

ASSESSING THE LINK BETWEEN LEARNING ASSISTANCE PROGRAMS AND THE  
RETENTION, PROBATION, AND GRADE POINT AVERAGE OF FRESHMAN  
UNIVERSITY STUDENTS

A Dissertation

by

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

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## ABSTRACT

As the push towards lowering attrition of university students intensifies, particularly for first-time-in-college freshmen, administrators and campus leaders are increasingly designing and implementing co-curricular programs to support this population in order to positively impact student outcomes, namely, the grade point average, student retention rate, and academic probationary status. The purpose of the study was to determine the extent by which the Learning Assistance Programs (LAP) usage, in conjunction with gender, ethnicity, and admission status, predict GPA, retention, and probation.

The correlational study took place in a Hispanic Serving Institution (HSI) of higher education in South Texas. The non-probability sample consisted of 2,925 first-time-in-college (FTIC) freshmen student. Existing data were used. Due to non-experimental nature of the study, no causal inferences were drawn.

The study was conducted to answer three research questions: (1) To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the retention of first-time-in-college freshman students?; (2) To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the probation status of first-time-in-college freshman students?; and (3) To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the GPA of first-time-in-college freshman students?

The binary logistic regression (for retention and probation) and hierarchical multiple regression (for GPA) analyses showed that, after controlling for gender, ethnicity, and admission status, the use of LAP was useful in predicting retention, probation, and GPA among FTIC freshman students at a regional HSI university in South Texas. There were more females, non-

Hispanics, standard admits, and LAP users who were retained than were males, Hispanics, alternative admits, and LAP non-users. There were more females, non-Hispanics, standard admits, and LAP users who were placed on probation than were the students in comparison groups. Females scored higher on GPA than did males. Non-Hispanics had higher GPAs than did Hispanics. Standard Admits had higher GPAs than did alternative admits. The students who had used the LAP had higher GPAs than did those who had not used the LAP. Theoretical and practical implications are discussed.

## DEDICATION

I dedicate this dissertation to my almighty God, my Father, who is my “refuge and strength, an ever-present help in trouble” Ps 46:1 (New King James Version); to His Son and my savior Jesus Christ, for his amazing unconditional love, support, and grace; and to the precious Holy Spirit, who provided the fortitude and energy to continue when I thought I had nothing left within to give. Thank you for your amazing grace, your healing, and your constant work on my behalf. Everything I have done or accomplished is because of your mighty hand: “True to who you are, you saw my heart . . . . I’m not living for applause [because] I’m already so adored” (Battistelli, 2014). Thank you, my great I AM.

It is an honor to dedicate this dissertation to the University students with whom I have had the privilege of assisting for the past 12 years at this institution. You inspired in me a passion to help and support those in need. Thank you for allowing me to be a part of your lives.

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I also express my sincerest gratitude to my friends and colleagues, as well as to the Colleges of Education and Graduate Studies faculty and staff who have assisted me in this journey. Morgan Beard and Donna DeGaish have been exemplary examples of student-centered assistance; your kindness and support will never be forgotten.

I also want to extend my gratitude to my parents for their prayers during those dark nights. Mom, your daily text messages of inspiration letting me know you and Dad were praying for me is something I appreciated beyond anything you could imagine. I am sorry I missed holidays and time with you; I am so sorry I only spent one day with Grandpa Ballmer when he was down—please let him know I am sorry I was too busy to visit with him.

I thank my roommate for tolerating my mass of papers and books, which spread like an explosion from my bedroom into the living room and common areas. Thank you for carrying things too heavy for me to lift and for tolerating my cranky demands for “Quiet!” Thank you for your patience, understanding, and emotional support. And thank you for always opening the garage for me.

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# CHAPTER I

## INTRODUCTION

### **Background and Setting**

As the push towards lowering attrition of university students intensifies, particularly for first-time-in-college freshmen, administrators and campus leaders are increasingly designing and implementing co-curricular programs to support this population in order to positively impact student outcomes, namely, the grade point average (GPA), student retention rate, and academic probationary status. A type of support program or intervention commonly utilized in higher education is learning or academic achievement centers, which are generally comprised of various learning assistance and academic support programs such as peer mentoring, tutoring, supplemental instruction, writing centers, and programs for first-generation students. For the purposes of this study, co-curricular Learning or Achievement Centers will be referred to as Learning Assistance Programs (LAP), which is the terminology commonly used in this field and by the Council for Advancement of Standards in Higher Education (CAS).

In addition to an increased call for retention support and positive student outcomes within the community of higher education, the College Reading and Learning Association (CRLA), a certifying organization, in collaboration with the CAS, released a white paper in December 2014 entitled, “Assessment of Learning Assistance Programs: Supporting Professionals in the Field” (Norton & Agee, 2014), calling for researched-based assessment practices which go beyond measuring student utilization and extending more to quantitative and statistical analyses in measuring and enhancing the impact of the LAP on student outcomes.

Student college debt continues to increase and concomitantly, the rate at which students are achieving degree attainment is falling (Lipka, August 18, 2014).

In fact, as reported in the Almanac of Higher Education in 2014, despite higher education's efforts to enhance programs and support students' completion rates, there has been little change in six years (Lipka, August 18, 2014). While the issue of student persistence is not a new problem facing students and administrators, the push for higher enrollment numbers and for four-to-six-year graduation rates places pressure on academic support programs co-curricular to classroom learning initiatives. When unit and departmental funding is tied to student outcomes and return on investments, the scrutiny of academic co-curricular programs, such as the LAP, becomes increasingly focused, which necessitates a deliberate and informed approach to academic support to help students reach positive and measurable learning outcomes. The LAP or Learning Centers, by focusing on these positive outcomes, typically align themselves with best practices and standards in the field of co-curricular academic support.

The National College Learning Center Association (NCLCA), a founding participant of the Council of Learning Assistance and Developmental Education Associations (CLADEA), is the largest association dedicated primarily to learning assistance and program development. Together with Learning Support in Higher Education (LSCHE) and CRLA, the NCLCA provides learning assistance professionals with the resources, guidelines, and standards by which the LAPs focus on creating, developing, and initiating academic support programming that may aid in student success and retention.

### **Statement of the Problem**

Though the literature in the field suggests the presence of the LAP and their various academic support programs at an institution are essential for successful student outcomes such as higher GPA, retention, and non-probationary status (Enright, 1975/1994; Christ, 1980/1994; Burns, 1980/1994; Maxwell, 1975/1994; Enright & Kerstiens, 1980/1994; Van, 1992/1994),



impacts on student outcomes vary greatly from institution to institution. Thus, inquiry into the impact of the LAP on student outcomes is recommended (Norton & Agee, 2014). Furthermore, the field has recently begun to recommend formalized assessment of the LAPs, and calls to move from only reporting usage or frequency data and to move towards measurement or correlations between student usage of the LAPs and student outcomes (Norton & Agee, 2014).

