is one of several resources which North Harris Montgomery Community College District (NHMCCD) uses to assess and place first-time college students.

Developed by faculty at the University of Texas at Austin, the Learning and Study Skills Inventory-High School Version (LASSI-HS) measures learning and study skills in 10 core areas. These 10 areas are attitude, motivation, time management, anxiety, concentration, information processing, selecting main ideas, use of study aids, self testing, and testing strategies.

The participants in the program were drawn from a group of Spring High School (Houston, TX) tenth graders who are participating in the Spring High School/North Harris College Bridge Partnership Program. As part of the Bridge program, these students participated in both the COMPASS and LASSI-HS testing. The COMPASS is computer-based and was scored electronically. The LASSI-HS assessment was paper-based and scored by the researcher.

The SPSS Graduate (v10.0) software package was utilized to analyze the data in this study. The researcher tested the correlation between the 10 assessment areas of the LASSI-HS and the COMPASS scores in reading, writing (objective and essay) and math (pre-algebra or algebra).

The ANOVA statistical technique was utilized to test the significance of differences between the mean scores on each of the 10 LASSI-HS scores and the

varying levels of college-readiness in English and math as measured by the COMPASS exam. The levels of college-readiness were defined by the researcher based upon the college-level placement criteria used by NHMCCD. An alpha significance level of .05 was used as the probability level for rejecting the null hypothesis.

### **Assumptions of the Study**

The primary assumption being made in regards to this study was that the current rate at which traditional college freshmen enter higher education underprepared for college-level courses is wholly unacceptable; that the majority of these underprepared students are capable of mastering the core reading, writing and mathematics skills needed to achieve their goals in higher education; and that models of learning strategies as well as programmatic initiatives which can significantly reduce the number of underprepared students are in existence. In other words, yes, there is a problem but secondary and post-secondary institutions can solve that problem if they are able to muster the will. Enhancing students' academic resilience through the acquisition of stronger and more extensive learning skills is a potential solution which needs greater study.

While GPA and class ranking are one indicator of innate intellectual ability, they are certainly not fool-proof indicators of a student's ability to do college-level work or potential for college success. For this reason, the Bridge Partnership focuses on the middle 60 percent of each high school class, assuming that there are students who fall

outside the top 20 percent of each graduating class who have the ability to succeed in college but, for various reasons, fail to tap that ability. The researcher in this study is making similar assumptions - that given average intelligence, a student has the inherent ability to master college-level work and that that potential for college success may not be reflected by grades.

### **Limitations of the Study**

The first limitation of this study is related to transferability. Data collected in this study was limited to the assessment of academic and learning and study skills of one small group of Texas high school students. Despite the fact that Texas has a common curriculum state-wide, how each school district implements that curriculum differs from institution to institution. Therefore, generalizations cannot be made to the population of students as a whole.

The second limitation of this study deals with the idea of cause and effect. While correlation statistics can show associations (i.e. the presence or lack of one variable corresponding to the presence or lack of another variable) the existence of such a correlation between level of college-readiness in tenth graders and specific learning and study skills, is not enough to show that the presence or lack of learning and study skills had a direct impact on students' level of college-readiness. Additional research would need to be conducted to determine causality.



It should also be noted that the researcher is an employee of North Harris Montgomery Community College District, the district described in the case study and the administrator overseeing the implementation of the Spring/North Harris College Bridge Partnership. Therefore possible bias on the part of the researcher must be acknowledged.

## **Conclusion**

The problem of underprepared college freshmen has been documented by a large number of researchers, both in the State of Texas as well the nation as a whole. Within an economic environment in which a growing number of jobs requires education beyond high school, within a society in which a growing number of first generation college students are entering the halls of academia, and within an educational environment in which over 50 percent of all freshmen begin their post-secondary education at a two-year institution, community colleges have a critical roll to play in ensuring that students are prepared for college. If educators and policymakers wish to ensure student success in college, then there is a need for a coalescing of resources, policy decisions and research around efforts to smooth the path between high school and college.

However, time is also growing short. As a society, we are becoming increasing impatient with those for whom even developmental education is not a help as witnessed by shifts in policy like the California State University systems process of “disenrolling” those students who were not able to pass remedial math or writing in one year (Clayton,

2002). Clearly, the number of students needing remediation is far too high and the success rate of students once they reach higher education is far too low.

Bridge Partnership programs like the one being piloted between Spring High School and North Harris College have the potential to significantly increase the number of college-ready high school graduates. Without a better understanding of how a student reaches high school graduation underprepared for college-level work, any intervention implemented in conjunction with Bridge Partnerships will be trial and error at best.

## CHAPTER TWO

### REVIEW OF THE LITERATURE

*“Far too long, public education in America and higher education have gone their separate ways, each dedicated to its own vision of excellence in learning.”*  
*Richard W. Riley, U. S. Secretary of Education*

#### **Introduction**

Whether or not graduating high school seniors are prepared academically for college level work is a strong predictor of whether or not they will finish college (Engle, 2002). When Garza and Landeck (2004) looked at factors influencing over 500 students' who had dropped a class midsemester, they found that the most often given reasons for class withdrawal (316 responses) were “doing poorly” in the class and “failing the class/fear of failing.” An additional 33 responses indicated that the reason the student withdrew was because he was unprepared for class. All three of these reasons indicate that the respondents were underprepared for the coursework at hand.

Further hindering student success is the fact that once in college, the more underprepared the student, the greater the number of semesters needed in developmental courses work. Consequently, the student becomes discouraged taking classes that are perceived to not bring him any closer to graduation and is less likely to even finish the remedial course sequence, let alone earn a degree

There are course-specific implications for underpreparation as well. For example, Harris, Hannum, and Gupta (2004) found that poor preparation in terms of

high school and undergraduate math correlated to lower final grades in Anatomy and Physiology. Ballard and Johnson (2004) found that “(s)tudents who were required to take remedial math had deficiencies in their quantitative skills, and this had an effect on their performance in introductory microeconomics, even after controlling for other measures of mathematical skill.” Despite the straightforward logic of each of these researchers’ findings, the high percent of academically underprepared students entering college continues to be well documented both on a national basis as well as in the state of Texas (Parsad & Lewis, 2003; Texas Higher Education Coordinating Board, 1999; Texas Higher Education Coordinating Board, 2000).

In response to the waves of underprepared students entering college, the strategy which higher education institutions have adopted thus far has been after-the-fact intervention with roughly 90 percent of two-year institutions currently providing developmental programs in reading, writing and mathematics (Parsad & Lewis, 2003, p. iii). Colleges have built elaborate intervention systems, employing assessment tests to ensure the college-readiness of entering freshmen, mandatory placement in developmental classes for underprepared students and the establishment of extensive developmental, tutorial, and academic enhancement programs to help bring underprepared students up to speed. While these approaches have certainly helped underprepared students to enter college and assisted many in reaching their educational goals, “they allow a large number of students to fail” (Hadden, 2000, p. 823) as evidenced by the fact that even after six years, only 20 percent of students with C averages in high school had completed a baccalaureate degree (Engle, 2002). “The

dropout rate is even higher at many community colleges, where students are juggling jobs with their course work” (McGarth, 2001). Low transfer rates continue to raise legislative eyebrows when studies such as the National Transfer Assembly Study report that the transfer rate between two- and four-year institutions is about 22 percent nationally, has remained fairly constant since 1985 and can be as low as 11 percent when analyzed on a state by state basis (Cohen & Sanchez, 1997).

In his analysis of the lack of student success in higher education, Cavanaugh (2003) compared the path through the K-12 system and into higher education to a leaky pipeline that has been punctured at several points. “It begins with the wave of students who drop out of high school, continues with the influx of college freshmen needing remedial help once they reach campus and results in many undergraduates’ failure to secure degrees.”

Clearly, developmental programs which focus on improving academic skills only after the student has exited high school are not enough. Citing the philosophical underpinnings of the community college movement, these institutions, in particular, “have a clear obligation to do the best for everyone (who enters the college seeking an education). Yet in serving underprepared students, more often than not this obligation goes unmet. Institutions under-fund programs, hire primarily part-time instructors, and use ineffective educational practices. This is shameful and unacceptable. Community colleges must do better” (McCabe, 2003a, p. 13). Post-secondary educators (and particularly those within the community college system) need to expand the repertoire of intervention strategies they employ to ensure student success - and this means

devising strategies to identify and help at-risk students before they arrive on the front steps of the academy.

## **Scope of the Problem**

### **Some Basic Data about Entering College Freshmen, College-Readiness and Student Success**

In 1998, the Texas Higher Education Coordinating Board (THECB) reviewed the experiences of the 132,921 full-and part-time first-time freshmen who entered Texas public institutions of higher education in the summer or fall semesters of 1995. Of those students, 104,716 (78.8 percent) took the Texas Academic Skills Proficiency (TASP) exam, the statewide college-readiness skills-assessment. The findings were unsettling:

1. “Among the students who took the TASP Test, 54 percent (56,403) failed one or more of the three sections (reading, writing or math) and were required to take developmental education” prior to beginning college-level work (THECB, 1999, p. i).
2. Once enrolled, post-secondary developmental education programs made it possible for students who took the TASP Test a second time within the next two years to pass at an average score that was only slightly above the minimum passing score.

3. “More students...needing developmental education have deficiencies in mathematics skills ...and mathematics skills appear to be the most difficult to remediate” (THECB, 1999, p. i-ii).
4. Only 43 percent of the 9010 students in developmental education passed (the math section of the TASP) on their second attempt (THECB, 1999, p. 4).

It is not just the TASP Test that indicates that a sizable portion of Texas’ entering freshmen are underprepared. Beginning in Fall 1998, Texas began to require first-time college students to be tested for college-readiness in reading, writing and math before enrolling in any collegiate coursework. In addition to the TASP Test, alternative testing options were available. These included the ACCUPLACER, MAPS, ASSET, and COMPASS placement exams. Documentation included in the 1999 THECB report notes that “the pass rates on the initial attempt (on either the TASP or an alternative test) reflect the extent to which these students were prepared for college-level work upon entry into higher education” (THECB, 2000, p. 5). The chart below shows that as dismal as the TASP scores were, student performance was still better on TASP than on the alternative exams. Almost 60 percent were unable to pass all three parts of the exam.

**TABLE 2.1: PASS RATES (INITIAL AND WITH EXEMPTIONS) BY TEST ROUTE FOR 1999-2000**

Test Route	Total	Test Distribution	Pass Rates			
			All 3 Parts	Math Section	Reading Section	Writing Section
TASP	103,206	64.0%	39.9%	51.8%	70.1%	73.1%
ACCUPLACER	17,055	10.6%	16.2%	23.5%	51.6%	70.5%
MAPS	18,747	11.6%	15.1%	25.3%	44.2%	61.6%
ASSET	11,786	7.3%	20.9%	29.7%	46.7%	59.3%
COMPASS	10,545	6.5%	12.8%	19.4%	39.9%	55.2%
<b>All Test Routes</b>	<b>161,339</b>	<b>100.0%</b>				
<i>Initial Pass Rate:</i>			<b>31.4%</b>	<b>42.0%</b>	<b>61.4%</b>	<b>69.3%</b>
<b>TASP Exempt Students</b>	<b>56,067</b>					
<b>All Students</b>	<b>217,406</b>					
<i>Pass Rate with Exemptions:</i>			<b>49.1%</b>	<b>56.9%</b>	<b>71.4%</b>	<b>77.2%</b>

(THECB, 2000, p. 5)

The THECB data take on added significance for educators and students alike when compared to national data. While data on students' performance on placement exams at the national level were not available, the National Center for Education Statistics (NCES) noted that "(i)n Fall 2000, the most common approach to select students for remedial coursework was to give placement tests to all entering students" and "that institutions tended to have mandatory placement policies for students who were determined to need remediation" (NCES, 2003, p. v). According to NCES, in 2000, roughly 28 percent of all entering freshmen found themselves enrolled in one or more developmental classes while 40 percent of students at public two-year institutions were enrolled in developmental classes. If it is assumed that students are placed into developmental courses via an assessment test of basic skills, then it is possible to speculate that nationally, 28 percent of all entering freshmen tested below college-level in at least one basic skill area while in Texas, about 70 percent of the students tested below college-ready in one or more areas.



Furthermore, these percentages have remained roughly consistent between 1995 and 2000. (Parsad & Lewis, 2003, p. 19). An equally troubling statistic is that according to a 2003 NCES report, time spent in remedial education has increased. In 1995, 55 percent of students in public two-year institutions were spending a year or more in developmental studies. By 2000, that number had grown to 63 percent (NCES, 2003, p. 34).

Once assessed and placed, only half of academically deficient students successfully complete a program of remediation (McCabe, 2003a) but the prognosis is good for those who persevere. “Those who succeed (and complete development education programs) do as well in standard college classes as those who began without deficiencies. One-sixth earn academic associate and bachelor’s degrees and one-third earn occupational associate degrees and certificates” (McCabe, 2003a, p. 19).

### **More Than a Blame Game**

College administrators and staff have resigned themselves to the fact that underprepared students will continue to be a large contingent among entering freshmen and to date, all emphasis has been placed on delivering developmental education that will quickly and efficiently bring students up to college level. “The proposition that remediation should be eliminated from four-year colleges and university curricula, as one effort to maintain the perceived traditionally high standards at these institutions, has garnered increased support” (Roueche & Roueche, 1999, p. 6) so it is highly likely that developmental education will continue to be a large part of the community college

mission. However, more and more community college faculty express frustration as resources are poured into developmental education yet remediated students do not seem to matriculate into higher level courses. “Are we just going to be a developmental college?” one frustrated community college dean exclaimed after realizing that in her department over 50 sections of developmental math had made but she had to small-class the one section of Calculus I offered that semester.

In the face of such frustrations, it is tempting for various parties to engage in an energetic game of pass-the-blame (Hoyt & Sorensen, 2001). In the opinion of many post-secondary educators, the blame should be cast on unmotivated and immature students and/or the public education system (Roueche & Roueche, 1999 p. 12). Justifying the placement of blame on high schools is a 1984 study by Lappan and Phillips which found that nearly 70 percent of students enrolled in intermediate algebra at a university had taken three to four years of math in high school at the Algebra 1 level and above. If three to four years of math at the secondary level has not prepared students for college-level math, why should higher education “be expected to deliver what others failed to provide” (Day & McCabe, 1997)?

Parents tend to view the K-12 and post-secondary system as one, seamless system (The Hechinger Institute on Education and the Media, et al., 2002) so it is not surprising that parents of these underprepared students also portion out the blame to high schools. Just as studies indicate that members of the general public “can articulate little about the relationship between work and education” (Roueche & Roueche, 1999, p. 2) they have even less understanding of the academic skills gap between high school

and college. For the vast majority of people, it is assumed that having earned a high school diploma, the student is adequately prepared for college-level work. As anyone who has worked in a college assessment or advising office will verify, when parents and students find this is not the case, there is a tremendous amount of resentment. Their very logical question is this: High schools have been telling parents and students that education is the key to success in today's economy so why is the high school graduate so often unprepared for college?

In response, high schools blame disengaged parents who fail to support school policies and legislators who have relegated the public school faculty to the roles of warden and/or social worker. In the opinion of many a high school faculty, were they not forced to spend so much of time grappling with social problems, crime, school violence, drug abuse and state-mandated paperwork, they would have the time to teach.

Legislators and tax-payers alike are frustrated by the growing amount of resources which are being plowed into developmental education. During the 2000-2001 biennium, Texas spent approximately \$160 million providing developmental education through its two-year college system (THECB, 2000). "In many two-year institutions, over 10 percent of all instruction is devoted to developmental education, and the percentages range as high as 25 percent" (THECB, 2000, p. 1) .