The LAP that served as the focus of this study is situated at a four-year university in South Texas. At the time of conducting the study, the university, a Hispanic Serving Institution (HSI), was predominately comprised of Hispanic and White (non-Hispanic) students, representing 46% and 39% of the 10,000 plus student population, respectively; females accounted for 60% of the student body. At this institution, all traditional first-time-in-college freshman students were being accepted as a “standard admit,” which was defined as fully accepted by meeting the minimum qualifications for admission through standard admissions criteria, such as high school GPA, standardized testing, or high school graduation rank. The other admission status was “alternative admit” for the applicants who did not meet the minimum qualifications for admission through standard admissions criteria but were accepted into the institution by a committee review.

### **Purpose of the Study**

The purpose of the study was to determine the extent by which the LAP usage, in conjunction with selected independent variables, predict retention, probation, and GPA. The specific predictors identified for this study are LAP usage, gender, ethnicity, and admission status. The following research questions guided the study:

1. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the retention of first-time-in-college freshman students?

2. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the probation status of first-time-in-college freshman students?

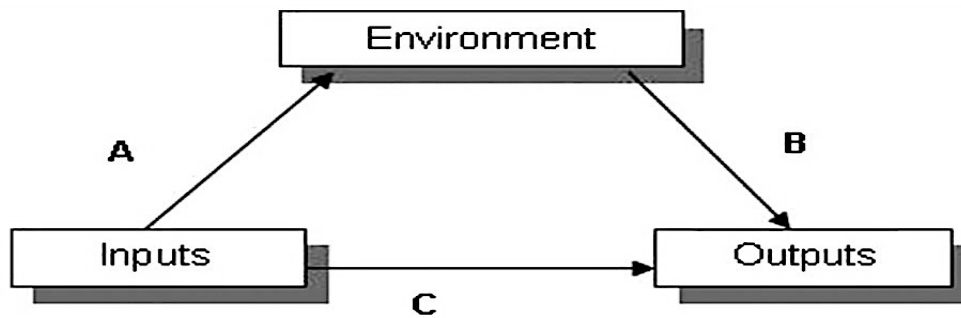
3. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the GPA of first-time-in-college freshman students?

### Theoretical Framework

The theoretical framework utilized in this study was Astin’s Inputs, Environment, and Outputs (I-E-O) model (1962, 1970, 1977, 1991, & 1993). The I-E-O model assesses students’ journey throughout their college career in conjunction with the potential impact of various experiences in higher education. The model is depicted in Figure 1.

Figure 1

Astin’s I-E-O Assessment Model



As Astin stated in *What Matters in College: Four Critical Years Revisited*, “While this model has undergone a number of refinements over the years, the basic elements of the model have remained the same” (1993, p. 7). The purpose of the I-E-O model is to assess impacts of environmental influences on student growth, which is measured by “comparing outcome characteristics with input characteristics” (Astin, 1993, p. 7).

*Inputs*, according to Astin (1993), are characteristics present at the time of enrollment. In this study, first-time-in-college freshman classification, admission status, gender, and ethnicity defined the characteristics.

Astin (1993) described *Environment(al)* characteristics as anything occurring to a student during college that could affect the outcomes, such as support programs, peers, and educational experiences. For the purposes of this study, the LAP usage/non-usage was the target environmental characteristic.

*Outcomes* are defined as the objectives of the educational program (Astin, 1993). For the purpose of this study, the outcome measures were delimited to GPA, retention, and probation. As there were no obvious pre-tests or surveys administered at the input stage of the study, and thus no comparisons to outputs could be made using the traditional I-E-O model, inputs and outcomes were delimited to the already defined characteristics available through institutional data and records.

In accordance with Astin's model, environmental variables typically consist of institutional characteristics, curriculum measures, the faculty environment, the peer group, and measures of student involvement (1993, pp. 32-81). As an adapted version of Astin's model, the most relevant environmental variables related to the intervention, or the LAP usage, are curriculum measures adapted to academic co-curricular variables. As a model mostly employed by student affairs professionals for assessment, Astin's model has been adapted to fit a LAP, housed under academic affairs and relating to the academic co-curriculum, specifically, the instructional support provided by peers outside the classroom in a structured environment. In other words, students define their needs as they access the LAP's co-curricular services.

## **Operational Definitions**

For the purpose of the study, the following operational definitions were utilized:

Of predictor variables, Learning Assistance Program (LAP) utilization was measured by a binary variable of (yes or no). LAP utilization was defined as usage totaling three or more instances of LAP usage. Non-usage was defined as two or fewer instances of LAP usage. Gender was measured by a binary variable (female or male). Ethnicity was measured by a binary variable (Hispanic or Non-Hispanic); the use of a binary variable was due to the low incidence of other ethnicities leading to little to no impact for the purpose of the study. Admission status was measured by a binary variable (standard or alternative admit). Standard admission was defined as the minimum qualifications for admission through standard admissions criteria, such as high school GPA, standardized testing, or high school graduation rank was met. Alternative admission was defined as the minimum qualifications for admission, though standard admissions criteria were not met the applicants were accepted to the institution by a committee review.

The outcome measures were retention, probation, and GPA. Retention (retained or not retained) and probation (probation or non-probation) were binary variables. Retention was defined as whether or not a student in Fall 2012, Fall 2013, or Fall 2014 cohorts was registered for the subsequent fall semester, (0 = no, 1 = yes). Probation, which was treated as a binary variable (0 = no, 1 = yes), was defined as a less than 2.00 GPA after the first semester of enrollment. The GPA was measured on a continuum, ranging from 0.00 to 4.00.

## **Glossary of Abbreviations**

LAP - Learning Assistance Programs

CAS - Council for Advancement of Standards in Higher Education

CRLA - College Reading and Learning Association

NCLCA - National College Learning Center Association

CLADEA - Council of Learning Assistance and Developmental Education Associations

GPA – Grade Point Average

HAS – Hispanic Serving Institution

I-E-O - Inputs, Environment, and Outputs

ORSA - Office of Retention Support and Analytics

AAC&U - Association of American Colleges and Universities

LEAP - Liberal Education and America’s Promise

HIPs - Initiative, High Impact Practices

FTIC - First-Time-in-College

BLR – Binary Logistic Regression

HMLA – Hierarchical Multiple Regression Analysis

OR – Odds ratio

## **Delimitations, Limitations, and Assumptions**

The study was delimited to 1) First-time-in-College (FTIC) freshmen students with no dual credit hours at a South Texas regional university; 2) four independent variables which served as potential predictors were LAP usage, gender, ethnicity, and admission status; and 3) the outcome measures of GPA, probationary/non-probationary status, and retention from fall-to-fall (one academic year). Due to the non-experimental nature of the study, no causal inferences

were drawn. Due to the non-probability nature of the sampling technique, external validity was limited to the post-hoc analysis of institutional data provided by the institution. It was assumed the existing data obtained from the Office of Retention Support and Analytics (ORSA) was accurate and the researcher will remain objective throughout the course of the study.

### **Significance of the Study**

Higher education administrators work to move the needle to improve first-year retention and completion. The call for LAPs to utilize empirical evidence to support program efficacy is not limited to a particular region of the country, and there is no magic bullet or one-size fits all approach to increasing first-year retention and completion rates. It is more cost effective to retain a student than to recruit a student, which is sure (Bean, 1980). Grillo and Leist (2013) posit, though:

Research on retention and academic support has often presented separate avenues of investigation within higher education scholarship. A discussion and assessment of both areas of research, as well as a discussion of why a synthesis of this literature can help explain retention to graduation, is necessary. (p. 389)

As retention has shifted in the last few years from a focus on the student to environmental influences within the intuitions, this type of examination is significant and relevant as LAP utilization becomes a factor in the I-E-O Model (Astin, 1984, 1993; Beal & Noel, 1980; Berger, 2001; Chickering & Gamson, 1991; Kuh, 2009; Milem & Berger, 1997). Specifically, the higher level of engagement in the environment, the more likely the students will be retained.

An examination of a South Texas LAP as an environment in the Astin's I-E-O model, in which student outcomes may be positively affected by certain attributes, can be useful in

understanding the importance of providing adequate student support in institutions of higher education.

## **CHAPTER II**

### **REVIEW OF THE LITERATURE**

#### **Introduction**

A review of the extant literature was conducted related to the history of learning assistance programs, learning centers, and academic support programs for first-year students. Additionally, relevant literature in the areas of student retention and completion practices was reviewed for strategies that are currently known to enhance completion and retention rates, in particular as they relate to academic support and Learning Assistance Programs (LAP). Finally, a review of the literature was conducted in the areas of the study's main variables, retention, probation, grade point average (GPA), gender, ethnicity, and admission status as they relate to Astin's (1993) I-E-O Model as a theoretical framework. In reviewing the literature, EBSCO, Google, Google Scholar, and the Mary and Jeff Bell Library at Texas A&M University-Corpus Christi were utilized to identify the relevant literature

#### **The History of Learning Assistance Programs**

Learning assistance programs have their historical roots in developmental education programs, more formalized in the 1960s, but stemming back to 17<sup>th</sup> century Harvard, which in following the European model, the language of instruction was primarily Latin, as were the texts utilized for instruction. "Few books, particularly scholarly works, were available in any language other than Latin" (Boylan & White, 1987/1994, p. 4). Thus, for the early colonists who may not have had formal instruction in the language, Harvard provided tutorials in Latin for those who may be deemed "underprepared," and this move is often considered as one of the first programs in developmental education and continued well into the 19<sup>th</sup> Century (Boylan & White, 1987/1994).



## **The Rise of Developmental Academic Support**

During the period of 1824-1848, commonly called the Jacksonian Democracy Period, the middle class grew to ever increasing numbers, such as the merchant class, which enabled access to education for those who were typically underrepresented in higher education. With this new class, new universities quickly appeared across the states, either through land grants or through private donations and fees (Boylan & White, 1987/1994). Essentially, with the rise of the middle class, those who could afford to attend institutions of higher education were often admitted, according to Brubacher and Rudy (1976) “without regard to prior learning or preparation” (as cited in Boylan & White, 1987/1994, p. 4). Though institutions continued to offer assistance in the form of tutorials, with the increase in enrollment of the “underprepared,” institutions were therefore faced with designing programming and services to help support the rise in students who needed compensatory learning assistance as enrollments quickly outgrew the number of tutors available. In response, in 1849, the University of Wisconsin established the first college preparatory department, which provided developmental courses in mathematics, writing, and reading (Boylan & White, 1987/1994). Proving a success, more than 80 percent of institutions of higher education across the nation adopted the University of Wisconsin’s model by 1889 (Boylan & White, 1987/1994, p. 5). And, with the passage of the land grant Morrill Act of 1862, institutions began to serve not only the merchant and upper-middle classes, but also the industrial and engineering classes, which was a major goal of the Morrill Act in providing access to higher education to more varied classes of people (Boylan & White, 1987/1994).

## **The Diversification of the Student Body and Types of Institutions**

The Post-Civil war era saw the rise of land grant colleges as well as women’s, agricultural, technical, and minority-serving institutions of higher education, such as African

American colleges. With this expansion of institutions of higher education came the rise of students needing academic support, as they were deemed “underprepared” for college (Boylan & White, 1987/1994). Interestingly, “The women admitted to early women’s colleges were underprepared for college because they were unable to obtain adequate secondary education . . . . [and] the baccalaureate degrees granted by women’s colleges were not regarded as equal to those granted by other institutions” (Boylan & White, 1987/1994, pp. 5-6). However, newer institutions in the Eastern and Western states were moving toward a co-educational approach for women. And, the technical institutes of the 1820s, which some consider the forerunners of adult education programs, were the first to make accommodations for evening courses and extension programs (Boylan & White, 1987/1994). These technical institutes became the predecessors for scientific schools, and according to Boylan and White (1987/1994), encountered similar challenges in underprepared students as the 20<sup>th</sup> Century community and junior colleges. Additionally, with the implementation of the Second Morrill Act of 1890, the rise of land grant colleges for African American colleges and institutions grew rapidly (Boylan & White, 1987/1994).

With the diversification of institutions of higher education and the students who attended, there became an increased need for academic support, initially in the form of developmental education programs, for those who were traditionally denied equal access to secondary education. Many of the early developmental or academic assistance programs took the form of additional courses or attendance to required labs; study skills courses; or reading, writing, and mathematics tutorials or labs, which carried on through preeminently from the early 1900s through the 1970s (Enright, 1975/1994). Many consider these programs as configurations of

early Learning Assistance Centers, places where developmental and supplemental academic assistance were centralized.

### **The Rise of the Learning Assistance Centers**

The study skills course and the accompanying handbooks, which often consisted of study strategies and academic success guides, were produced for students between 1916 and 1929 (Enright, 1975/1994). These “skills” programs began to be formally offered to entering freshmen in the 1920s-1930s; the courses expanded offerings to freshmen students on probation. This form of study skills courses was usually a ten-week or one semester orientation courses, and typically covered topics such as note-taking, reading textbooks, preparing for exams, test-taking strategies, library skills, time management, listening skills, and critical thinking, among other topics (Enright, 1975/1994). In 1926, at the University of Buffalo, one of the first summer bridge programs was implemented for students admitted who were deemed underprepared for university-level courses. The three-week skills development component required successful completion prior to admission to the university (Enright, 1975/1994). Enright further contends:

The idea of skills instruction, the relation to professionalism, the need for specificity or treating a problem in small parts, the seductive power of hardware, of mobilizing all available resources are concepts which would later reappear in the Learning Assistance Center Model. (1975/1994, p. 32)