While Roueche and Roueche (1999) effectively argue that technically, tax payers do not pay twice for remedial education (once in the secondary system and again in higher education), admonishments heard all too frequently suggest "that too much is being spent on remediation; that those with skill deficiencies should have one chance,

maybe two, and then they're out; or, that those with skill deficiencies must expect to pay the full cost of remediation no matter how great" (Day & McCabe, 1997).

"Critics also blame community colleges themselves: They should have been more demanding of public education, more vocal about poorly performing graduates, and more collaborative in working with schools to solve the problem early on. By offering remedial education, colleges hold out an alternative to high school students who would prefer to play now and pay later" (Roueche & Roueche, 1999, p. 13-14).

"Higher education has not demonstrated any quick fixes to problems that lead to underpreparedness" (Roueche & Roueche, 1999, p. 5) and these institutions have not been wholly effective in helping a good percentage of students achieve their educational goals. The symptoms of academic underpreparedness have been treated but the underlying disorder has not been addressed. Simply passing the buck has brought educators no closer to stemming the tide of underprepared students exiting high school.

### **Searching for Solutions: The Theoretical Foundations for this Study**

In attempting to understand the phenomena of student success and conversely related issues such as attrition and underpreparedness, researchers have tended to follow three sometimes overlapping lines of investigation: curriculum/pedagogy, the general learning environment and factors internal to the student. For a student to be prepared for college, the material which he learns during his primary and secondary years must provide a solid foundation and articulate smoothly with what will be taught at college.

By the time the student graduates from high school the overall level at which he is able to perform tasks such as critical writing, reading and mathematics, must be on par with what will be expected of him in college. Therefore, if the college-level Political Science course requires the student to pose and defend ideas in papers and class presentations, the student is going to find himself woefully unprepared if his secondary instructors expected no more than a regurgitation of facts on multiple choice tests.

In addition to curriculum and pedagogy, for a student to be prepared for college, the school environment must be conducive to learning. Textbooks must be available and, particularly in the areas of vocational training and the sciences, the environment must include access to learning labs and equipment. More importantly, teachers must have mastered the material themselves and be able to communicate that material effectively, assisting the student in mastering the skills needed in college.

Research which has explored the links between curriculum/pedagogy and student success and between learning environment and student success has focused much attention on institutional organization and structure, high school curriculum, faculty preparation and teacher education programs and the result has been major efforts to reform teaching and learning at both the secondary and elementary levels. For example, in 2000 the Texas State Board of Education adopted more rigorous high school graduation requirements. As a result, all Texas high school students now receive instruction in geometry, physics and chemistry. “As part of the curriculum changes, the minimum math requirements for high school graduation will add geometry as a required

mathematics course. Most Texas students now enroll in geometry classes, but it was not a required class under the minimum graduation plan” (Texas Education Agency, 2000).

In 2003, 56 percent of the Texas graduates exited high school on the recommended plan, up from 52 percent for the class of 2002 (Texas Education Agency, ?). Clearly progress is being made on this front but one troubling aspect of the new graduation plan involves the policy that allows students to “opt out” of the recommended plan with a parent or guardian’s approval. It is unknown at this time if parents recognize the negative consequences of opting out in terms of their child’s long-term academic success beyond high school.

If student preparation were simply a matter of access to curriculum and qualified faculty, one would expect that even though students were underprepared when they left high school, once they reached the developmental programs in community colleges, their academic performance would rapidly improve. In such institutions, the regional guidelines of the Association of Colleges and Schools dictate that faculty must have a masters and 18 graduate hours in field and developmental curriculum is carefully tied to what students will be required to know as they enter college-level classes. Yet despite access to well-trained faculty and curriculum closely tied to college-level course expectations, students fail to complete the developmental sequence which would enable them to be successful in subsequent college-credit courses. Clearly there is more to the question of what to do about underprepared students than just providing access to sound curriculum and faculty who have mastered the content area. Hence, this study draws from the third line of inquiry of student success research: factors internal to the student,

unique to the student's own personality and psyche; elements which the student has a considerable degree of control over.

Researchers such as Wong, Maxwell and Meara (1995) have referred to these elements as emotional intelligence, which encompass, among others things, elements such as social perception (the ability to understand the emotional states of others) and practical intelligence (commonly referred to as “horse sense”). To date, the research on the link between elements of emotional intelligence and student success has produced mixed conclusions. Studies conducted by Sternberg, Wagner and Okagaki (1993), Newsome, Day and Catano (2000) and others found either modest or no association between academic success and emotional and social competencies. In Parker, Summerfeldt, Hogan and Majeski's 2004 study of 372 first-time, full-time Canadian university students, they found that “predicting academic success (as defined by semester GPA) from emotional intelligence variables produce divergent results” with the exception of three areas:

- Interpersonal ability – the ability to distinguish among and label feelings as well as the ability to use emotion about feelings to guide behavior;
- Adaptability-the skills related to change management as well as the use of realistic and flexible coping strategies; and
- Stress management-the ability to manage stressful situations in a calm, proactive manner.

Parker, Summerfeldt, Hogan, and Majeski concluded that the “results of the... study suggest(ed) quite strongly that interpersonal, adaptability, and stress management

abilities are important factors in the successful transition from high school to university” and ultimately, to overall student success.

Somewhat overlapping the concept of emotional intelligence is the notion of academic or education resilience (Wang & Gordon, 1994). Researchers have long tried to understand why two people with similar abilities, family structures and educational backgrounds coming from equally impoverished backgrounds will experience significantly different levels of academic success. Wang and Gordon contend that the successful individual possess internal traits of person such as focus, drive, a positive perception of his ability to master difficult material, strong time management skills, a willingness to delay immediate gratification to achieve goals, a willingness to seek help and a strong degree of perseverance in the face of environmental challenges which the less successful person lacks. In other words, the academically successful person is resilient.

The theme of educational resiliency has gained considerable attention in recent years in both the psychology and educational literature (e.g. Luthar, 2003; Masten, 2001; Taylor & Wang, 2000; Wang & Gordon, 1994). Research on resilient individuals has focused on the protective factors which include personal resources such as self-esteem and motivation as well as how external factors such as supportive family, mentoring and tutoring programs augment personal resources. Early empirical studies (Abe, 1966; Astin, 1964) demonstrated a significant relationship between motivation and college outcomes, including persistence.



In Tinto's (1987) model, academic and social integration can be strong predictors of student persistence within the university setting. The extent to which a student is able to become integrated academically into an institution is determined primarily by academic performance and intellectual development. Social integration is primarily a function of peer-group interactions and the quality of student interactions with faculty. While the model has placed student/faculty interaction in the realm of social integration, Tinto strongly suggests that positive faculty interaction can also enhance academic integration.

According to Tinto (1998), the one thing known about student persistence is that the more academically and socially involved individuals are – that is, the more they interact with other students and faculty – the more likely they are to persist (Astin, 1977, 1984; Nora, 1987; Pascarella & Terenzini, 1980; Terenzini & Pascarella, 1997). And the only way that a student can successfully complete a certificate or degree is if he persists, from assignment to assignment, class to class, and semester to semester.

Furthermore, involvement matters most during the first year of college, “especially during the first 10 weeks when the transition to college is not yet complete and personal affiliations are not yet cemented” (Tinto, 1998).

Renden (1994) concluded that the more students see such interactions as positive and themselves as integrated into the institution and as valued members of the community, the more likely they will persist.

Attinasi (1989), Terenzini (1994), and Rendon (1994) showed that the student can select many different paths to integration and that such integration can occur in

places both inside and outside the classroom. For instance, experiences outside the classroom influence subsequent experiences in the college and, in turn, influence persistence. Tinto, Russo, and Kadel (1994) found that the opposite occurs as well. Involvements and relationship begun in the classroom become vehicles for involvement and integration in settings outside the classroom.

Tinto (1998) as well as Terenzini have long advocated for the establishment of mechanisms within the college or university by which the student can become engaged. In the absence of such mechanisms, there are still those unique (and often very successful) students who intuitively attempt to create connections. They are the students who habitually turn up for assistance during office hours, perch on the front row during class and engage the faculty member with questions, never miss an assignment and prod their cohorts to join informal student-guided study groups. Even with the existence of such mechanisms within the institution, for a student to truly become engaged, at some point he must take action; he must attend the review session, do the homework, and engage in discussions with his peers and his teachers. Whether the student must establish the point of engagement or take the initiative to join the academic community, there is something internal to the student, a “will,” that propels him to engage academically.

Weinstein (2000, 2004) contends that a primary reason that college students fail is that they have never “learned how to learn.” As a result, they are very poor independent learners attempting to succeed in the college or university environment which is almost wholly geared for independent learning. This struggling student has

few strategies and skills which enable him to adapt to new instructional and testing styles, to master difficult material, or to cope with the stress and independence found in college.

In Weinstein's model of strategic learning or "meta-curriculum" there are three components which students must master to achieve academic success. First, the student must master specific learning and content skills. These include prior learning as well as traditional skills such as note taking and being able to ferret out the main idea in a reading. In addition, the student must also have an understanding of his or her own learning preferences and have developed a toolkit of flexible learning strategies and skills which enables him to master material even when it is presented in a manner that is contrary to the student's preferred learning style.

Second, Weinstein contends that students must learn self-regulation. In the college campus, students are faced with a multitude of choices. Without self-regulation, students find it difficult to balance the demands of class work with other competing interests. Do I go to class or go to the lake with my boyfriend? Do I watch the Super Bowl or work on my dissertation proposal? At all levels, it is self-regulation which enables a student to make choices which enhance academic success, implement time management strategies, to address procrastination, and implement a systematic approach to learning and accomplishing academic tasks.

A study of emotional and behaviorally (EBD) disturbed students being educated in an integrated setting found that teaching students self-management strategies were also useful in improving the academic success for younger students. Characterized by

their inability to manage their academic and social behavior, EBD students are at high risk of failure due to their inability to remain attentive, to complete tasks and to finish homework. After instruction in self-management strategies, “all students demonstrated immediate improvement in homework completion and accuracy...Homework completion rose from 2 percent during the baseline condition to 92 percent during the intervention condition; homework accuracy rose from 2 percent during baseline condition to 89 percent during the intervention condition. Students also made greater gains on academic achievement than would have been expected” (Cancio, West, & Young, 2004, p20).

Finally, the student must possess the will to learn, attending to the material at hand. Students must be helped to develop a future time perspective and to set specific academic goals. When the material gets difficult or stress is high, it is the student’s will and commitment to future goals which will carry him forward.

One final model of student success finds that class-based value differences have a significant impact on student success, particularly first generation college students. This is where Weinstein’s work overlaps that of sociologist Melvin Kohn. As Weinstein (2004) noted, there are so many times that students are unsuccessful academically simply because they seem to lack the *will* to succeed. Other times, students seem to make choices which appear to be in total conflict with their stated academic goals. They say they want an A but homework is poorly done or not turned in at all. Students indicate they want a college degree but repeatedly drop classes. In high

school, they are the students who say they plan to go to college but refuse to take college-prep classes.

In their work on how and to what degree children's values are shaped by parental values, Kohn, Slomczynski, and Schoenbach offer insight into why some students seem to lack the will to succeed or are afraid to even try. According to research done both in Poland and the United States, Kohn and his colleagues found "that social stratification and children's values as mediated through parents' values is...built into the structure of industrial society" (Kohn, Slomczynski, & Schoenbach, 1986, p. 74). In addition, "family stratification position has an impressive bearing on the values of adolescent and young-adult children, mainly through parental values" (Kohn, Slomczynski, & Schoenbach, 1986, p. 87).

Prior work done by Kohn in 1963, 1983, and by Kohn and Schoenbach in 1993 found that within the middle classes, value patterns include:

- Work and achievement as driving forces in decision making;
- Belief in self-direction and tolerance of non-conformity;
- Openness to innovation and curiosity;
- Choice;
- Self-control; and
- Higher education seen as a crucial foundation for success.

By contrast, the value patterns within lower socio-economic levels included:

- Survival, relationships and entertainment as driving forces for decision making;

- Achievement is seen as a threat to relationships;
- Belief in strict leadership;
- Destiny and fate are the prime governors of life; and
- Formal education is feared because personal achievement is seen as imposing a barrier between the student and his or her family and community.

What Kohn, Slomczynski, and Schoenbach's work implies is that the reason behind some students' poor academic choices and resulting failure, particularly for first generation college students, may be the fact that they have absorbed value patterns which, either consciously or unconsciously, are fatalistic in nature. Why put forth the effort to succeed when one believes that destiny and fate are prime governors of life events, and in the experience the student, those fates have been none too kind? Why work hard to get good grades or take college-prep courses when college is beyond the resources of one's family? There is little will to succeed for those students who perceive achievement as a threat that will create a barrier between themselves and family, friends, and the community in which they feel comfortable. For these students, the traditional developmental education programs are going to have little impact because they are designed to target academic difficulties, not the underlying beliefs and values which hinder a student's success.

Summarizing the work of all these researchers (Wong, Wang, Tinto, Tintrizini, Weinstein and Kohn), for a student to be successfully academically, in addition to innate intellectual ability, he must have a will to learn, be engaged in the material that is taught, be able to moderate his emotions and actions in ways which promote his

learning and he must attempt to meet the expectations of his teachers in terms of the quality of work produced. As he moves from course to course and instructor to instructor, he must be able to adapt to changes in curriculum, teaching styles, pedagogy, and degree of course difficulty. He must be able to manage the stress that comes with test taking and evaluation. Curriculum and pedagogical methods can be perfectly alienated between the high school and college and secondary faculty can be exemplary teachers but if the student is not willing to show up, to engage in the process of learning, he will be unsuccessful in his academic pursuits.

Two final comments should be made on the matter of student success. The first two lines of research which were discussed above (curriculum/pedagogy and learning environment) while extremely important in terms of student success, both are largely external to the student, and beyond course and instructor selection, aspects of his learning experience that he has little or no direct control over. In other words, changes in curriculum, teacher preparation and qualifications and the learning environment in general are driven by policy, either at the national, state, or local level.

By contrast, the metacognitive processes, social and behavioral attributes, and motivational and affective attributes which comprise the third line of student success research are largely under the student's direct control. Furthermore, as students mature, their mastery of these processes and attributes can improve over time.

Weinstein has long advocated that students can be taught the “meta-curriculum”, i.e. the skills that will allow them to learn and persevere. Likewise, Waxman, Haung, and Padron (1997) have argued that “the construct of ‘educational resilience’ is not viewed

as a fixed attribute but as something that can be promoted by focusing on ‘alterable’ factors that can impact an individual’s success in school.”

The second point that should be made is that a student does not become underprepared for college over night. Rather, it is a state that has evolved over time, going back to his first years in school. It is the result of a series serious of small, seemingly disconnected decisions. The student does not put forth the effort to master a skill here and there as thoroughly as he should. He shies away from taking a difficult class (or a teacher with a reputation for expecting excellence). He skates through middle and high school with a C average (even though he has the ability to do much better) because that is all that is really needed to pass to the next grade level, skips class, and opts for the regular diploma instead of taking the advanced college-prep classes. He chooses to be a student aid instead of taking an advanced literature classes and finally, opts for “Early Release” his senior year instead of buckling down and taking another year of math and English. The sum total of the consequences of all those decisions comes home to roost when the student receives the results from that college-readiness skills assessment and finds, to his chagrin (and his parent’s dismay), that he will spend his first year of college in developmental courses.



## **CHAPTER THREE**

### **METHODOLOGY**

#### **Introduction**

In setting the context for the study in chapter one, the researcher stated that a significant number of traditional freshmen embark on their college careers underprepared for college-level work. This is not a new phenomenon as indicated by the ACT study which found that despite massive education reform, the percent of underprepared college freshmen has remained unchanged for the past 10 years. Furthermore, this is not an insignificant problem given that nationally, almost half of all incoming freshmen are deficient in basic reading, writing and/or math skills and the degree to which a student is prepared for college-level work is a key predictor of whether or not a student will complete a degree. If community colleges are indeed committed to student success, they must begin to aggressively address the problem of underprepared freshmen - ideally before students enter college.