During the 1940s and 1950s, developmental programs for reading consisted of reading labs with groups of students who worked on prescribed practices for enhancing reading skills. In the labs, the students’ practice and progress was monitored. Later, an appointment could be made for individualized work, but when most appropriate, group instruction was preferred (Enright, 1975/1994). The field of developmental and academic support recognized

this approach to be myopic and not addressing the needs of the whole student, so in the 1950-1960s, the field began to examine the academic and affective domains. Considered the “Age of Integration” by Enright (1975/1994, p. 3), it is in the 1950s, Universities such as New York University began to examine the influence of personality on learning. According to Tresselt and Richlin (1951), ability, personality, and study techniques factored significantly in the outcome of a student’s success (as cited in Enright, 1975/1994). The more affective domains, such as personal adjustment issues, structure, and attitude became a non-written component of developmental writing and reading courses. Additionally, the affective component began to be seen as a service area and not just another course (Enright, 1975/1994). This perspective led to early forms of drop-in clinics or labs, which was operationalized to enhancing and meeting needs of the whole student—an individualized approach, which typically combined lab sessions with tutoring, skills instruction, and individual counseling (Enright, 1975/1994). The focus became student-centered, rather than a focus on content. “Thus, the schema for skills development was set with students visiting labs on the recommendations of other students and finding a program for their specific needs” (Enright, 1975/1994, p. 34).

Individualized instruction in reading and study skills also became more manageable with the innovations made through technology, such as television, tape cassettes, and videotape, which could incorporate skills instruction and computer technology, that is, Frank Christ’s SR/SE Laboratory and Learning Assistance System (Enright, 1975/1994). It is in the 1960s-1970s, the term laboratory gave rise to larger, more holistic centers comprised of services to help support students in various ways, whether through programmed materials to help with content area courses, reading, study, and writing skills areas, as well as tutoring in some centers. The

focus became academic success through holistic and individualized assistance (Enright, 1975/1994).

Currently, Learning Centers have evolved to include academic support programs such as tutoring in content areas, supplemental instruction, academic success skills workshops, mentoring programs, retention programs, developmental education programs, and writing centers. “The rapid growth of the learning center movement was due in part to the dismal failure of remedial and compensatory programs based on special classes.” (Enright & Kerstiens, 1980/1994, p. 57). Though not all Learning Centers are comprised of each of all of the above services, most do offer an array of academic support, and these centers consider themselves to be Learning Assistance Programs, which are designed to meet the affective and academic needs of students where they are at in their educational preparation. Moving away from the more pejorative “remedial” focus, Learning Centers today set out to serve the entire campus. Traditionally housed within other larger entities, such as libraries, it is common today to have stand-alone Learning Centers on many campuses across the country. With this ideal in mind, one major goal of Learning Centers, or LAPs, is to gain institutional funding—to become a fully institutionalized learning assistance program; in order to gain this funding, however, it is necessary to prove the impact a program has on the students it serves.

Additionally, relating back to Astin’s I-E-O model, Learning Centers which focus not only on the academic domain but also on the inputs, or the affective domain, personality characteristics, receptivity to assistance, and motivational factors are incorporating the more holistic approach described by Enright (1975/1994). Moreover, Astin’s environmental factors, such as the Learning Center and its pedagogical approaches of individualized instruction, supportive communication, and center culture can positively or negatively affect the student’s

experience and thus outcome characteristics. With a holistic approach, as described in the literature, learning centers can address the affective and academic domains, and in turn, influence positive outcomes characteristics such as higher rates of service utilization, higher course GPA, increased rates of retention, and non-probationary status.

### **Student Retention and College Completion Practices**

Many in higher education, particularly those tasked with forecasting and enhancing retention and completion rates of students, have likely reviewed all the extant literature and best practices in college retention, such as the Association of American Colleges and Universities (AAC&U) Liberal Education and America's Promise (LEAP) Initiative, High Impact Practices (HIPs), and Inclusive Excellence. Important for LAPs are some of the LEAP Essentials such as essential learning outcomes, principles of excellence, and high-impact education practices, all pointing toward student success during and after the college experience. On Inclusive Excellence, the AAC&U board (2013) stated, "To make excellence inclusive, our society must break free of earlier views that an excellent liberal education should be reserved for the few. Instead, we insist that liberal education should be an expectation for all college students" (as cited in Brown-McNair, Couturier, & Christian, 2015, *Defining Shared Goals*). It is in this statement that a call to action is heard, not only regarding equal access to educational opportunities but also in college success, which can and should be supplemented by LAPs.

#### **What is Working?**

After reviewing the AAC&U's Initiatives, administrators may wonder, what is working to aid in retention and completion? Ruffalo Noel-Levitz's *2015 Student Retention and College Completion Practices Benchmark Report* outlines campus practices that have the potential to move the needle on retention and completion rates in relation to LAPs. In May 2015, Ruffalo

Noel-Levitz conducted a web-based poll of campus administrators. As a continuing benchmark poll, results are available for 2013 and 2011 of retention practices; the study is repeated every two years (Ruffalo Noel-Levitz, 2015).

### **Top Effective Strategies and Tactics for Retention and Completion**

Relevant to LAPs is the number two-ranked strategy of effectiveness for four-year public institutions: “Academic support (e.g., writing center, math lab, subject tutoring, supplemental instruction);” number three-ranked strategy of effectiveness: “Giving students practical work experiences in their intended major (e.g., internships [paid work in a LAP], volunteer work, experiential learning, service learning);” number five-ranked strategy of effectiveness: “Supplemental Instruction [typically provided by LAPs];” number six-ranked strategy of effectiveness: “Programs designed specifically for first-year students (e.g., orientation for first-year students, first-year experience program[s] [first-year peer mentoring, coaching of selected first-year, at-risk cohorts];” and number nine-ranked strategy of effectiveness: “Providing each student with an academic plan/roadmap of courses [as seen in mentoring and coaching programs]” (Ruffalo Noel-Levitz, 2015, p. 3). Most LAPs play an integral role in five of the ten most effective strategies for student retention and completion. In terms of Astin’s I-E-O model, LAPs provide the environmental characteristics for successful student outcomes.

### **Five Least Used Promising Strategies**

In a continuation of their 2015 Benchmark report, Ruffalo Noel-Levitz discussed least used, yet five promising strategies for four-year public institutions, of which three can and are often utilized in LAPs. Strategy number one: “Student success coaching;” strategy number two: “Programs designed specifically for second-year students;” and strategy number five: “Programs designed specifically for online learners” (Ruffalo Noel-Levitz, 2015, p. 5). As stated above

regarding Astin's I-E-O model, LAPs are able to provide the environmental characteristics for successful student outcomes/outputs.

### **Effectiveness of Internal Operations**

Ruffalo Noel-Levitz's (2015) report continued on to examine the effectiveness of internal management operations for retention and completion, of which LAPs typically participate in three of five strategies for four-year institutions. One, "Identifying courses with high withdrawal and/or failure rates [in determining programming and services offered by the LAP];" three, "Title V funding [academic support programming];" and five, "tracking persistence and progression patterns, term by term [by LAP utilization]" (Ruffalo Noel-Levitz, 2015, p. 6). Of notable interest for LAPs, academic support (writing center, tutoring, etc.) was reported as being utilized by 94.9% of reporting institutions, and 96% rated these LAP services as "very or somewhat effective" (Ruffalo Noel-Levitz, 2015, p. 9).

### **The Study's Main Variables**

#### **Student Learning**

Tagg's (2003) text, *The Learning Paradigm in College*, proposed a new view of college learning by discussing why innovations mostly do not work, proposing a new approach to student learning through a view that the "Whole determines the parts" (p. 89). Furthermore, the author proposed a new paradigm that emphasizes cognitive economy; intrinsically rewarded goals; consistent, continual, interactive feedback; purposeful communities of practice; and alignment of an institutional mission to produce student learning. Tagg's new paradigm can be applied across the curriculum and co-curriculum, specifically in the LAPs, and relate to Astin's environmental factors that produce positive outcomes.



## **Student Success**

Kuh, Kinzie, Schuh, and Whitt's (2005) *Student Success in College: Creating Conditions that Matter*, provided strategies for university administrators and faculty in promoting conditions for deep learning and student success, continuous enrollment (retention), enhancing engagement and learning, and recommendations for enhancing student success efforts. Kuh, et al. (2005) suggested, "[T]here is no single blueprint for student success" (p. 20), which is a tenant in the field of Learning Center and Academic Assistance theory and pedagogy. Furthermore, Kuh, et al. (2005) continued to examine environments for learning and shared responsibility for student success by fostering student agency. Relating back to LAPs, this type of academic support program is voluntary, and fostering agency, whether through mentors or peer tutors, assists students for the duration of their academic careers through a supportive campus environment; thus, proving a good fit with the I-E-O model.

## **Retention**

There exist many studies examining the importance of freshmen year and the relationship between attrition and retention (Astin, 1975; Braxton, Hirschy, & McClendon, 2004). For at-risk students, those who might be admitted conditionally, identify as a minority, or are considered low income or Pell grant eligible, it is argued the retention rates are even lower (Reason, Terenzini, & Domingo, 2006; Tinto, 1993). Of significance, some studies suggest a 25% attrition rate after the first year (Reason, Terenzini, & Domingo, 2006; Tinto, 1993).

At a regional South Texas university designated as "a Hispanic Serving Institution" (HSI), these realities become even more vital.

Braxton, et al.'s (2014) text, *Rethinking College Student Retention*, posited a unique view of retention, beyond persistence and retention. Focusing on other factors of student success,

emphasis is placed on areas such as the development of academic competence in reading, writing, and speaking; the enhanced development of cognitive skills; preparation of occupational placement; and personal growth. Similar to Astin's (1993) model, Braxton, et al. (2014) called for environmental factors that contribute to retention or attrition. Drawing on Tinto's Interactionalist Theory of Departure (1993), Braxton, et al. (2014) made recommendations for revising Tinto's theory (p. 3). Primarily, the authors framed the text in questions most relevant to those working to support university retention efforts: "What factors influence the first-year persistence of students enrolled in residential colleges and universities?" (Braxton, et al., 2014, p. 4). This question was posed to test Tinto's (1993) Interactionalist Theory of Departure. Research shows the institution must "show a commitment to student welfare, institutional integrity, and psychosocial engagement . . . as antecedents of social integration" (Braxton, et al., 2014, p. 206). Though some in the field of Learning Centers and LAPs may contend social integration is not the purview of academic assistance and support, but rather relegated to student affairs professionals, Braxton, et al. (2014) clearly articulated the need for all to assist in student social integration, which can take the form of academic social integration, allowing the students to move from the periphery of novice to the center of the sphere as they begin to identify themselves as scholars. And, as Gershenfeld, Ward-Hood, and Zhan (2016) noted, for some students "there are additional barriers to . . . successfully navigating predominantly White college environments" (p. 472). Learning Assistance Programs and their support staff assists in this navigation by acting as a mediator and also aids in Astin's (1993) environmental influences that produce desired and positive outcomes.

## **Probation**

As discussed, overall academic performance is related to retention and completion. Probationary status, that is, falling below a 2.00 on a 0.00 – 4.00 range in grade point average (GPA), is suggested by Gershenfeld, Ward-Hood, and Zhan (2016) as a probable “early predictor of performance after completion of the first semester” (p. 469). As it relates to academic support services and LAPs, it is common to find student utilization increasing as the GPA drops to probationary status, or conversely, without intrusive intervention (Hattie, Biggs, & Purdie, 1996), students may not utilize academic support services at all, thus finding themselves on academic probation and subsequently academic suspension. Within the first semester of a student’s first year in college, it is essential to enhance integration to the academic environment through LAP usage to reify the environmental influence of the institutions and its academic support services to enhance the likelihood of successful outcomes (Astin, 1993).

## **Grade Point Average**

Related to probationary status is grade point average (GPA). Gershenfeld, Ward-Hood, and Zhan (2016) posited first semester GPA is an early predictor of academic success or probationary status. Furthermore, studies conducted by Russell and Petrie (1992) and Weitzmen (1982) suggested those students who were underprepared in the first semester of college were likely to attain lower GPAs than did similar students who utilized learning strategies, as those supported in LAPs. Tying back to Astin’s (1993) I-E-O, and similar to the literature in the field of probation, without proper engagement in the LAP environment, the likelihood of positive outcomes such as higher GPAs are limited.

## **Gender**

Numerous studies have been conducted to determine the influence gender, as an attribute, has on graduation, persistence, academic success, and retention. Usually built into the methods of a larger study as a variable, the studies report similar findings, that is, females perform better in the above categories than do male students. For example, Luke, Redekop, and Burgin (2014) found female students had significantly higher levels of self-efficacy and persistence than did males in the same study. Moreover, Tinto (2012) reported, “Data from a six-year longitudinal study of students who began higher education in 1995 indicate that women earn bachelor’s degrees more frequently than men (21.9% versus 19.6%)” (p. 2). Consequently, gender becomes an important variable to examine as an input in Astin’s I-E-O model.

## **Ethnicity**

Underrepresented/minority populations in higher education tend to have decreased retention and graduation rates (Kelly, Schneider, & Carey, 2010; Kezar & Eckel, 2007; Gershen, Ward-Hood, and Zhan, 2016). Boylan, Bliss, and Bonham (1993/1994) examined the retention rates of African American and Latino students who placed into developmental courses and found white students are generally retained at higher rates than minority students. Maxwell (1997) asserted Learning Centers and their component LAs positively impact retention of minority students. Citing a 1994 study of UC Berkley’s underrepresented students’ academic success, Maxwell (1997) reported, “The dramatic gains in retaining the underrepresented minority groups were attributed to . . . the services of the student Learning Center [among other academic support programs]” (pp. 20-21). Creating and maintaining academic support programs can be instrumental in establishing conditions for success, as described by Kuh, et al. (2005), and its impact is measurable in accordance with Astin’s I-E-O Model.