Chapter two expanded the context for the study by reviewing pertinent literature concerning the prevalence of underpreparation among traditional college freshmen and the impact of underpreparation on student success. In seeking to understand why students are underprepared for college, research has followed three main lines of inquiry. The first two lines of research have examined curriculum/pedagogy and the overall learning environment. These two lines of research have formed the core of much of the current public school reform efforts.

The third line of inquiry into student success has focused on factors which are internal to the student and it is this third line which forms the theoretical framework of this study. Emotional intelligence, academic resiliency, academic and social engagement and learning and study strategies all center around the notion that there are elements within each student's thought and decision-making processes and psychological makeup which either assist or hinder his efforts to master new knowledge. Of importance is the fact that evidence exists to suggest that even when students show weakness in a specific learning strategy or skill, these behaviors and thought processes can be learned and enhanced through educational programs and interventions.

This study utilized a causal comparative quantitative research design to identify the learning and study strategies associated with least college-ready, moderately college-ready and college-ready levels (reading, writing, and math) of a group of Texas tenth graders. Chapter three outlines the research design used to undertake this study. It will identify the setting, explain the selection process of the participants, outline data collection procedures and instrumentation and explain data analysis. The chapter will close with a summary of strategies which the researcher will use to protect the integrity of the study.

## **Research Design**

Given that in Texas roughly 57 percent of 1995 first-time college freshmen tested college-ready in math and English when they transition to college (THECB,

2000) it is reasonable to surmise that at least on some level, there exists instruction, curriculum and coursework within the public school system to adequately prepare students for college-level work. Yet what raises concerns is that other 43 percent of high school graduates who are not prepared for college-level work. A student does not evolve into an academically underprepared college freshman overnight. The process of becoming academically underprepared is often the consequence which results from a whole series of decisions which the student made as they moved through the public education system.

When the COMPASS college-readiness assessment exam is given to on-level and gifted and talented tenth graders, the results can be thought of as an early warning system designed to pinpoint a student's academic weaknesses. There is still much to be learned about the reasons behind why a good proportion of these on-level and gifted and talented students lack the reading, writing or math skills they will need in college. Until the phenomenon of underpreparation is better understood, it will be difficult to systematically identify and implement effective intervention strategies.

The conceptual framework guiding this study is that factors such as self-regulation, attitude, and willingness to engage in learning directly impact students' ability to achieve their academic goals. In work with college students, Weinstein, (1996) has found that underprepared or low achieving learners are perhaps less likely to use self-regulatory skills and learning strategies. To add to the body of research on student success and to better understand why different students within the same high school learning environment achieve different levels of college-readiness in reading,

writing and math, the researcher is interested in identifying the learning and study strategies which are most closely associated with early college-readiness assessment scores of a group of tenth graders.

## **Setting**

Spring High School is located in Spring, Texas, on the northern edge of Houston. The school has an enrollment of slightly over 3200 students in grades 9-12 and according to the school's webpage:

- The current ethnicity of the school is 60.2 percent White, 20.6 percent Hispanic, 16.5 percent African American, 2.4 percent Asian/Pacific Islander, and 0.3 percent Native American.
- Approximately 86 percent of the senior class will attend a two-year or four-year college or university with 38 percent attending a four-year institution. (NHMCCD records indicate that approximately 25 percent of each graduating class will begin post-secondary education within the NHMCC system.)
- Average SAT scores for 2002-2003 were 495 (Verbal) and 516 (Math) for a total of 1011.
- The average ACT score for 2002-2003 was 19.9.
- SHS was named as a "Blue Ribbon School" in 1993 by the U.S. Department of Education.

SHS's Bridge Partnership college is North Harris College. Established 30 years ago, North Harris College (NHC) is the oldest college in the North Harris Montgomery Community College District and has an enrollment of just under 12,000 students. NHC has maintained a long-standing relationship with Spring High School and the two institutions have partnered regularly on projects such as the Bridge Partnership and the Concurrent Credit English Program in which students are able to simultaneously earn high school credit and college credit for ENG 1301/1302-Freshman Composition I & II. Based on 2002 Spring graduation numbers, about 30percent of each class immediately matriculates to a college within the NHMCC system.

## **Participants**

A group of 200 Spring High School tenth grade students was recruited into the 2004/2005 Bridge Partnership program during Spring 2005. They come from a broad range of economic and ethnic backgrounds and include students involved in both on-level classes as well as accelerated programs. Each student has been handpicked for participation in the program based upon a recommendation from either a faculty member or the student's counselor. Participants for this study were recruited from this larger group of tenth graders.

## **Research Hypotheses**

The hypotheses which this study tested are as follows:

**Hypothesis 1:** The Spring High School students' scores on each of the 10 LASSI scales will compare similarly to national norms published by the LASSI-HS authors.

**Hypothesis 2:** There exists a positive correlation between the Spring High School students' self-reported mastery of learning and study skills as measured by the LASSI-HS assessment and the students' level of college preparedness as measured by the COMPASS assessment in reading, writing (objective writing or grammar and the essay), and math.

**Hypothesis 3:** On each of the 10 LASSI scales, there is no significant difference in the scale scores when students are grouped by gender.

## **Methodology**

This research is an exploratory study which used a convenience sample of male and female tenth grade high school students who are participating in the Spring High School/North Harris College Bridge Partnership Program. This study seeks to better understand the underprepared college freshman “in the making” by looking at those factors internal to the student which contribute early on to underpreparedness by identifying learning and study skills associated with varying levels of college-readiness.

The COMPASS college-readiness scores are available as a result of the fact that all students in this study are also participants in the Spring High School/North Harris College Bridge Partnership and early college-readiness assessment is an on-going

component of that program. After appropriate human study consent forms had been signed by the students and the students' parents or legal guardians, students took the LASSI-HS to assess their learning and study skills.

The LASSI-HS assessment was paper-based and scored by the researcher according to the instructions given by H & H Publishing, the distributor of the assessment. Once the data has been scored, results were shared in writing with the students and their parents and data analysis was conducted.

### **Instrumentation**

Two main instruments were used to collect data for this study: ACT's COMPASS/ESL assessment of college-level skill mastery in reading, writing, and math and the Learning and Student Strategies Inventory-High School Version (LASSI-HS). COMPASS Developed by ACT, Inc., the COMPASS/ESL test is a comprehensive, computer-adaptive testing system that assesses reading, writing and mathematics skills and helps place students into appropriate "standard" level courses or into developmental or preparation courses. The test can produce up to seven possible placement scores (one each in writing skills and reading and up to five in mathematics).

#### **A. Mathematics Placement Measures (up to 5 scores)**

1. Numerical Skills/Prealgebra
2. Algebra
3. College Algebra
4. Geometry

## 5. Trigonometry

### B. Reading Placement Measure

### C. Writing Skills Placement Measure (Usage/Mechanics and Rhetorical Skills)

Each of these measures may be used individually or in different combinations.

NHMCCD customarily only uses the Prealgebra and Algebra placement measures to determine college-readiness in math. Since college-readiness in math is of issue, only Prealgebra and Algebra placement measures will be used in this study.

COMPASS/ESL is one of several college-readiness assessment instruments that are used within the North Harris Montgomery Community College District (NHMCCD) for assessment and placement. The COMPASS was selected for use in the Bridge Partnership program because it is a computer-based system which scores students exams immediately, there is a strong diagnostic component of the exam and the exam can be administered either through a Windows version which is uploaded directly onto the high school's networking system or via a new Internet version that can be accessed from any Internet-connected computer using a pass code.

COMPASS also offers the COMPASS e-Write direct writing assessment. Writing samples are delivered to ACT via the Internet and scores are returned immediately following submission.

For placement purposes, NHMCCD evaluates COMPASS assessment scores as follows:



**CHART 3.1: NHMCCD PLACEMENT CRITERIA IN READING, WRITING AND MATH**

<b>COMPASS Score</b>	<b>Course Placement</b>	<b>Course Descriptions/Notes</b>
<b>Reading</b>		
<b>1-65</b>	Engl. 0304-Developmental Reading I	A basic reading course designed to improve reading efficiency through word analysis skills, vocabulary, comprehension and rate. Sentence/paragraph writing is required to complement extensive and varied reading activities. This course carries institutional credit but will not transfer and will not be used to meet degree requirements.
<b>66-80</b>	Engl. 0305-Developmental Reading II	A developmental reading course continuing the instruction and reinforcement of those skills taught in ENGL 0304. Emphasis is on learning higher level reading skills required for college reading assignments. Short paragraph writing is required to complement some reading activities. This course carries institutional credit but will not transfer and will not be used to meet degree requirements.
<b>+81</b>	Students scoring 81 or better on the reading portion of the exam are considered to have college-level reading skills.	
<b>Writing</b>		
<b>1-35</b>	Engl 0306-Developmental Writing I	The first of two developmental writing courses designed to improve the student's basic writing skills. Class activities and lab assignments will be used to produce clarity and precision in sentence and paragraph structure. Specific course topics include an introduction to the writing process and a review of grammar, usage and mechanics. This course carries institutional credit but will not transfer and will not be used to meet degree requirements.
<b>36-84</b>	Engl 0307-Developmental Writing II	The second course in the developmental writing course sequence designed for those students with a stronger background in grammar skills who need further help developing paragraphs and short themes. Lab work will be assigned to reinforce class activities. This course carries institutional credit but will not transfer and will not be used to meet degree requirements.
<b>85+*</b>	*Students who score a 7 or higher on the essay OR a 6 on the essay and 85+ on the objective portion of the writing exam (grammar) are considered to have college-level writing skills.	
Placement into English 1301: Freshman Composition The student must test at the college level in BOTH reading and writing.		

<b>Math</b>		
<b>Pre-Algebra 1-54</b>	Math 0306-Pre-Algebra Mathematics	Topics for all formats include basic arithmetical operations on integers and rational numbers, order of operations, introduction to basic geometric concepts, simplification of algebraic expressions and techniques of solving simple linear equations. This will not meet degree requirements.
<b>Pre-Algebra 55-100 Alg. 24-43</b>	Math 0308-Beginning Algebra	Topics for all formats include basic algebraic operations, elementary equations, laws of integral exponents, factoring and radical notation, rational expressions and an introduction to the Cartesian coordinate system. This course carries institutional credit and cannot be used to meet degree requirements.
<b>44-59</b>	Math 0310-Intermediate Algebra	Topics for all formats include special products and factoring, rational expressions and equations, rational exponents, radicals, radical equations, quadratic equations and complex numbers; an introduction to the function concept and graphing, equations of lines and linear systems. This course carries institutional credit but will not transfer and will not be used to meet degree requirements.
<b>60+</b>	Math 1301-College Algebra	

(NHMCCD, 2005)

LASSI-HS: According to the instrument's authors (Weinstein & Palmer, 1990), the Learning and Study Strategies Inventory-High School Version (LASSI-HS) "is an assessment tool designed to measure students' use of learning and study strategies and methods at the secondary school level." The development of the original LASSI began in 1978 at the University of Texas at Austin "in response to the increasing numbers of academically underprepared students entering post-secondary education" (Weinstein & Palmer, 1990). The LASSI-HS was produced in response to requests for an assessment instrument more geared to the needs of high school students.

The LASSI-HS is a self-report instrument consisting of 76 items and separate norms are provided for ninth, tenth, eleventh, and twelfth grade students. There are 10 scales on the LASSI-HS.

- Attitude: addresses attitude and interest in education and school.
- Motivation: measures the student's willingness to work hard, and his self-discipline and the strategies the student uses when learning difficult material.
- Time Management: helps determine the student's time management practices in regards to academic work.
- Anxiety: measures the degree to which a student worries about grades and academic performance.
- Concentration: measures the student's attention to school work and ability to focus on academic tasks.
- Information Processing: contains items which relate to the student's ability to use mental imagery, verbal elaboration, comprehension monitoring, and reasoning when attempting to learn and retain new material.
- Selecting Main Ideas: addresses the student's ability to identify important information for further study.
- Study Aids: measures the degree to which a student can create or use supplemental materials and support techniques to learn and remember new material.
- Self Testing: determines how the student reviews and prepares for class and for tests.

- Testing Strategies: focuses on how the student prepares for quizzes and tests and how well the student is able to implement different approaches based on the test format (essay, multiple choice, etc.)

Each item is measured using a scale in which the student chooses from responses that range from “not at all like me” to “very much like me.” The LASSI-HS is an un-timed instrument but most students are able to complete the assessment in less than 30 minutes.

Once a LASSI-HS score has been obtained for a student, the results can be used for multiple purposes such as:

- “a diagnostic measure to help identify areas in which students can benefit most from educational interventions;
- a counseling tool for student advising, for academic remediation and enrichment programs, for student learning assistance programs, for high school to college transition programs, and for college preparation programs;
- a basis for planning individual prescriptions for both remediation and enrichment;
- a pre-post achievement measure for students participating in programs or courses focusing on learning strategies and study skills;
- an evaluation tool to assess the degree of success of intervention programs or courses” (Weinstein & Palmer, 1990).

The fact that one assessment instrument could be used as a tool for diagnosis and counseling as well as for both evaluation of student progress and overall program

effectiveness prompted the researcher to select the LASSI-HS as assessment instrument for use this study. The LASSI is a well-respected instrument and currently in use at over 1800 colleges across the nation.

### **Data Analysis**

Data analysis can be thought of as the process by which a researcher organizes and interprets meaning from a body of data. Within this study, the data analysis is “aimed at providing researchers with opportunities to:

1. Compare and contrast interpretations;
2. Expand on the relevance of the project by developing unforeseen findings and interpretations; and
3. Explore findings that are anomalous to or disconfirming of hypotheses and impressions” (Freebody, 2003, p. 83).

In keeping with this objective, during the analysis of all data collected in this study, the researcher will be compared and contrasted students’ level of mastery in reading, writing and mathematics to the students’ mastery of learning and study strategies.

Furthermore, during data analysis, the researcher sought to identify services and support systems which could be provided to students and their parents, thus easing the transition from high school to college as well as ensuring that an increased number of students are academically college-ready upon high school graduation.

### **Statistical Analysis of Data**

The SPSS Graduate (v. 10.0) software package was utilized to analyze the quantitative data. Students' COMPASS scores and responses on each of the 10 scales within the LASSI-HS were entered into an SPSS database. Basic descriptive statistics were obtained including raw scores, mean, percentiles, range, standard deviation and the variance. The researcher tested the correlation between the 10 assessment areas of the LASSI-HS and level of college-readiness in math and English as measured by the COMPASS. Working from an assumption that the two variables in this study are linearly related, the significance of the correlation coefficient for each group was tested using a Pearson Product-Moment Correlation, with a .05 level of significance.

The ANOVA statistical technique was utilized to test the significance of differences between the mean scores on each of the 10 LASSI-HS scales and the varying levels of college-readiness in English and math as measured by the COMPASS exam.

The levels of college-readiness are defined by the researcher based upon the college-level course placement criteria of NHMCCD:

**CHART 3.2: COLLEGE-READINESS PLACEMENT CRITERIA IN READING, WRITING AND MATH**

<b>Reading, Level 1 Least Prepared for College-level Reading</b>	<b>Reading Level 2 Prepared for College-level Reading</b>
COMPASS Score: 1-80	COMPASS Score: 81+

<b>Writing Level 1 Least Prepared for College-level Writing</b>	<b>Writing Level 2 Prepared for College-level Writing</b>
COMPASS Score: 1-84 on Objective Writing and 1-5 on Essay	COMPASS Score: 85+ on Objective Writing and 6+ on Essay OR 7+ on Essay

<b>Math Level 1 Least Prepared for College-level Math</b>	<b>Math Level 2 Moderately Prepared for College-level Math</b>	<b>Math Level 3 Prepared for College-level Math</b>
COMPASS Pre-Algebra Score: 0-27	COMPASS Algebra Score: 28-59	COMPASS Algebra Score: 60+

A significance level of .05 was selected as the criteria for rejecting the null hypothesis.