## **Admission Status**

As one of the independent variables investigated in this study, the relevant literature suggests admission status is paramount to increasing the number of students who are successful (Kuh, et al., 2005). As an institution with a two-tiered approach to admission, students who are least prepared are often admitted by committee, thus potentially impacting success in the areas of GPA, retention, and probation status. As Kuh, et al. (2005) contended, “The best predictors of whether a student will graduate or not are academic preparation and motivation . . . Thus, the surest way to increase the number of ‘successful’ students—those who persist . . . is to admit only well-prepared, academically, talented students” (pp.7-8). The authors also noted that admission of only the students who are well-prepared is not a sustainable option; therefore, approaches to increasing student engagement, such as with the LAPs and tying to the I-E-O model, are necessary.

## **Theoretical Framework**

Astin (1993) suggested in *What Matters in College? Four Critical Years Revisited* a model of Inputs–Environment–Outcomes (I-E-O) that is derived from students’ engagement in college. Students’ success, thus academic achievement and retention, are linked to a student’s integration and engagement in the educational environment. The more engaged students are in the environment, with the pre-existing inputs withstanding, the more likely positive outcomes are attainable. And as discussed, student academic success and learning are related to variables such as probationary status, GPA, gender, and ethnicity as input variables when linked to environmental variables of engagement such as utilization of LAPs to reach successful outcomes in Astin’s (1993) I-E-O model. The model has been used as the theoretical framework in several doctoral dissertation studies. A few examples follow.

Correa (2009) examined the impact of participation in dual enrollment for students at a community college. There were 134 college-ready students who participated in dual enrollment programs and 567 who did not. Analysis of quantitative data showed that dual enrollment impacted academic achievement but not persistence; ethnicity influenced academic achievement but not persistence; gender had no relation to either academic achievement or persistence, and persistence was not related to previous college credit hours earned at high school. Analysis of the student focus group resulted in four themes, namely, 1) exposure to the program, 2) program participation, 3) advantages of participation, and 4) student characteristics. Three themes were derived from the administrator focus group: 1) culture of success, 2) value of experience, and 3) student characteristics.

Saladiner (2011) examined associations among students' degree of involvement, academic success, and retention, employing an explanatory sequential mixed methods design. The non-probability sample consisted of 192 first-year students in an HSI in South Texas. Analysis of the quantitative data showed an association between involvement in course-related activities and perceived level of academic achievement and an association between participants' perceived level of emphasis the university placed on students taking part in various activities and the likelihood of returning to the University. Analysis of student qualitative data resulted in three themes, namely, academic involvement, social experiences, and preconceived college experience. Analysis of faculty advisor qualitative data resulted in two themes: complete college experience and successful time allocation.

Manlove (2013) examined the impact of participation in extracurricular athletic activities on GPA, reading and mathematics achievement scores, attendance rate, and disciplinary referrals in a sample of 544 female Hispanic 11<sup>th</sup> graders who had participated in extracurricular athletic

activities and a comparison group of 244. In accordance with the I-E-O model, participation in extracurricular athletic activities of Hispanic females was the input, high school setting was the environment, and academic achievement, school attendance rates, and disciplinary referrals were the outcome measures. Analysis of the quantitative data showed an association between involvement in extracurricular activities and GPA, reading and mathematics achievement scores, and attendance rates. Analysis of the qualitative data resulted in three themes, namely, emotional support, managerial support, and an intrinsic drive for excellence for those who had participated in extracurricular athletic activities; and two themes of extrinsic influences and negative high school experience for the comparison group.

Sperry (2014) identified pre-college variables that could serve as predictors of retention and probation status of first-year students in six learning communities, namely, history, political science, science, developmental history, and other. There were 13 predictors: (1) first-semester hours, (2) developmental status, (3) high school percentile, (4) transferred hours, (5) SAT score, (6) age, (7) gender, (8) first-generation status, (9) ethnicity, (10) Pell Grant eligibility, (11), days since admission, (12) admission status, and (13) days since orientation. The sample size was 4,215, and a series of binary logistic regression analysis was performed to formulate the prediction equations. She found the variables useful in predicting the retention and probation status of first-year students and noted that the predictor variables changed based on the learning community under scrutiny.

### **Summary**

In summary, Learning Centers and Learning Assistance Programs (LAP) have a long history in assisting students attaining their educational objectives, from the least prepared to the highly prepared. Learning Assistance Programs draw on various best practices, literature, and

theoretical models, from national and state-funded entities to educational and social psychology and assessment, to determine programming and to enhance services to help students achieve academic success. In reviewing some of the most common variables in student achievement, attrition, and retention such as probationary status, GPA, gender, and ethnicity, LAPs become an environment to enable student success if students engage in the environment, as illustrated by Astin's (1993) I-E-O model.



## **CHAPTER III**

### **METHOD**

#### **Introduction**

The purpose of the study was to determine the extent by which the use of Learning Assistance Programs (LAP), in conjunction with gender, ethnicity, and admission status, predict retention, probation, and grade-point-average (GPA) in a large sample of First-Time-in-College (FTIC) freshman students. The following research questions guided the study:

1. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the retention of first-time-in-college freshman students?
2. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the probation status of first-time-in-college freshman students?
3. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the GPA of first-time-in-college freshman students?

#### **Research Design**

The study employed a correlational design. The purpose of a correlational study is to determine the magnitudes and directions of the associations among variables. There are two types of correlational studies (Vogt, Gardner, & Haeffele, 2012; Patten, 2014). Relationship studies are conducted to discover relationships among variables through the use of correlational techniques (Gall, Gall, & Borg, 2015). Prediction Studies are conducted to predict or explain criterion/criteria behavior(s) based on possible determinant(s); the predictor variable(s) should be measured some time before the criterion behavior occurs in order to conduct a prediction study (Gall, Gall, & Borg, 2015). This study was predictive in nature and resulted in two binary logistic regression prediction models for retention and probation, and one linear hierarchical

multiple regression prediction model for GPA. Due to non-experimental nature of the study, no causal inferences were drawn. The study's predictor variables and outcome measures were supported by the Input-Environment-Output (I-E-O) model (Astin, 2013).

### **Predictor Variables**

There was one major predictor variable, LAP usage, and three other predictors whose contribution was taken into consideration in formulating the prediction equations. All four were binary variables. The LAP usage was either yes, which was coded as one and signified the students who had gone to the LAP three or more time for assistance, or no, which was coded as zero and represented the non-users. Gender was coded as either male, coded as zero, or female, coded as one. The data for ethnicity originally included Whites, Hispanics, African-Americans, Asian/Pacific Islanders, and others. For the purpose of the study, ethnicity was dichotomized into either Non-Hispanic, coded as zero, or Hispanic, coded as one. At the time of conducting the study, the University was using two admission status categories, either fully admitted or alternatively admitted, which were coded as either one or zero, respectively.