### **Phases of Inquiry**

The following timeline will be used to guide the research activities in this study:

Phase I: Human Subject Recruitment and Participant Releases (June 2005)

Phase II: Data Collection: The COMPASS scores for participants were already on file in conjunction with the Bridge Partnership program. The LASSI-HS exam was given over a period of several weeks beginning in June 2005. Results were shared with students and their parents in writing once the assessment was scored.

Phase III: Data Analysis and Report Development (August-September, 2005)

Phase IV: Summary Report Released to SHS and NHMCCD Administration  
(September 2005)

### **Standards for Research**

The integrity of the research is first and foremost in guarding the quality of a research project and Patton (2002) concludes that trustworthiness of data (and its interpretation) and the overall quality of the study are closely tied to the professionalism and trustworthiness of the researcher.

Kincheloe (2003) holds that researcher integrity and good study design can minimize some of the most serious research errors which he ranks as follows:

1. First-order mistakes occur when “evidence cannot support conclusions that are arrived at through the use of a particular language. Examples of such mistakes would involve “inappropriate generalization and inadequate sample size.”
2. “Second-order mistakes come about when language employed to state propositions is inappropriate for particular purposes. A good example of such a mistake would be Newtonian physics, as its language is inadequate when we travel at the speed of light.”
3. “Third-order mistakes involve the inadequacy of the purposes of the research. An example of a concern with third-order mistakes is Henry Giroux’s, Patti Lather’s, and Gaile Cannella’s critique of mainstream



educational research” (Kincheole, 2003, p. 161). These critiques were not primarily concerned with methodology or language found in mainstream educational research. Rather the focus of these critiques dealt with questions of the overall purpose of educational research.

Kincheloe further notes that “unambiguous and precise, rigorous quantitative research reduces subjective influences and minimizes the ways in which information might be interpreted. It keeps humans and the distortions of their biased perspectives at bay.”

Thus researcher integrity, awareness of researcher bias as well as paying of close attention to the details of study design and the collecting, analysis, and quantification of data as well as the careful formulation of conclusions are the researcher’s first and foremost defenses against research errors.

Within this research project, the researcher has adopted the following procedures in an effort to protect the trustworthiness and validity of study results:

1. Closely adheres to a professional code of ethics which seeks to guard the privacy and well-being of both individuals and organizations participating in the study;
2. Utilize peer review (i.e. the Dissertation Committee) to ensure that only appropriate and well-designed research activities are used in the conducting of research; and
3. Any researcher bias or assumptions will be articulated within the study design.

## CHAPTER FOUR

### FINDINGS

#### Introduction

In this chapter, the statistical methods outlined in Chapter III will be explained in greater detail and the results will be presented. The purpose of this study was to identify the learning and study strategies associated with varying levels of college-level academic preparedness among a group of high school tenth graders. The specific hypotheses which were tested in the course of the study were as follows:

**Hypothesis 1:** The Spring High School students' scores on each of the 10 LASSI scales will compare similarly to national norms published by the LASSI-HS authors.

**Hypothesis 2:** There exists a positive correlation between the Spring High School students' self-reported mastery of learning and study skills as measured by the LASSI-HS assessment and the students' level of college preparedness as measured by the COMPASS assessment in reading, writing (objective writing or grammar and the essay), and math.

**Hypothesis 3:** On each of the 10 LASSI scales, there are no significant differences in the scale scores when students are grouped by gender.

Each research hypothesis will be discussed in order, in conjunction with relevant statistical analysis and data.

## Description of Study Participants

The 47 students who participated in this study were recruited from a larger group of 200 Spring High School tenth grade students who participated in the 2004/2005 Bridge Partnership program during Spring 2005. They come from a broad range of economic and ethnic backgrounds and include students involved in both on-level classes as well as accelerated programs. All students were between the ages of 15 and 16 and overwhelmingly female (68percent).

**TABLE 4.1 GENDER OF STUDY PARTICIPANTS**

	Frequency	Percent
Male	15	31.9
Female	32	68.1
Total	47	100.0

## Explanation of Statistical Methods

To test Hypothesis 1, a simple group mean on each of the 10 scales was used to determine how students in this study compared to national 10<sup>th</sup> grade norms for the LASSI-HS.

To test Hypothesis 2, student means scores on the 10 Learning and Study Skills Inventory (LASSI)-High School scales were designated as the independent variables and compared with the students' performance on the COMPASS assessment of college-readiness in reading, writing, and math. One-way analysis of variance (ANOVA) was

used to determine if a correlation existed between students' self-reported mastery of learning and study skills and the students' level of college preparedness as determined by the COMPASS assessment in reading, writing (objective writing or grammar and the essay), and math. Post-hoc analysis of between groups comparison was done using Levene's LSD test.

In regards to Hypothesis 3, an ANOVA was used to explore the existence of differences in learning and study skills scale scores when the study group by divided by gender.

## **Findings**

**Hypothesis 1:** The Spring High School students' scores on each of the 10 LASSI scales will compare similarly to national norms published by the LASSI-HS authors.

The students in this study tended to have higher than average scores on all 10 of the LASSI-HS scales.

**TABLE 4.2: DESCRIPTIVE STATISTICS FOR EACH LASSI SCALE FOR STUDY PARTICIPANTS**

LASSI Scale	Minimum Scale Score for Study Participants	Maximum Scale Score for Study Participants	Std. Deviation for Study Participants	Average Scale Score for Participants (rounded to nearest whole number)	Percentile Ranking of Means as Compared to National LASSI-HS Norms for 10 <sup>th</sup> Graders
Attitude	15	39	5.19	32	55
Motivation	14	40	5.8	32	60
Time Management	11	33	5.75	22	55
Anxiety	7	40	7.44	28	65
Concentration	9	40	7.03	28	65
Information Processing	16	38	6.08	27	60
Selecting Main Ideas	12	25	3.16	19	60
Use of Study Aids	13	35	5.3	24	60
Self-testing	15	40	6.48	27	60
Testing Strategies	20	40	4.76	31	65

**Hypothesis 2:** There exists a positive correlation between the Spring High School students' self-reported mastery of learning and study skills as measured by the LASSI-HS assessment and the students' level of college preparedness as measured by the COMPASS assessment in reading, writing (objective writing or grammar and the essay), and math.

In testing the relationship between mastery of learning and study skills and level of college-readiness in English, participants were divided into two categories: those who were college-ready based on NHMCCD English placement policies and those who

were not college-ready in English. To be classified as college-ready in English, NHMCCD policy requires students meet minimum standards in both reading and writing. Under current district policy, students may qualify as college-ready in English two ways: By either meeting a minimum standard on the reading, objective writing (grammar) and essay portion of the COMPASS or by meeting the minimum reading standard and exceeding the minimum standard on the essay portion of the assessment by at least one point. The chart below summarizes the current NHMCD English placement policy:

**CHART 4.1: COLLEGE-READINESS CRITERIA IN ENGLISH BASED ON COMPASS ASSESSMENT**

COMPASS reading score of 81+  <b>AND</b>  COMPASS objective writing (grammar) score of 85+ <b>AND</b>  COMPASS essay (writing sample) score of at least 6.	<b>OR</b>	COMPASS reading score of 81+  <b>AND</b>  COMPASS essay (writing sample) score of 7 or higher.
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Of the 47 students participating in this study, 32 (68 percent) tested college-ready in English. The remaining 15 students (32 percent) failed to meet either of the minimum criteria for college-readiness in English.

**TABLE 4.3: FREQUENCY OF COLLEGE-READINESS IN ENGLISH AMONG STUDY PARTICIPANTS**

Level of College-readiness in English	Frequency	Percent
Not college-ready in English	15	31.9
College-ready in English	32	68.1
Total	47	100.0

One-way analysis of variance (ANOVA) was used to compare mean scores on the 10 LASSI-HS scales between groups. Table 4.4 summarizes the findings from that analysis.

**TABLE 4.4: ANOVA – COLLEGE-READINESS IN ENGLISH**

		Sum of Squares	df	Mean Square	F	Significance
LASSI-HS SCALE						
ATT	Between Groups	32.936	1	32.936	1.228	.274
	Within Groups	1206.808	45	26.818		
	Total	1239.745	46			
MOT	Between Groups	17.873	1	17.873	.526	.472
	Within Groups	1528.552	45	33.968		
	Total	1546.426	46			
TMT	Between Groups	63.193	1	63.193	1.951	.169
	Within Groups	1457.275	45	32.384		
	Total	1520.468	46			
ANX	Between Groups	1.207	1	1.207	.021	.885
	Within Groups	2547.219	45	56.605		
	Total	2548.426	46			
CON	Between Groups	38.503	1	38.503	.775	.383
	Within Groups	2234.433	45	49.654		
	Total	2272.936	46			
INP	Between Groups	2.704	1	2.704	.072	.790
	Within Groups	1698.402	45	37.742		

	Total	1701.106	46			
SMI	Between	2.224	1	2.224	.220	.642
	Groups					
	Within Groups	455.733	45	10.127		
	Total	457.957	46			
STA	Between	86.260	1	86.260	3.217	.080
	Groups					
	Within Groups	1206.719	45	26.816		
	Total	1292.979	46			
SFT	Between	45.666	1	45.666	1.090	.302
	Groups					
	Within Groups	1884.802	45	41.884		
	Total	1930.468	46			
TST	Between	1.327	1	1.327	.057	.812
	Groups					
	Within Groups	1039.652	45	23.103		
	Total	1040.979	46			

While there was no significant difference between the means of these two groups on any of the 10 LASSI-HS scales, the difference between means for use of study aides (STA) was very close to significant with  $p = .080$ . In comparing the means scale scores for use of study aids (STA), the students who were college-ready in English tended to have lower scores than those students who were not college-ready in English.

**TABLE 4.5: COMPARISON OF MEAN STA SCALE SCORES BASED ON LEVEL OF COLLEGE-READINESS IN ENGLISH**

Level of English Preparation	Mean	N	Std. Deviation
Not college-ready in English	26.00	15	3.36
College-ready in English	23.09	32	5.82
Total	24.02	47	5.30

Removing outlying scores (those falling into the 99<sup>th</sup> and 1<sup>st</sup> percentiles as measured against national norms) and repeating the ANOVA analysis resulted in a



significant difference in reported use of study aids between students who tested college-ready in English and those who are not.

**TABLE 4.6: ANOVA – COMPARISON OF MEAN SCALE SCORES FOR USE OF STUDY AIDES BASED ON LEVEL OF COLLEGE-READINESS IN ENGLISH (OUTLYING SCORES REMOVED)**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	112.900	1	112.900	5.819	.020
Within Groups	814.828	42	19.401		
Total	927.727	43			

Since students can be college ready in reading but not meet the writing criteria or meet the college-readiness criteria in writing but fail to meet the reading criteria, similar analysis was done between groups who were or were not college-ready in reading and those who were or were not college-ready in writing. For the students participating in this study, the vast majority were reading at the college level. Forty students (85.1 percent) were college-ready in reading while only 7 students (14.9 percent) were not reading at the college level.

**TABLE 4.7: FREQUENCY OF COLLEGE-READINESS IN READING AMONG STUDY PARTICIPANTS**

Level of College-readiness in Reading	Frequency	Percent
Not college-ready in Reading	7	14.9
College-ready in Reading	40	85.1

**TABLE 4.8: ANOVA – COMPARISON OF MEAN LASSI SCALE SCORES BASED ON LEVEL OF COLLEGE-READINESS IN READING**

		Sum of Squares	df	Mean Square	F	Sig.
ATT	Between Groups	30.255	1	30.255	1.126	.294
	Within Groups	1209.489	45	26.878		
	Total	1239.745	46			
MOT	Between Groups	168.022	1	168.022	5.485	.024
	Within Groups	1378.404	45	30.631		
	Total	1546.426	46			
TMT	Between Groups	68.868	1	68.868	2.135	.151
	Within Groups	1451.600	45	32.258		
	Total	1520.468	46			
ANX	Between Groups	9.097	1	9.097	.161	.690
	Within Groups	2539.329	45	56.430		
	Total	2548.426	46			
COM	Between Groups	72.533	1	72.533	1.483	.230
	Within Groups	2200.404	45	48.898		
	Total	2272.936	46			
INP	Between Groups	.474	1	.474	.013	.911
	Within Groups	1700.632	45	37.792		
	Total	1701.106	46			
SMI	Between Groups	.154	1	.154	.015	.903
	Within Groups	457.804	45	10.173		
	Total	457.957	46			
STA	Between Groups	130.204	1	130.204	5.039	.030
	Within Groups	1162.775	45	25.839		
	Total	1292.979	46			
SFT	Between Groups	94.640	1	94.640	2.320	.135
	Within Groups	1835.829	45	40.796		
	Total	1930.468	46			
TST	Between Groups	4.450	1	4.450	.193	.662
	Within Groups	1036.529	45	23.034		
	Total	1040.979	46			

When comparing the students who tested college-ready in reading to those who did not, a significant difference was detected between means on LASSI-HS scales scores in motivation (MOT) and reported use of study aides (STA). In both of these cases, the students testing college-ready in reading tended to have lower scale scores on motivation (MOT) and use of study aides (STA) than students who did not test college-ready in reading.

**TABLE 4.9: COMPARISON OF MEAN MOT AND STA SCALE SCORES BASED ON LEVEL OF COLLEGE-READINESS IN READING**

Level of Reading Preparation		STA	MOT
Not college-ready in Reading	Mean	28.00	36.29
	N	7	7
	Std. Deviation	1.83	3.15
College-ready in Reading	Mean	23.33	30.98
	N	40	40
	Std. Deviation	5.41	5.82
Total	Mean	24.02	31.77
	N	47	47
	Std. Deviation	5.30	5.80

A greater percentage of students struggled to meet the writing criteria for college-readiness in English than struggled to meet the reading criteria. Thirty-two students (68.1percent) scored college-ready in writing while 15 (31.9 percent) failed to meet the writing criteria.

**TABLE 4.10: FREQUENCY OF COLLEGE-READINESS IN WRITING AMONG STUDY PARTICIPANTS**

Level of College-readiness in Writing	Frequency	Percent
Not college-ready in Writing	15	31.9
College-ready in Writing	32	68.1
Total	47	100.0

**TABLE 4.11: ANOVA – COMPARISON OF MEAN LASSI SCALE SCORES BASED ON LEVEL OF COLLEGE-READINESS IN WRITING**

		Sum of Squares	df	Mean Square	F	Sig.
ATT	Between Groups	32.936	1	32.936	1.228	.274
	Within Groups	1206.808	45	26.818		
	Total	1239.745	46			
MOT	Between Groups	17.873	1	17.873	.526	.472
	Within Groups	1528.552	45	33.968		
	Total	1546.426	46			
TMT	Between Groups	63.193	1	63.193	1.951	.169
	Within Groups	1457.275	45	32.384		
	Total	1520.468	46			
ANX	Between Groups	1.207	1	1.207	.021	.885
	Within Groups	2547.219	45	56.605		
	Total	2548.426	46			
COM	Between Groups	38.503	1	38.503	.775	.383
	Within Groups	2234.433	45	49.654		
	Total	2272.936	46			
INP	Between Groups	2.704	1	2.704	.072	.790
	Within Groups	1698.402	45	37.742		
	Total	1701.106	46			
SMI	Between Groups	2.224	1	2.224	.220	.642
	Within Groups	455.733	45	10.127		
	Total	457.957	46			
STA	Between Groups	86.260	1	86.260	3.217	.080
	Within Groups	1206.719	45	26.816		
	Total	1292.979	46			
SFT	Between Groups	45.666	1	45.666	1.090	.302
	Within Groups	1884.802	45	41.884		
	Total	1930.468	46			
TST	Between Groups	1.327	1	1.327	.057	.812

	Groups					
	Within Groups	1039.652	45	23.103		
	Total	1040.979	46			

While there was no significant difference ( $p < .05$ ) on any of the 10 LASSI-HS scales between the means of students who were college-ready in writing and those who were not, the difference between means for use of study aides (STA) was again very close to significant with  $p = .080$ . As with the comparison of means scale scores for students college-ready and not college-ready in reading, those students who were least prepared in writing for college-level work tended to have higher STA scale scores than the students who were college-ready in writing.