### **Outcome Variables**

The first outcome, retention after first academic year (fall to fall), was determined by subsequent fall enrollment. Those who had been retained were coded as one, all others were coded as zero. The second outcome, probation status at end of first full year (fall to fall), was determined by overall GPA for each FTIC freshman. The University placed the freshman students on probation if their GPA was less than 2.00, and they were coded as one for the purpose of the study. All other freshmen were coded as zero, indicating that they had not been placed on probation. The GPA was the third outcome and was measured on a continuum, ranging from 0.00 to 4.00.

## **Subject Selection**

The subjects selected for the study were all FTIC freshman students enrolled during the years 2012-2015. The students with dual credits, previously earned hours, or those placed on behavioral/judicial probation were excluded from the study, resulting in a non-probability sample of 2,925. Specifically, 872 for 2012 - 2013, 1,047 for 2013 -2014, and 1,006 for 2014 - 2015 school years. Due to non-probability nature of sampling, study's external validity was limited to its participants (Patten, 2014; Gall, Gall, & Borg, 2015). Permission to conduct the study was obtained from the University's Institutional Review Board (Appendix A).

## **Data Collection**

The existing data were obtained from the University's Office of Student Retention Support and Analytics. The researcher requested the raw data for the abovementioned predictor and outcome variables. The researcher received five Excel spreadsheet files, which were merged into one file and exported into the IBM Statistical Package for Social Science (SPSS). Permission to use the data for the purpose of the study was obtained (Appendix B).

## **Data Analysis**

Data analysis involved the use of descriptive statistics, univariate analyses, and multivariate analyses. The descriptive statistics were used to summarize and organize the data. Specifically, appropriate measures of central tendency and variability, as well as frequency and percentage distribution tables were employed. The level of significance was set, a priori, at 0.01.

To answer the research questions one and two, two binary logistic regression (BLR) analyses were performed to formulate the prediction equations for retention and probation. The purpose of the analysis is to regress a dichotomous outcome measure on a set of predictors to estimate the probability of an event occurring, using a non-linear model. The dichotomous

variable is transformed so that it can range from minus infinity to plus infinity, using logistic transformation (Pedhazur & Schmelkin, 1991; Field, 2013; Hosmer & Lemeshow, 2013).

For the purpose of the study, the Likelihood-ratio Chi-square test was used to test the statistical significance of the prediction model (Pedhazur & Schmelkin, 1991; Field, 2013; Hosmer & Lemeshow, 2013). The Wald statistic was used to examine the statistical significance of the individual predictor variables. The Hosmer-Lemeshow Chi-square was performed to examine the goodness-of-fit of the model. The Nagelkerke  $R^2$  and classification tables were used to examine the practical significance and power of the model. The predictor variables of gender, ethnicity, and admission status were entered into the prediction equation first, followed by the LAP usage in the second step.

The probability ( $p$ ) of the event (retention or probation) occurring was estimated by  $p(\text{event}) = 1 / (1 + e^{-z})$ , where  $z = \text{Constant} + B1(\text{gender}) + B2(\text{ethnicity}) + B3(\text{admission status}) + B4(\text{LAP usage})$ , and  $e =$  the base of the natural logarithms, 2.718 (Pedhazur & Schmelkin, 1991; Field, 2013; Hosmer & Lemeshow, 2013). If  $p$  is greater than 0.50, the event will occur. The odds of an event can be computed by  $\text{odds} = p/(1-p)$  and if it is greater than one, then the odds are in favor of the event.

An example of the binary logistic regression model. Let's assume the prediction equation for depression is  $\text{depression} = -1.434 - (0.975)(\text{child development treatment}) + (0.444)(\text{family therapy}) + (0.333)(\text{marital conflict})$ . Child development treatment and family therapy are binary variables (0 = no, 1 = yes). Marital conflict is a continuous variable. The predicted score for the person without child development treatment (0), with family therapy (1), and with the marital conflict score of five would be  $\text{Depression} = -1.434 - (0.975)(0) + (0.444)(1) + (0.333)(5) = -1.434 - 0 + 0.444 + 1.665 = 0.675$ . The probability of depression,  $p(\text{depression}) = 1/(1 + e^{-z}) =$

$1/(1 + 2.718^{-0.675}) = 1/(1 + 0.509) = 1/1.509 = 0.66$ , which means this person will likely fall into depression. The  $odds = 0.66/(1 - 0.66) = 1.94$ , indicates that the odds are in favor of the event (depression).

To better understand the contributions of the predictors, odds ratios (OR) for two by two contingency tables were computed. For example, out of 11,037 subjects in a group taking an Aspirin a day, 104 had heart attack and 10,933 did not, resulting in the odds of  $104/10,933 = 0.0095125$ . In the placebo group of 11,034, 189 had heart attack and 10,845 did not, resulting in the odds of  $189/10,845 = 0.0174274$ . Both odds are low but their ratio is  $0.0174274/0.0095125 = 1.83$ , meaning that a person in the placebo group is 1.83 times as likely to have a heart attack as is a person in the aspirin group or one is about half as likely to have a heart attack if s/he takes an aspirin a day than the one who does not take it (Howell, 1992).

A hierarchal multiple regression analysis (HMRA) was performed to examine the contributions of the predictor variables in explaining the variation in GPA. First, the combined contribution of gender, ethnicity, and admission status in explaining the variation in GPA was examined, followed by assessing the unique contribution of the LAP usage. The Variance Inflation Factor (VIF) was examined to determine if multicollinearity existed. Specifically, if the average of VIFs is greater than one, multicollinearity cannot be ruled out. Outliers on predictor variables were examined, using the Hat Elements test;  $h = 3p/n$ , where  $p = k + 1$ , and  $k$  is the number of predictors. Any case with greater than the critical  $h$  must be examined to determine if it could bias the results. Cook's Distance was used to locate influential cases, which is identified by the value greater than one; such cases must be examined to determine if they could be deleted from the analysis. Standardized Residuals are examined to identify outliers on the outcome measure; any case greater than three in absolute value is considered an outlier and must be

carefully examined. Predicted value  $\pm 2$ (standard error of estimate) is used to build a 95% confidence interval for the actual score (Pedhazur & Schmelkin, 1991; Stevens, 2009; Field, 2013).

An example of the hierarchical multiple regression equation. Let's assume we would like to predict academic achievement, AA, on the basis of motivation (MOT), mental ability (MA), and socio-economic status (SES). All are continuous variables. The prediction equation is  $AA' = -30.019 + 1.454(MOT) + .789(MA) + 1.679(SES)$ . The standard error of estimate is 9.450. The predicted score for the person with MOT = 80, MA = 10, and SES = 2 would be  $AA' = -30.019 + 1.454(80) + .789(10) + 1.679(2) = 97.549$ . The 95% confidence interval would be  $97.549 \pm 2(9.45) = 97.549 \pm 18.90 \rightarrow 78.649 \text{ to } 116.449$ . That is, given  $AA' = 97.549$ , 95% will score between 78.649 and 116.449; or we can be 95% confident that the actual score will be in an interval such as that between 78.649 and 116.449.