**TABLE 4.12: COMPARISON OF MEAN STA SCALE SCORES BASED ON LEVEL OF COLLEGE-READINESS IN WRITING**

Level of Writing Preparation	Mean	N	Std. Deviation
Not college-ready in writing	26.00	15	3.36
College-ready in writing	23.09	32	5.82
Total	24.02	47	5.30

Removing outlying cases as before (those scores falling into the 99<sup>th</sup> and 1<sup>st</sup> percentiles) resulted in a significant difference between groups.

**TABLE 4.13: ANOVA – COMPARISON OF MEAN SCALE SCORES FOR USE OF STUDY AIDES BASED ON LEVEL OF COLLEGE-READINESS IN WRITING (OUTLYING SCORES REMOVED)**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	112.900	1	112.900	5.819	.020
Within Groups	814.828	42	19.401		
Total	927.727	43			

The majority of students in this study had a difficult time meeting the criteria for college-readiness in math with only 16 of the 47 (34 percent) testing college-ready in math. Given this fact, the researcher divided the students into three groups based on current placement standards at NHMCCD: college-ready in math, marginally college-ready in math, and poorly prepared in math.

**CHART 4.2 LEVEL OF PREPARATION IN MATH**

Level of Preparation in Math	NHMCCD Developmental Math Placement Based on COMPASS	Semesters of Developmental Math Needed Prior to Enrollment in College Algebra
College-ready in math	60+ on Algebra section of COMPASS	None
Marginally college-ready in math	28-59 on Algebra section of COMPASS	1 to 2 semesters

**TABLE 4.14: FREQUENCY OF COLLEGE-READINESS IN MATH AMONG STUDY PARTICIPANTS**

Level of College-readiness in Math	Frequency	Percent
Level 1: Poorly prepared for college-level math	14	29.8
Level 2: Marginally college-ready in math	17	36.2
Level 3: College-ready in math	16	34.0
Total	47	100.0

**TABLE 4.15: ANOVA – COMPARISON OF MEAN LASSI SCALE SCORES BASED ON LEVEL OF COLLEGE-READINESS IN MATH**

		Sum of Squares	df	Mean Square	F	Sig.
ATT	Between Groups	88.579	2	44.289	1.693	.196
	Within Groups	1151.166	44	26.163		
	Total	1239.745	46			
MOT	Between Groups	81.656	2	40.828	1.226	.303
	Within Groups	1464.769	44	33.290		
	Total	1546.426	46			
TMT	Between Groups	177.837	2	88.919	2.914	.065
	Within Groups	1342.631	44	30.514		
	Total	1520.468	46			
ANX	Between Groups	9.677	2	4.839	.084	.920
	Within Groups	2538.748	44	57.699		
	Total	2548.426	46			
COM	Between Groups	119.188	2	59.594	1.217	.306
	Within Groups	2153.748	44	48.949		
	Total	2272.936	46			
INP	Between Groups	30.123	2	15.061	.397	.675
	Within Groups	1670.984	44	37.977		
	Total	1701.106	46			
SMI	Between Groups	1.062	2	.531	.051	.950
	Within Groups	456.895	44	10.384		
	Total	457.957	46			
STA	Between Groups	116.136	2	58.068	2.171	.126
	Within Groups	1176.842	44	26.746		
	Total	1292.979	46			
SFT	Between Groups	184.173	2	92.087	2.320	.110
	Within Groups	1746.295	44	39.689		
	Total	1930.468	46			
TST	Between Groups	75.109	2	37.554	1.711	.193
	Within Groups	965.870	44	21.952		
	Total	1040.979	46			

As with the ANOVA analysis for reading, there was no significant differences between the means of three groups on any of the 10 LASSI-HS scales ( $p < .05$ ). A post-hoc analysis was done between groups using Levene's LSD.

**TABLE 4.16: LSD POST-HOC MULTIPLE COMPARISONS OF MEAN LASSI SCALE SCORES BASED ON LEVEL OF COLLEGE-READINESS IN MATH**

Dependent Variable	(I) Math Read	(J) Math Read	Mean Difference (I-J)	Std. Error	Sig. <sup>†</sup>	95% Confidence Interval	
						Lower Bound	Upper Bound
ATT	1*	2**	.55	1.85	.767	-3.17	4.27
	1	3***	3.16	1.87	.098	-.61	6.93
	2	3	2.61	1.78	.150	-.98	6.20
MOT	1	2	.27	2.08	.898	-3.93	4.47
	1	3	2.92	2.11	.174	-1.34	7.18
	2	3	2.65	2.01	.194	-1.40	6.70
TMT	1	2	.81	1.99	.686	-3.21	4.83
	1	3	4.49	2.02	.032	.42	8.57
	2	3	3.68	1.92	.062	-.20	7.56
ANX	1	2	-.78	2.74	.777	-6.31	4.74
	1	3	.26	2.78	.926	-5.34	5.86
	2	3	1.04	2.65	.696	-4.29	6.37
COM	1	2	2.28	2.53	.371	-2.81	7.37
	1	3	3.99	2.56	.126	-1.17	9.15
	2	3	1.71	2.44	.487	-3.20	6.62
INP	1	2	-1.34	2.22	.550	-5.82	3.14
	1	3	.51	2.26	.823	-4.04	5.05
	2	3	1.85	2.15	.394	-2.48	6.18
SMI	1	2	.37	1.16	.755	-1.98	2.71
	1	3	.26	1.18	.827	-2.12	2.64
	2	3	-.11	1.12	.925	-2.37	2.16
STA	1	2	-.76	1.87	.687	-4.52	3.01
	1	3	2.84	1.89	.141	-.98	6.65
	2	3	3.60	1.80	.052	-3.49E-02	7.23
SFT	1	2	-1.71	2.27	.455	-6.30	2.87
	1	3	2.97	2.31	.204	-1.67	7.62



	2	3	4.69	2.19	.038	.27	9.11
TST	1	2	2.99	1.69	.084	-.42	6.40
	1	3	2.43	1.71	.164	-1.03	5.88
	2	3	-.56	1.63	.734	-3.85	2.73

† The mean difference is significant at the .05 level.

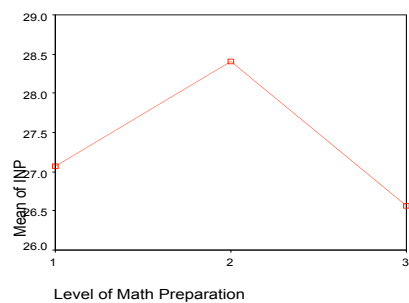
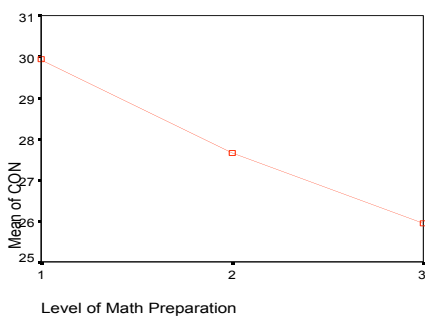
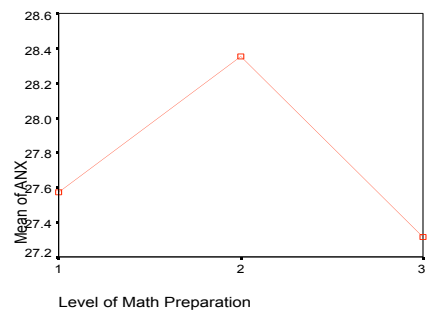
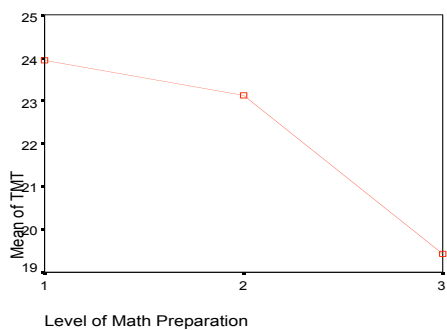
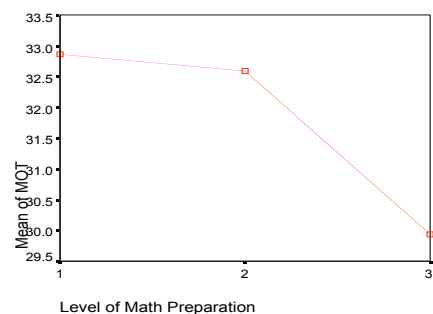
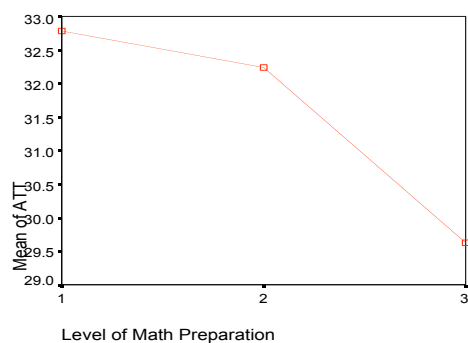
\* 1: Poorly prepared for college-level math

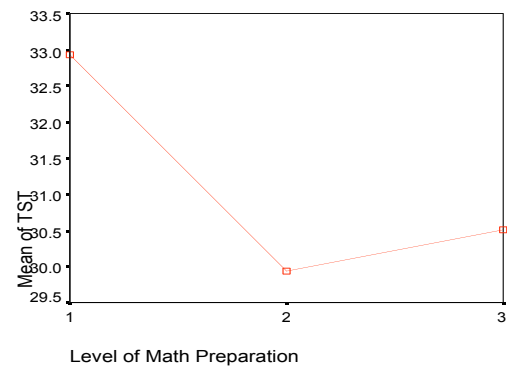
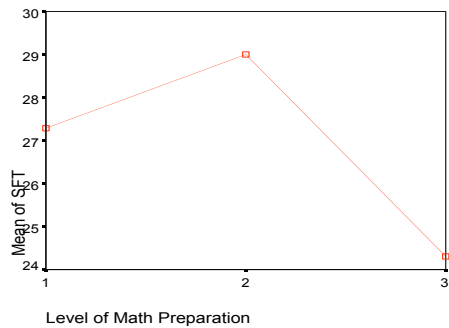
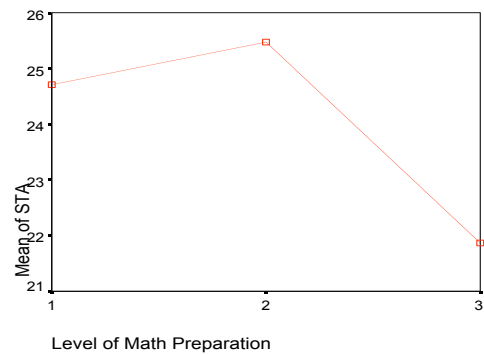
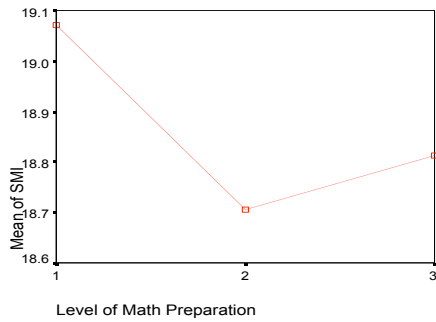
\*\*2: Marginally college-ready in math

\*\*\* 3: College-ready in math

Except for time management (TMT) and self testing (SFT) and marginally, use of study aids (STA), the analysis failed to yield any evidence that there was a significant difference in master of learning and study skills between the three levels of college-readiness in math. However, further investigation of the differences between these three groups led to the most interesting finding of this study: With the exception of selecting main ideas (SMI) and test-taking strategies (TST), those students who were most prepared for college-level math (Level 3) scored the lowest on each of the 10 learning and study strategy scales. This is easiest to view in mean plots for each LASSI-HS scale.

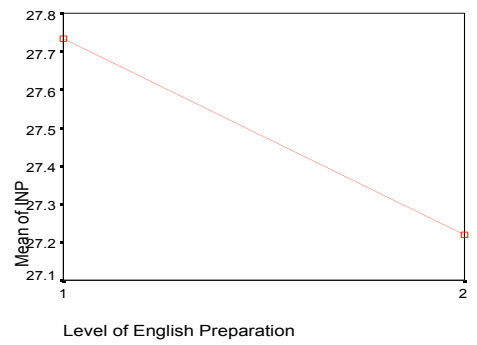
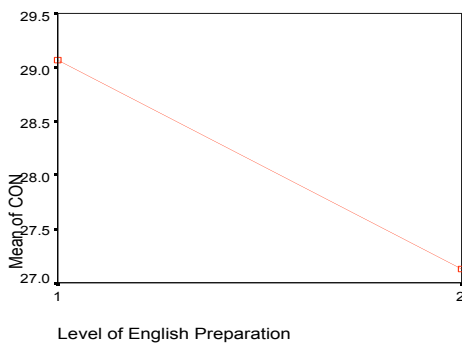
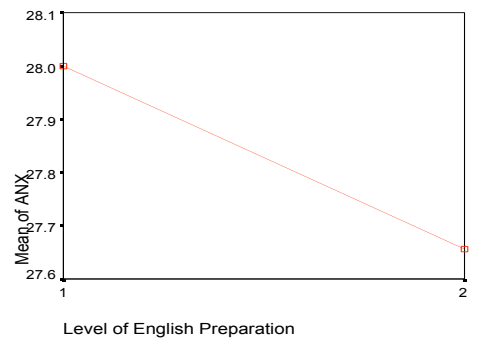
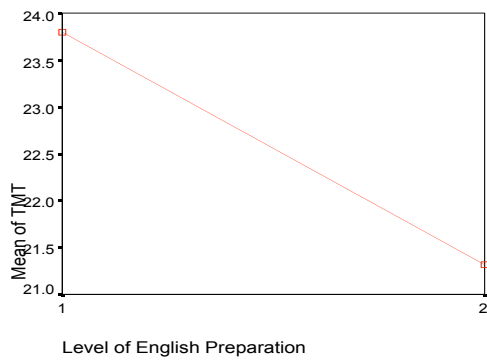
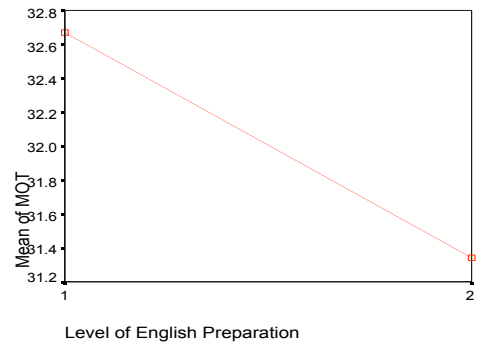
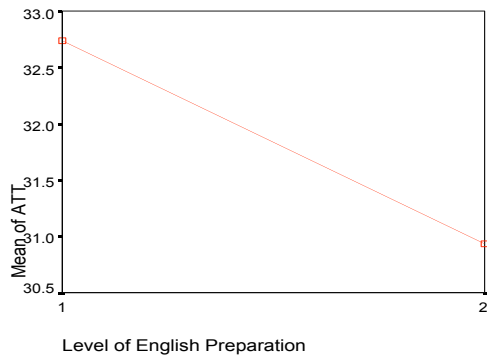
**GRAPH 4.1-4.10: MEAN PLOT OF SCALE SCORES BASED ON LEVEL OF PREPARATION IN MATH**

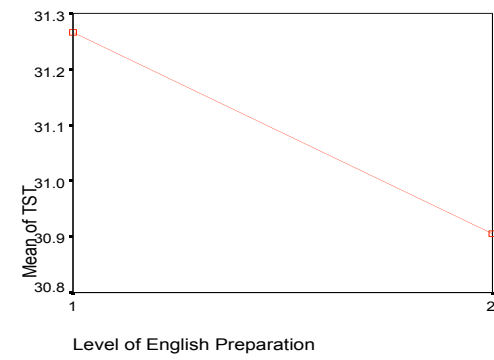
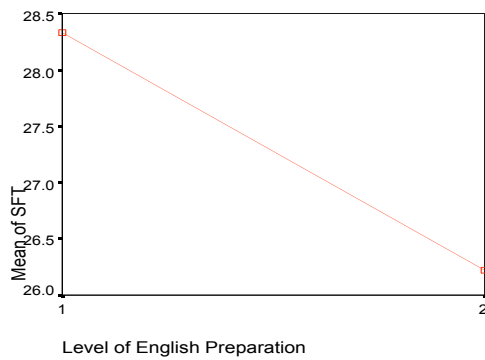
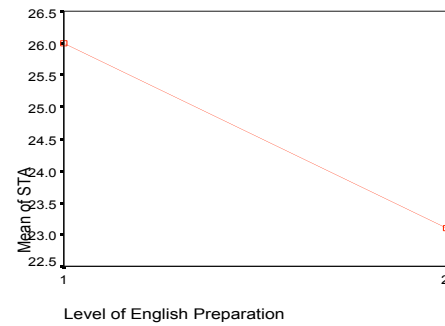
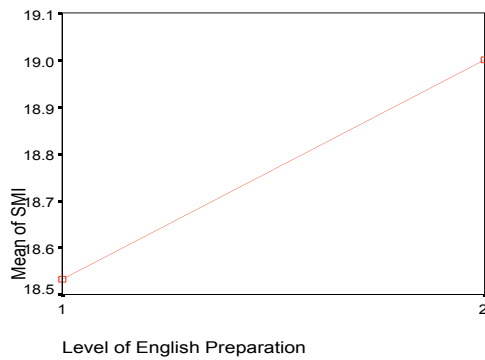




A similar pattern emerges in the mean plots of scale scores when the students are divided into groups based on college-readiness in English (Graphs 4.11-4.20). With the exception of selecting main ideas (SMI), students who are college-ready in English (Level 2) tended to have lower scale scores than those students who were not college-ready in English.

**GRAPH 4.11-4.20: MEAN PLOT OF SCALE SCORES BASED ON LEVEL OF PREPARATION IN ENGLISH**





**Hypothesis 3: On each of the 10 LASSI scales, there are no significant differences in the scale scores when study participants are grouped by gender.**

As noted in the beginning of this chapter, the participants in this study were overwhelmingly female (68.1percent). When grouped by gender, no significant difference was noted between groups on any of the scale scores with none of the scales being close to significant.

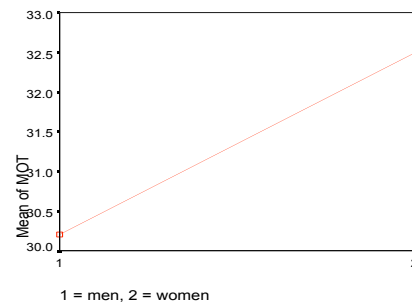
**TABLE 4.17: ANOVA – COMPARISON OF MEAN LASSI SCALE SCORES BASED ON GENDER**

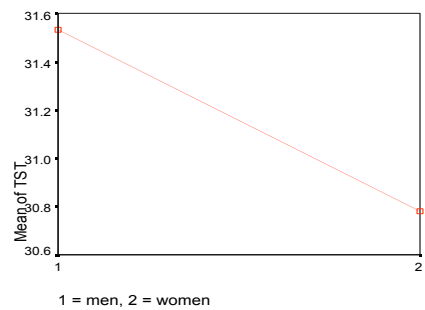
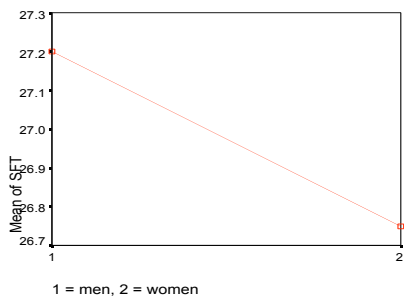
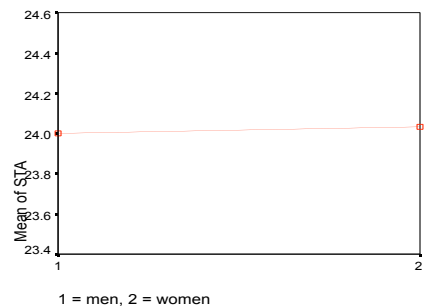
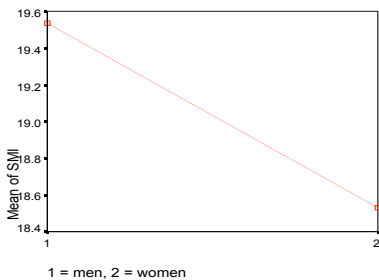
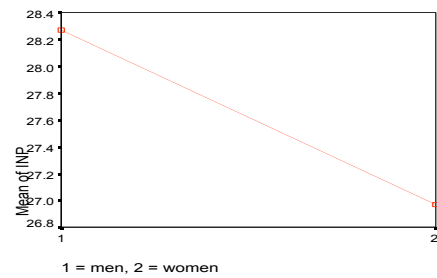
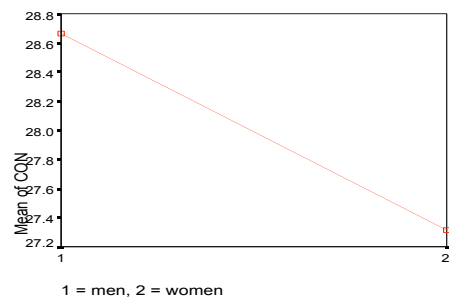
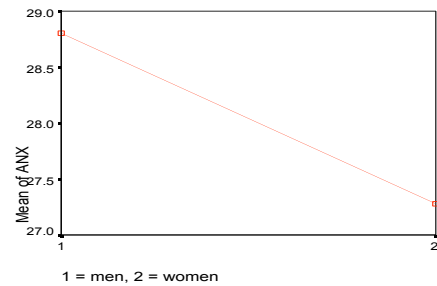
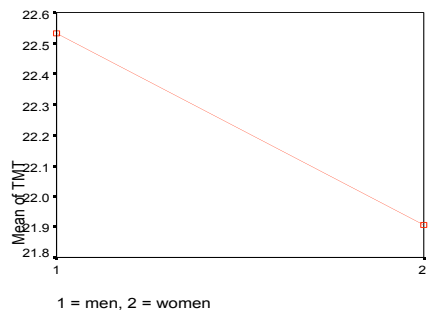
		Sum of Squares	df	Mean Square	F	Sig.
ATT	Between Groups	59.543	1	59.543	2.270	.139
	Within Groups	1180.202	45	26.227		
	Total	1239.745	46			
MOT	Between Groups	54.026	1	54.026	1.629	.208
	Within Groups	1492.400	45	33.164		
	Total	1546.426	46			
TMT	Between Groups	4.016	1	4.016	.119	.732
	Within Groups	1516.452	45	33.699		
	Total	1520.468	46			
ANX	Between Groups	23.557	1	23.557	.420	.520
	Within Groups	2524.869	45	56.108		
	Total	2548.426	46			
COM	Between Groups	18.728	1	18.728	.374	.544
	Within Groups	2254.208	45	50.094		
	Total	2272.936	46			
INP	Between Groups	17.204	1	17.204	.460	.501
	Within Groups	1683.902	45	37.420		
	Total	1701.106	46			
SMI	Between Groups	10.255	1	10.255	1.031	.315
	Within Groups	447.702	45	9.949		
	Total	457.957	46			
STA	Between Groups	9.973E-03	1	9.973E-03	.000	.985
	Within Groups	1292.969	45	28.733		
	Total	1292.979	46			
SFT	Between Groups	2.068	1	2.068	.048	.827
	Within Groups	1928.400	45	42.853		
	Total	1930.468	46			
TST	Between	5.777	1	5.777	.251	.619

	Groups					
	Within Groups	1035.202	45	23.004		
	Total	1040.979	46			

Despite the fact that there was no significant difference between means for men and women, an interesting trend emerges when reviewing mean plots for the scales. While women tended to have higher scores on attitude and motivation, they had lower scores on the time management (TMT), controlling anxiety (ANX), concentration (CON), information processing (INP), selecting main ideas (SMI), use of self-tests (SFT), and test-taking strategies (TST). Men and women tended to have roughly equivalent scores on use of study aids (STA).

**GRAPH 4.21-4.22: MEAN PLOT OF SCALE SCORES BASED ON GENDER**







## Summary

Results of the data presented in this chapter examined the relationship between:

- Group means on the 10 LASSI-HS scale scores and the national 10<sup>th</sup> grade norms published by the LASSI-HS developers.
- Group means on the 10 LASSI-HS scale scores for students who were college-ready in English with group means for students who were not college-ready in English.
- Group means on the 10 LASSI-HS scale scores for students who were college-ready in reading with group means for students who were not college-ready in reading.
- Group means on the 10 LASSI-HS scale scores for students who were college-ready in writing with group means for students who were not college-ready in writing.
- Group means on the 10 LASSI-HS scale scores for students who were college-ready in math with group means for students who were not college-ready in math.
- Post-hoc analysis of between groups comparison for three levels of math preparation.
- Group means on the 10 LASSI-HS scale scores for women were compared to group means for men.

While significant differences between means were discovered in a few instances, what was of particular interest in the findings was that in almost all instances,

the students who were most prepared for college level work in reading, writing and/or math, tended to have lower scores on the LASSI-HS scales than their less-prepared peers. In the following and final chapter, further reflections on the study's findings, implications for community college administrators, and recommendations for further research will be presented.

## CHAPTER FIVE

### SUMMARY, IMPLICATION AND RECOMMENDATIONS

#### Summary of Findings

**Introduction:** Research conducted over the last three decades suggests that institutions of higher learning are continuing to see a significant number of traditional college freshmen who have left high school unprepared for the academic work they will encounter in college. In an effort to preserve the academic rigor of college-level classes, institutions of higher education has responded with mandatory assessment of academic skills for first-time college students and by requiring those who test below college-ready to participate in appropriate developmental classes. This approach has not been entirely successful given that those students who are least prepared may spend upwards of three semesters in developmental classes and a large percentage of students become discouraged and fail to complete the necessary developmental sequence. To reduce the time traditional freshmen are spending in developmental courses and to enhance student success, educators at both the secondary and post secondary levels must begin looking for solutions beyond remediation. Far too often, developmental classes are “simply “more of the same”: they take students who have not learned well in 10 or 12 years of standard didactic instruction, and then put them through an additional 15 weeks of similar instruction.” (Grubb, 2001).

In order to better understand the skills which students need to be academically successful, this study examined the relationship between students’ mastery of learning

and study strategies and level of college preparedness. Study participants were grouped by level of preparation in English, reading, writing, math and gender and group means on the 10 LASSI-HS scales were compared using one-way analysis of variance (ANOVA) and, in the case of math preparation, ad-hoc comparison of means using Levene's LSD.

The findings will be discussed in this chapter and related to the three research hypotheses referred to in Chapters I and III. In addition, implications for community college administrators will be discussed and recommendations for further research and action will be presented.

**Discussion:** In testing **Hypothesis 1: The Spring High School students' scores on each of the 10 LASSI scales will compare similarly to national norms published by the LASSI-HS authors**, the researcher found that study participants tended to have scale scores on the LASSI-HS that were higher than 55 to 65 percent of their peers from across the U. S. In particular, the participants had the strongest scores in controlling anxiety (ANX), concentration (CON), and use of test-taking strategies (TST) in which the group's mean scores fell into the 65<sup>th</sup> percentile.

A possible explanation for this finding is the fact that students participating in this study were recruited from the Spring High School Bridge Partnership program. Recruiting materials for the Bridge Partnership promoted the program as a resource for college-bound students. In addition, a significant proportion of the Bridge Partnership students were interested in qualifying for the dual- or concurrent-credit program in which high school students could earn college credit and high school credit

simultaneously if they met the college's minimum academic standards. As a result, the students participating in the Bridge Partnership, and by extension, this study, were exceptional. Hence, students in this study had a higher degree of mastery of learning and study strategies as well as motivation and a positive attitude toward school than did the national norm which involved students with broader post-high school graduation interests, academic ability and backgrounds.

In testing **Hypothesis 2: There exists a positive correlation between the Spring High School students' self-reported mastery of learning and study skills as measured by the LASSI-HS assessment and the students' level of college preparedness as measured by the COMPASS assessment in reading, writing (objective writing or grammar and the essay), and math**, the researcher compared mean scale scores from the LASSI-HS based on level of college-readiness in English, college-readiness in reading, college-readiness in writing and college-readiness in math. There were no significant differences between groups in the majority of instances. Significant differences between groups were found in the areas of use of study aids (STA), motivation (MOT), time management (TMT) self-testing (SFT) and test-taking strategies (TST). The chart below summarizes the results:

**CHART 5.1: SUMMARY OF SIGNIFICANT FINDINGS IN COMPARISON OF MEAN LASSI-HS SCALE SCORES BASED OF LEVEL OF PREPARATION**

<b>Comparison of students who were and were not college-ready in:</b>	<b>STA</b>	<b>MOT</b>	<b>TMT</b>	<b>SFT</b>
English	Close, $p=.080$			
Reading	<b>Significant</b>	<b>Significant</b>		
Writing	Close, $p=.080$			
Math			Close, $p=.065$	
Post-hoc Analysis of Means Based on Level of Preparation in Math	Close, $p = .052$ between Level 2 and Level 3 preparation in math		<b>Significant</b> difference between Level 1 and Level 3 preparation in math Close, $p = .062$ between Level 2 and Level 3 preparation in math	<b>Significant</b> difference between Level 2 and Level 3 preparation in math.

\* Level 1: Poorly prepared for college-level math

\*\*Level 2: Marginally college-ready in math

\*\*\* Level 3: College-ready in math

While the differences in scale scores between student groups was not as pronounced as the researcher anticipated, what was of particular interest was the fact that with very few exceptions, when grouped by level of preparation in English, reading, writing or math, the most prepared students tended to have the lower LASSI-HS scale scores than their less academically-prepared peers.

One possible explanation that emerges to explain why the students who were best prepared academically had the lowest mastery of learning and study strategies was that these students are very bright and they have been able to master the high school curriculum with ease. As a result, it has not been necessary for these students to master advanced learning and study skills. By contrasts, the students for whom reading,

writing or math came less easily had to augment their native abilities with well-honed learning strategies to remain competitive in the classroom.

Several pieces of anecdotal evidence and ancillary data lead the research to believe that many of these very bright students will have a difficult time making the transition from high school to college. In reviewing the population of one probation and suspension program within NHMCCD it was found that 40 percent entered the institution college-ready in English meaning they entered college with the necessary reading and writing skills needed for success in all but the non-math-based classes like College Algebra, Economics, and Chemistry. A significant majority of students who were on probation or the verge of suspension was college-ready in English (82 percent) well prior to moving onto the probation/suspension list. Almost half (48 percent) of the students in the group were college-ready in both math and English. Despite meeting the minimum academic requirements for entry into college-level courses, these students were unable to maintain a GPA above 2.0. At least for these students, the issue of academic success appears to be more than having mastered fundamental academic material.

A second piece of evidence which supports the conclusion that the academically prepared students may need more than academic skills to be successful are data which comes from a review of NHMCCD Bridge Partnership 10<sup>th</sup> and 11<sup>th</sup> graders who completed dual or concurrent credit courses from Fall 2004 through Summer 2005. Recall that under District policy, to be eligible for these courses, students had to test college-ready in both reading and writing. A total of 147 three-credit hour general

education courses in such as History, English, Psychology, Computer Science and Economics were attempted by the Bridge Partnership students. In 29 percent of those classes, the students earned a C, D, or F or withdrew. It is alarming to think that within an exceptional group of college-ready students for whom academic success is generally a given, almost 30 percent could not earn above a C in a freshman-level general education class.

The data become more compelling when the dual credit/general education classes are disaggregated into those which were taught on the high school campus (embedded classes) and those which were taught on the college campus. General education courses within the college district use a course-specific common syllabus so besides location, another major difference between these two types of classes is that classes taught on one of the five college district campuses tend to be composed of a mix of both dual credit and regular college students. A total of 105 three-credit hour general education classes were attempted and in 35 percent of those classes, the Bridge students earned a C, D, F or withdrew. By contrast, of the 49 dual credit/three-credit hour general education classes attempted in the more familiar high school environment, only about four percent of these students earned below a B in the course.

Grade inflation in the classes taught on the high school campuses is one possible explanation for the disparity in student success between these two groups. Other factors such as the time frame/format of the course (summer or long-semester) and high school academic workload in addition to the college-credit class may have influenced these outcomes. However, one thing is certain. Each student enrolled in the dual credit



program had to at least test college-ready in English so they began these courses with a solid foundation in reading and writing. Therefore, there appears to be other factors beyond academic foundation which influence a student's smooth transition into college and collegiate success.

A final piece of evidence which supports the researcher's interpretation of these findings is found in a follow-up survey to the study described in the preceding paragraph. Bridge students who withdrew or had earned a C or less on any dual-credit class were contacted and asked the following series of questions:

1. How challenging did you find \_\_\_\_\_ (name of dual credit class the student took and earned a C, D, F, or withdrew).

- a. Less challenging than my regular high school classes.
- b. No more challenging than my regular high school classes.
- c. Slightly more challenging than my regular high school classes.
- d. Significantly harder than my regular high school classes.

2. How much time per week did you study for this class?

- a. Less than 2 hours per week
- b. 2 - 4 hours
- c. 4 - 6 hours
- d. 7+ hours

3. At what point did you realize you might have difficulty with the course?

- a. Immediately
- b. After the first homework assignment

- c. After the first exam
- d. Midterm
- e. After the second exam
- f. End of the course
- e. Other \_\_\_\_\_

4. When you realized that you were having difficulty with the class, what did you do to improve your grades?

- a. Asked the professor for help.
- b. Signed up for tutoring in the Learning Center.
- c. Increased time spent studying (reading, preparing for tests, doing homework, etc.).
- d. Checked out tutoring videos or other learning support materials from the Library.
- e. Asked another student for help.
- f. Developed and implemented a study plan to prepare for next test.
- g. Sought help from a tutor outside the college (a relative, former teacher, etc.)
- h. Other \_\_\_\_\_
- i. Did not seek outside help.
- j. Did not alter initial study strategies.

4. What factors contributed to you withdrawing from the class or earning the grade which you did?

- a. Material was difficult.

- b. Unsure what was expected on homework/tests.
- c. Pace of the course.
- d. The fact that there were a minimum number of grades given.
- e. Workload (reading, homework) associated with the class.
- f. Unsure how to prepare for the tests.
- g. Poor instruction or the instructor was not available for assistance.
- h. Did not understand college/instructor policies.
- i. Older classmates, felt uncomfortable in class.
- j. Unsure where to go to get additional help.
- k. Hours spent at job conflicted with class/homework schedule.
- l. Personal problems
- m. Other \_\_\_\_\_

5. If you were to retake \_\_\_\_\_ (name of dual credit class in which the student earned a C, D, F, or withdrew), what would you do differently?

A detailed summary of the results of this survey is not the focus of this dissertation; however a few findings are relevant. One-hundred percent of the surveyed students ranked the college class they took as “slightly more difficult” or “significantly more difficult” than their regular high school classes. On average, students reported studying two to four hours per week, even when the class was a summer class. Almost ninety percent of the students surveyed realized at midterm or before that they were having difficulty with the class. When asked what strategies they adopted to improve their grade in the class, students were most likely to indicate that they paired up with

another student for support. Only one student indicated she had a study plan. An overwhelming number of the students interviewed indicated that they were unaware of learning and support services such as writing labs or free tutoring through the district college's Learning Centers, "Take a Teacher Home" videos, or research assistance available through the colleges' reference librarians.

Without exception, students had very positive things to say about their professors. Students felt faculty were clear about their expectations and policies. While students indicated that faculty were approachable and willing to help students, very few talked to their professor about how they might improve their grade. Students did feel their classmates were willing to help them and often paired up with older students for assistance.

When asked what they would do differently if they took the class again, the students seemed to lack a clear plan of action. Responses tended to include vague resolutions like: (a) I would study more; (b) I'd read the material; and (c) I'd take more/better notes.

In summary, when they encountered challenging classes these students appeared to lack both time management skills as well as a range of learning and study strategies beyond pairing up with a peer tutor to help them to be academically successful. Furthermore, even after a few weeks or months to mull over their grade, none of the students seemed to have developed any concrete strategies for improving their success in the next class they took.

The researcher found that data indeed supported **Hypothesis 3: On each of the 10 LASSI-HS scales, there are no significant differences in the scale scores when students are grouped by gender.** No significant difference was noted in LASSI-HS scale scores between men and women. The young women in this study tended to have higher scores on attitude (ATT) and motivation (MOT) but had lower scores on time management (TMT), controlling anxiety (ANX), concentration (CON), information processing (INP), selecting main ideas (SMI), use of self-tests (SFT), and test-taking strategies (TST). Men and women tended to have roughly equivalent scores on use of study aids (STA).

With 68 percent of the participants being female, in terms of gender, the participants in this group mirrored the general population of NHMCCD in which roughly two-thirds of the enrollment is female. There has been a recent increased focus on the fact that women are entering college and completing degrees at a considerably higher rate than men. As Weinstein notes, having the “will” (i.e. positive attitude and motivation) to learn is a critical element of academic success and the fact that women tended to have higher scores in these two areas may offer some insight into why men are less likely to enter college and once enrolled, less likely to complete a degree. Additional research into this area is needed.

**Limitations:** There are limitations to this study both in terms of validity of student responses and transferability. This study relied upon self-reported responses to the LASSI-HS to gauge the students’ mastery and use of learning and study strategies. As with any self-reporting instrument, respondents who have a strong need for approval

may select their answers based on what they think the researcher would most approve. LASSI-HS items such as #47: “I make good use of study hours after school” or #16: “I come to class unprepared” might trigger such approval-seeking students to answer less candidly.

Other students may have difficulty simply admitting that there are times when they struggle with material. For example, some students might be embarrassed to answer questions like LASSI-HS #76: “I have a hard time finding the important ideas in my reading” honestly.

A second threat to validity is that this is a relatively small group of 47 students, with an unequal number of men and women and prepared and underprepared students.

Other limitations of the findings in this study relate to transferability. Study participants were drawn from a single urban, Texas high school during the 2004/2005 academic year. All the study participants were members of the Bridge Partnership and college-bound. As a result, the student profile for this study was only reflective of the college-bound students from this limited urban Texas area.

## **Implications for Secondary and Post-Secondary Faculty and Administrators**

In their 2001 preliminary report, the National Commission on High School Senior Year pointed out: (a) one-third to one-half of high school students are under-educated or mis-educated, (b) many students graduate ill-prepared for either work or

college, (c) many students never graduate at all – graduation rates for low-income and minority students lag behind those of middle and upper-income students – and in large cities, up to 40 percent of high school students drop out, and (d) the senior year is often a lost opportunity, during which many students let one-quarter of their high school learning time slip through their fingers. Becoming underprepared for college does not happen over overnight or even over the summer between high school graduation and the fall of the freshman year. As the Commission points out, becoming underprepared for college is a process, the result of many decisions in terms of both the classes taken as well as the effort put into those classes.

High school students should not have to wait until they graduate to learn they are under prepared for college-level work. Nor should they realize on the day of graduation that they should have taken college-predatory courses when they had the opportunity to do so as early as their freshman year in high school. Programs such as the NHMCCD Bridge Partnership which provides 10<sup>th</sup> graders with early college-readiness assessment serve as a critical “early warning system,” helping students and parents to realistically gage the level of preparation for college and to use the last two years of high school to the students’ greatest advantage.

Preliminary work with Bridge students is showing that early intervention both in terms of enhancing learning and study skills as well as academics, can help these students reduce, if not eliminate, the need for remediation. However, effective intervention programs are difficult to implement. While assessment can be done in a relatively short period of time, the level of advising needed to help students make the

most of the assessment results is time intensive. Students need to be appraised of the college-readiness test results and of the long-term consequences of those results. The student's academic and career goals must be taken into consideration when advising. For students who are not college-ready, a long-range plan of action needs to be developed so that any weaknesses in their academic background can be addressed prior to graduation. Assessment and diagnostic results need to be shared with faculty so they can help students target areas of academic weakness and faculty need to be open to what aggregate diagnostic data say about weaknesses in the overall high school curriculum. Finally, there needs to be follow-up to ensure that students are continuing to make progress toward college-readiness during their junior and senior years.

These activities translate into a considerable amount of one-on-one work with students and with both college and high school staff pressed to the limit, faculty and counselors are apt to balk at taking on additional duties. For their part, administrators balk at investing the necessary fiscal and human resources to launch and maintain an effective intervention program. Administrators and faculty at both levels must remember that telling a 10<sup>th</sup> grader he or she is not college ready but failing to offer appropriate strategies for improving is not only cruel, but unethical as well. It is akin to a healthcare practitioner telling a patient he has a serious physical problem while being uninterested or unwilling to offer treatment to remedy the problem.

In addition to offering intervention programs to help underprepared students, results from this study indicate that those students who are college-ready and transitioning to college through a dual credit program are in need of more support than



they have received in the past. Failure to support these young students is largely the result of an attitude among educators that assumed that testing college-ready was the primary, if not the sole necessity for academic success. Clearly this is not the case and for high school students taking classes in with the regular college population or during the compressed time frames of summer and weekend classes, this is particularly true.

A mentoring program designed to help these high school students navigate the high school to college transition by connecting them to college staff or mature college students would be particularly helpful.

Mandatory orientation sessions should be held to ensure that both parents and students understand dual credit policies and general college policies such as drop and withdrawal dates. Parents and students need to be aware that dual credit classes are transcribed and of long-term impact of D's and F's on college GPA and that when enrolled in a summer or mini-mester course, the compressed timeframe mandates attendance at every class session and more intense study periods.

Mandatory co-enrollment in the first college-level class and a learning and study skills class designed to help students improve learning skills and connect to tutoring and learning resources holds potential in helping these students transition more successfully. NNHMCCD has successfully utilized a similar approach with developmental students during its Summer Bridge program.

Finally, college faculty need to be aware that the majority of high school students in their classes are minors and as such, inexperienced. These students are often unaware of classroom and college policies which are common-knowledge among older

students. When faculty sense that a high school student is having difficulty in the class, discretely talking with the student about available options should be mandatory. The researcher believes that the vast majority of community college faculty are willing to offer these very young students gentle reminders and more one-on-one guidance on policies and deadlines which have the potential to negatively impact the student's long-term academic standing. However, these young students are often shy and intimidated by the college environment. Faculty may have to make the initial overtures. These intervention and support strategies are particularly critical for first generation college students whose parents have little or no knowledge of typical college practices or campus-based learning resources.

In his remarks to NHMCCD faculty during the 2004/2005 Convocation, Mark Milliron noted that the hallmark of a learning college was that every activity and policy was developed, assessed, and modified in light of the answers to two simple questions: (a) Does the activity/policy promote learning? and (b) How do you know? College administrators must place greater focus on the second question and become more diligent in the gathering of both baseline as well as longitudinal data to determine which programs and policies nurture student success and which need to be strengthened and improved – even when data point toward the need to resolve thorny issues. Furthermore, colleges must be willing to share those results with their high school partners and secondary faculty and administrators need to be more open to what these data say about student preparation for college and the secondary curriculum and advising programs.

## **Future Lines of Research**

As so often happens with research, the results of this study served only to pose more questions than they answered. In only a handful of cases were significant differences in LASSI-HS scale scores detected between groups based on level of college preparation. However, what was surprising was that in almost every case, the students who were most prepared academically tended to have the poorest scores on mastery and use of learning and study strategies. Data from ancillary sources indicated that around 30 percent of the time, these very bright students had difficulty transitioning to college and that poor mastery of learning and study skills could be a primary factor when dual credit students are unsuccessful in their first college classes. Further research needs to be conducted to determine if there is indeed a link between dual credit students' poor academic performance and poor study skills. Furthermore, it would be interesting to know if intervention strategies such as mentoring, mandatory orientation, and co-enrollment in learning and study skills classes helped drive down the percent of dual credit students who withdraw or earn a C or less in their first college credit classes.

As interesting as the findings related to college-ready high school students were, a question that continues to nag is how best to help those students who are not yet college-ready. At least for students in this study, their mastery of learning and study strategies tended to exceed their more college-ready peers. Would helping these students further refine their learning and study skills improve the likelihood that they too would be college-ready upon graduation? Or would current resources be better

invested solely in academic interventions? What impact would more targeted and/or more individualized counseling and advising have upon the long-term academic success of these students? Are there other factors that have not yet been considered that are contributing to students being underprepared for college?

The findings relating to the relationship between gender and learning and study skills are particularly tantalizing in light of the increased attention being paid to the disproportionately low number of men who are attending college. Given the fact that the men had less positive attitudes toward education and lower levels of motivation, at least for the individuals in this study, is there something about the learning environment in modern classrooms that is less comfortable for men than women? In a larger sampling of students drawn from more schools, would this trend remain or is this trend just confined to students from Spring High School? What elements in the modern classroom might contribute to men feeling less positive about education and less motivated?

While the women in the study tended to have a more positive attitude and greater motivation, they tended to have lower scale scores in areas such as concentration, time management, selecting main ideas, information processing, using self-testing and test-taking strategies. Women also tended to score lower in math though there was not a significant difference ( $p = .380$ ) between the men's and women's mean scores in algebra. How would helping women improve their mastery and use of learning and study strategies impact their academic performance? Would the

gap between men and women in terms of algebra decrease as a result? Would they be able to broaden their lead in terms of reading, writing and essay scores?

**TABLE 5.1: MEAN COMPASS SCORES FOR MEN AND WOMEN**

		ALG	READ	WRITE	ESSAY
Men	Mean	47.33	87.20	76.80	6.07
	N	15	15	15	15
	Std. Deviation	32.82	11.07	25.36	.70
Women	Mean	37.84	88.31	86.34	6.19
	N	32	32	32	32
	Std. Deviation	34.76	10.61	15.26	.93
Total	Mean	40.87	87.96	83.30	6.15
	N	47	47	47	47
	Std. Deviation	34.09	10.65	19.31	.86

Finally, there are research questions related to the administrative tasks associated with helping students become more college ready. It is critical that educators develop an increased understanding of the nature of the disconnect between K-12 and postsecondary education which has led to such large numbers of students needing remediation and unsuccessfully completing degrees. Systematic measures that speak to the need for a more integrated conception framework for responding effectively to the current challenges are indeed necessary to strengthen the bridge between schools and colleges. Research also needs to be conducted into how best to develop, fund, and implement innovative intervention strategies and cooperative relationships between

schools and colleges which can improve not only the academic preparation of high school students but also prepare them to succeed in college.

## **Summary**

The results of this study support the researcher's hypothesis that there would be no significant difference between mean LASSI-HS scale scores for men and women. It was noted that women tended to have higher scale scores on both attitude (ATT) and motivation (MOT) than men, although the difference was not significant. As educators attempt to better understand why women out-number men two to one on the average campus, the fact that men might, as a rule, be less positive about school and less motivated is tantalizing and points toward fascinating lines of future research.

The study also revealed that contrary to the researcher's hypotheses, the students in this group had higher scale scores on the LASSI-HS than their peers across the U. S. and that there were very few significant differences between groups means on LASSI-HS scales, regardless of the level of preparation. There were significant difference found between means for use of study aids (STA) and (MOT) when comparisons were made based upon level of college-readiness in reading. There were also significant differences between means for time management skills (TMT) and use of self testing (SFT) when comparisons were made based upon level of college-readiness in math. In two instances, the results were very close to significant for use of study aides, both when the comparisons were based on level of college-readiness in English and again when the comparisons were based on level of college-readiness in math.

This study began with a desire to seek out alternative strategies for helping underprepared students improve their educational foundations, to exit high school able to bypass developmental classes and move directly into college-level classes. What this study reveals, in fact, was that while not significantly different in most cases, the best prepared students tended to have the lowest learning and study strategy scale scores. This finding, though surprising, offers some tantalizing insight into the question of why very bright students do not always make the transition from high school to college well, do not enjoy the same level of academic success that they achieved in high school, or end up on academic suspension and probation for poor grades and it certainly merits additional research.

In light of these findings, educators may well need to do much more than they have in the past to support dual credit students as these special high school students transition into regular college classes. Strategies which offer promise include mentoring for dual credit students, particularly when they are taking class in the summer or in with the regular college population, better orientation to ensure these students understand common policies and procedures in college and the consequences of their academic performance in college, and mandatory co-enrollment in a learning and study strategy courses and the first on-campus college-level class.

That said, there is still much work which needs to be done to identify students who are not on-track to be college-ready at high school graduation and offer interventions which will eliminate or significantly reduce the number of developmental classes they must take during their first year in college. Once identified, those students

who are at risk of being under-prepared for college must have access to support services and intervention programs which help them identify and fill the holes in their academic backgrounds. Educators at both the high school and the post-secondary levels must be willing to work closely together to plan, fund and implement these interventions.

With the flexibility that the average high school curriculum now affords, it's easy for students to unknowingly make choices on the classes they choose to take (or not take) which can have significant impact on the probability that they will reach graduation ready for college. College-prep and late arrival/early release options are just two examples of these choices which can help or hinder the college-bound student. One particularly promising strategy to help students better navigate the last three years of college may well be more aggressive and individualized advising for students who are at risk of being unprepared for college upon graduation. At a recent Noel-Levitz conference on Student Recruitment, Marketing and Retention, Laurie Schreiner, chair of doctoral studies in education at Azusa Pacific University emphasized that the most essential element of retention is strong advising. She is quoted as saying, "Students leave because they are unsure of their future" and advised academic counselors to pay close attention to students' interests – incorporating their passions into proper class selection and solid financial planning (Nealy, 2005).

Lorain County Community College and Owens Community College in Ohio are hoping to improve the success of new and continuing students who have completed no more than 12 credits and who have shown indicators of academic difficulties, as determined by low grades or withdrawal from courses" (Brock & LaBlanc, 2005) by



significantly increasing the number of times students interact with an assigned advisor and by limiting the caseloads of these advisors, thereby improving the quality of those interactions. Implementation of a similar intensified advising program at the high school level which strives to help students make wiser course selections in light of the student's specific educational and career goals, to connect them with learning resources, and to coach them to use learning and study strategies could well be effective in helping underprepared students before they get to college.

Whether considering the student who still has a ways to go to being college-ready or the dual credit student who is college-ready and struggling with the transition to college, equity in higher education can be thought of in three parts: equity in college preparation, access to college and success in reaching college goals (Smith Morest & Mechur Karp, 2005). If commitment to student success is truly a fundamental value of the community college system, then McCabe is indeed correct. We must do better job in addressing issues of academic preparation and student success.

## BIBLIOGRAPHY

- Abel, W. (1966). Attrition and the student who is certain. *Personnel and Guidance Journal*, 44, p. 1042-45.
- ACT. (2004). Crisis at the core: Preparing all students for college and work. Retrieved November 7, 2004 from: [http://www.act.org/path/policy/pdf/crisis\\_report.pdf](http://www.act.org/path/policy/pdf/crisis_report.pdf).
- Astin, A. (1964). Personal and environmental factors associated with college dropouts among high aptitude students. *Journal of Educational Psychology*, 55, p. 218-227.
- Astin, A. (1977). *Four critical years: Effects of college on beliefs, attitudes, and knowledge*. San Francisco, CA.: Josse-Bass, Inc., Publishers.
- Astin, A. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, 25(3), p. 297-308.
- Attinasi, L. C. (1989). Getting in: Mexican Americans' perceptions of university attendance and the implications for freshmen year persistence. *Journal of Higher Education*, 60 (May/June), p. 247-277.
- Ballard, C. L. & Johnson, M. F. (2004). Basic math skills and performance in an introductory economics class. *The Journal of Economic Education*, 35(1).
- Brock, Thomas & LeBlanc, Allen. (2005). *Opening doors: Promoting student success in community college and beyond. The Opening doors demonstrations*. MDRC.
- Cancio, E. J., West, R. P., & Young, K. R. (2004). Improving mathematics homework completion and accuracy of students with EBD through self-management

and parent participation. *Journal of Emotional and Behavioral Disorders* V12 N1, p 9-22.

Cavanaugh, S. (2003). Disconnect between K-12, college targeted. *Education Week*, 23(10).

Clayton, M. (2002, March 5). Clock is ticking for remedial students. *Christian Science Monitor*, 3, (5). Retrieved March 1, 2004, from:  
<http://www.csmonitor.com/2002/0305/p13s02-lehl.html>.

Cohen, A.M., & Sanchez, J.R. (1997). The transfer rate: A model of consistency. Los Angeles, CA.: Center for the Study of Community Colleges. (ERIC ED409952).

Crowe, E. (1998). *Statewide remedial education policies*. Denver, CO: State Higher Education Officers.

Day, P. & McCabe, R. (1997). Remedial education: A social and economic imperative. Retrieved March 1, 2004, from:  
[http://www.aacc.nche.edu/Content/NavigationMenu/AboutCommunityColleges/Trends and Statistics/EnrollmentInfo/Remedial Education A Social and Economic Impe  
rative.htm](http://www.aacc.nche.edu/Content/NavigationMenu/AboutCommunityColleges/Trends_and_Statistics/EnrollmentInfo/Remedial_Education_A_Social_and_Economic_Implicative.htm).

Engle, S. (2002). College completion declining, taking longer, UCLA study shows. Retrieved March 1, 2004, from: [http://www.gseis.ucla.edu/heri/darcu\\_pr.html](http://www.gseis.ucla.edu/heri/darcu_pr.html).

Freebody, P. (2003). *Qualitative research in education: Interaction and practice*. London, U.K.: SAGE Publications.

Garza, C. & Landeck, M. (2004). College freshmen at risk-social problems at issue: An exploratory study of a Texas/Mexico border community college. *Social Science Quarterly*, 85(5), p. 1390.

Gill, B. P. & Schlossman, S. L. (2003). A nation at rest: The American way of homework. *Educational Evaluation and Policy Analysis*. Vol 25 no 3, p 319-337.

Grubb, W. Norton. (2001). Second chances in changing times: The roles of community colleges in advancing low-skilled workers. Prepared for the Low Wage Workers in the New Economy Conference, sponsored by Jobs for the Future.

Hadden, C. (2000). The ironies of mandatory placement. *Community College Journal of Research and Practice*, 24.

Harris, D. E., Hannum, L., & Gupta, S. (2004). Contributing factors to student success in anatomy & physiology: Lower outside workload and better preparation. *The American biology Teacher*, 66(3), p.168-175.

Hechinger Institute on Education and the Media, the Institute for Educational Leadership, & The National Center for Public Policy and Higher Education. (2002). Gathering momentum: Building the learning connection between schools and colleges. *Proceedings of the Learning Connection Conference*. Retrieved March 1, 2004, from: [http://www.highereducation.org/reports/g\\_momentum/MIS11800.pdf](http://www.highereducation.org/reports/g_momentum/MIS11800.pdf).

Hoyt, J. & Sorensen, C. (2001). High school preparation, placement testing and college remediation. *Journal of Developmental Education*, 25(2).

Kinchele, J. L. (2003). *Teachers as researchers: Qualitative inquiry as a path to*

*empowerment*. New York: Taylor & Francis.

Kohn, M. (1963). Social class and parent-child relationships: An interpretation. *American Journal of Sociology*, 68, p. 471-480.

Kohn, M. (1983). With the collaboration of J. Miller, K. Miller, C. Schoenbach, and R. Schoenberg. *Work and personality: An inquiry into the impact of social stratification*. Norwood, NJ.: Ablex Publishing Corp.

Kohn, M. & Schoerbach, C. (1993). Social stratification, parents' values and children's values. In D. Krebs & P. Schmidt (Eds.), *New directions in attitude measurement*. Berlin and New York: Walter de Gruyter.

Kohn, M., Slomczynski, K., & Schoenbach, C. (1986). Social stratification and the transmission of values in the family: A cross-national assessment. *Sociological Forum*, 1(1).

Lappan, G. & Phillip, E. (1984). The mathematical preparation of entering college freshmen. *NASSP Bulletin*, 68, p. 468.

Lewis, L. & Farris, E. (1996). Remedial education at higher education institutions in Fall 1995. Washington, D.C.: National Center for Education Statistics. NCES 97-584.

Luther, S. S. (Ed.). (2003). *Resilience and vulnerability*. Cambridge, UK: Cambridge University Press.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologists*, 56, p. 227-238.

McCabe, R. H. (1998). *Developmental education: A twenty-first century social and economic imperative*. Mission Viejo, CA.: League for Innovation in the Community College.

McCabe, R. H. (2000). *No one to waste*. Denver, CO.: Community College Press.

McCabe, R. (2003a). *Yes we can! A community college guide for developing America's underprepared*. Phoenix, AZ.: League for Innovation in the Community College in partnership with the American Association of Community Colleges.

McCabe, R. (2003b). The Bridge Partnership: Strengthening the path from 10<sup>th</sup> grade to college success (Draft Operating Manual). Retrieved March 1, 2004, from: <http://www.bobmccabe.org/Draft%20Operating%20Guide.html>.

National Center for Education Statistics. (2003). Remedial education at degree-granting post-secondary institutions in Fall 2000. Retrieved March 1, 2004, from: <http://nces.ed.gov/pubs2004/2004010.pdf>.

National Commission on the High School Senior Year. (2001). *The Lost Opportunity of Senior Year: Finding a Better Way (Preliminary Report)*. Retrieved September 15, 2005, from: [http://www.woodrow.org/CommissionOnTheSeniorYear/Senior\\_Year\\_Report\\_Final.pdf](http://www.woodrow.org/CommissionOnTheSeniorYear/Senior_Year_Report_Final.pdf).

Nealy, Michelle. (2005). Key to student retention – strong advising. *Diverse Issues in Higher Education* (formerly *Black Issues in Higher Education*), 22(14), p. 12.

Newsome, S., Day, A. L., & Cantano, V. M. (2000). Assessing the predictive validity of emotional intelligence. *Personality and Individual Differences*, 29, p. 1005-1016.

Nora, A. (1987). Determinants of retention among Chicano college students. *Research in Higher Education*, 26(1), p. 31-59.

North Harris Montgomery Community College District (2005). Placement guide for COMPASS, ASSET, and THEA assessment. NHMCCD internal documentation.

Parker, J. D., Summerfeldt, L. J., Hogan, M. J., & Majeski, S. A. (2004). Emotional intelligence and academic success: examining the transition from high school to university. *Personality and Individual Differences*. 36(1), p. 163-172.

Parsard, B. & Lewis, L. (2003). Remedial education at degree-granting post-secondary institutions in Fall 2000. Retrieved November 11, 2004 from: <http://nces.ed.gov/pubs2004/2004010.pdf>.

Pascarella, E. T. & Terenzini, P. (1980). Predicting persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education*, 1(1), p. 60-75.

Patton, M. Q. (2002). *Qualitative research and evaluation methods*. Thousand Oaks, CA.: SAGE Publications.

Rendon, L. (1994). Validating culturally diverse students: Toward a new model of learning and student development. *Innovative Higher Education*, 9(1), p. 33-52.

Roueche, J. & Roueche, S. (1993). *Between a rock and a hard place: The at-risk student in the open-door college*. Washington, D.C.: The American Association of Community Colleges.

Roueche, J. E. & Roueche, S. D. (1999). *High stakes, high performance: Making remedial education work*. Washington, D.C.: American Association of Community Colleges.

Smith Morest, Vanessa & Mechur Karp, Melinda. (2005). Transition patterns can reveal student success levels. *Community College Week*, 18(3), p. 4.

Sternberg, R., Wagner, R. , & Okagaki, L. (1993). Practical intelligence: the nature and role of tacit knowledge in work and at school. In: H. Reese and J. Puckett, (Eds), *Advances in lifespan development*. Erlbaum, Hillsdale, NH.: Abstract-PsycInfo.

Taylor, R. D. & Wang, M. C. (Eds.). (2000). Resilience across contexts: Family, work, culture and community. Mahwah, NJ: Lawrence Erlbaum.

Terenzini, P. (1994) The transition to college: Diverse students, diverse stories. *Research in Higher Education*, 35(1), p. 57-73.

Terenzini, P. T. & Pascarella, E. T. (1977). Voluntary freshmen attrition and patterns of social and academic integration in a university: A test of a conceptual model. *Research in Higher Education*, 6(1), p. 25-43.

Texas Education Agency. (2000). State Board of Education adopts more rigorous high school graduation requirements. Retrieve February 1, 2005, from: <http://www.tea.state.tx.us/press/pr000707.html>.



Texas Education Agency. (?) Student graduate reports. Retrieved February 1, 2005, from: <http://www.tea.state.tx.us/adhocrpt/adstg03.html>.

Texas Higher Education Coordinating Board. (1999). The effectiveness of developmental education at Texas public institutions of higher education. Austin, TX.: Texas Higher Education Coordinating Board.

Texas Higher Education Coordinating Board. (2000a). Texas Academic Skills Program (TASP) summary of TASP/alternative test (TASP/A) results: Academic year 1999-2000. Retrieved March 1, 2004, from: <http://www.thecb.state.tx.us/reports/pdf/0451.pdf>.

Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago, IL. University of Chicago Press.

Tinto, V. (1998). Colleges as communities: Taking research on student persistence seriously. *The Review of Higher Education*. 21(2), p. 167-177.

Tinto V., Russo, P., & Kadel, S. (1994). Constructing educational communities: Increasing retention in challenging circumstances. *Community College Journal*. 64, p. 26-30.

Wang, M. C. & Gordon, E. W. (1994). *Educational resilience in inner-city American: Challenges and prospects*. Hillsdale, NJ: Lawrence Erlbaum.

Waxman, H. C., Huang, S. L., & Padron, Y. N. (1997). Motivation and learning environment differences between resilient and nonresilient Latino middle school students. *Hispanic Journal of Behavioral Sciences*, 19(2), p. 137-156.

Weinstein, C. (1996). Self-regulation: A commentary on directions for future research.

*Learning and Individual Differences*, 8(3), p. 269-274.

Weinstein, C. & Palmer, D. E. (1990). LASSI-HS User's Handbook. Clearwater, FL.: H. & H. Publishing, Co.

Weinstein, C. (2000). The model of strategic learning. Conference handout.

Weinstein, C. (2004). Lecture notes. Kingwood Community College (1/29/2004).

Wong, C., Day, J., Maxwell, S. & Meara, N. (1995). A multivariant-multimethod study of academic and social intelligence in college students. *Journal of Educational Psychology*, 87, p 117-133.

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