The mean difference effect size,  $d = [\text{mean difference}] \text{ divided by } [\text{pooled standard deviation}]$ , was used to examine the practical significance of each of the binary predictor variables. The effect sizes were characterized as 0.20 = small effect, 0.50 = medium effect, and  $> 0.80$  = large effect (Cohen 1988).

### **Summary**

The study employed existing data. The non-probability sample was not representative of all first-time-in-college freshman students. Due to non-experimental nature of the study, no causal inferences were drawn. Descriptive, univariate, and multivariate statistical techniques were used to analyze the data. The practical significance of the findings was investigated.

## **Chapter IV**

### **RESULTS**

#### **Introduction**

The purpose of the study was to determine the extent by which the use of the Learning Assistance Programs (LAP), in conjunction with gender, admission status, and ethnicity, predict retention, probation, and GPA at a regional HSI university in South Texas. The LAP usage was the main predictor variable. The review of the literature suggested that contributions of gender, admission status, and ethnicity must also be taken into consideration. The study used existing, institutional data for three consecutive years of first-time-in-college (FTIC) freshman students and employed univariate and multivariate statistical techniques to analyze the categorical and continuous data. Descriptive statistics were used to summarize and organize the data. The level of significance was set, a priori, at 0.01.

#### **A Profile of Subjects**

The data for the study were obtained from 2,925 FTIC freshmen student records, excluding those with dual credit or entering with any credit hours prior to admission, for the Fall 2012 (n = 872), Fall 2013 (n = 1,047), and Fall 2014 (n = 1,006) semesters. The majority of the subjects were female (54.30%). Subjects' ethnicities were accounted by five ethnic categories: Hispanic (49.40%), White (35.60%), Black (8.10%), Asian/Pacific Islander (2.20%), and other (4.70%).

#### **Independent Variables**

For the purpose of the study, the LAP usage was identified as those subjects who made three or more visits with a Learning Assistance Program during the period of their first academic year. Conversely, the LAP non-usage was identified by less than three visits with a Learning

Assistance Program during the period of the students' first academic year. Students admitted under an alternative admission by committee were identified as alternative admission; all other admission statuses were considered standard admission. Ethnicity was dichotomized into two categories: Hispanic and non-Hispanic. Consequently, the four predictors were treated as binary variables: (1) LAP usage (0 = no use, 1 = use), (2) gender (0 = male, 1 = female), (3) ethnicity (0 = non-Hispanic, 1 = Hispanic), and (4) admission status (0 = alternative admission, 1 = standard admission). Results are summarized in Table 1

Table 1

Predictor Variables, n = 2,925

Variable	F	%
<b>Gender</b>		
Male	1337	45.70
Female	1588	54.30
<b>Ethnicity</b>		
Non-Hispanic	1479	50.60
Hispanic	1446	49.40
<b>Admission Status</b>		
Alternative	1373	46.90
Standard	1552	53.10
<b>LAP Usage</b>		
Non-Usage	1401	47.90
Usage	1524	52.10

### Dependent Variables

The study's dependent variables were retention (0 = no, 1 = yes), probation (0 = no, 1 = yes), and GPA, which was measured on a continuum, ranging from 0.00 to 4.00. Subjects not retained from initial fall entry into the subsequent fall term were categorized as "no" and those who were retained for the same time period were categorized as "yes" for retention. Subjects



whose cumulative GPA was at or above 2.0 at the end of their first academic year were categorized as non-probationary and coded as “no”; all others were considered probationary and coded as “yes” for probation status. Subjects’ recorded annual GPA had a mean of 2.29 (SD = 1.07). Results are summarized in Table 2.

Table 2

Outcome Measures, n = 2,925

Variable	F	%
Retention		
No	1296	44.30
Yes	1629	55.70
Probation		
No	1008	34.50
Yes	1917	65.50
	M	SD
GPA	2.29	1.07

### Prediction of Retention

A logistic regression (LR) analysis was performed to identify the strongest predictors of retention. The predictor variables of gender, ethnicity, and admission status were entered into the LR model first and accounted for 1.40% of the variation, which was statistically significant,  $\chi^2(3, N = 2,925) = 30.45, p < 0.01$ . The prediction power of the model with three variables was 56.50%. The LAP usage was entered next. The four predictors together accounted for 4.00% of the variation, which was statistically significant,  $\chi^2(4, N = 2,925) = 87.85, p < 0.01$ . The unique contribution of the LAP usage was 2.60%. The model with the four predictors correctly classified 59.10% of the cases. The goodness-of-fit test was not statistically significant,  $\chi^2(8, N = 2,925) = 8.79, p = 0.36$ , indicating that the model fit the data. Results are summarized in Table

3. The prediction equation was:  $Retention = 0.66 - 0.26 (Gender) + 0.26 (Ethnicity) - 0.33 (Admission Status) - 0.59 (LAP Usage)$ .

Table 3

Logistic Regression Model for Retention, n = 2,925

Predictor	B	Wald	p
Gender	-0.26	11.62	< 0.01
Ethnicity	0.26	11.65	< 0.01
Admit Status	-0.33	17.85	< 0.01
LAP Usage	-0.59	56.53	< 0.01
Constant	0.66		

Coding: LAP usage (0 = no use, 1 = use), gender (0 = male, 1 = female), ethnicity (0 = non-Hispanic, 1 = Hispanic), and admission status (0 = alternative admission, 1 = standard admission), retention (0 = no, 1 = yes)

To better understand the contribution of the predictor variables in explaining retention, a series of corrected-for-continuity Chi-square Test of Independence was performed, followed by the computation and interpretation of the odds ratios for the two by two contingency tables.

Odds ratios are not affected by either the sample size or unequal row or column totals. As can be seen in Table 4, all associations were statistically significant. There were more females, non-Hispanics, standard admits, and LAP users who were retained than were males, Hispanics, alternative admits, and LAP non-users. Specifically, females were 1.34 times as likely to be retained as were males. Non-Hispanics were 1.24 times as likely to be retained as were Hispanics. Students whose admission status was standard were 1.19 times as likely to be retained as were those with alternative admission. Finally, students who had used the LAP were 1.68 times as likely to be retained as were students who had not used the LAP. After controlling for gender, ethnicity, and admission status, the LAP use was the best predictor of retention.

Table 4

Gender, Ethnicity, Admission Status, and LAP Usage by Retention Associations, n = 2,925

	Retention				$\chi^2$
	Yes F	%	No F	%	
Gender					
Male	692	51.80	645	48.20	15.16*
Female	937	59.00	651	41.00	
Ethnicity					
Non-Hispanic	863	58.40	616	41.60	8.35*
Hispanic	766	53.00	680	47.00	
Admission Status					
Alternative	733	53.40	640	46.60	5.40*
Standard	896	57.70	656	42.30	
LAP Usage					
No	688	49.10	713	50.90	46.73*
Yes	941	61.70	583	38.30	

\* $p < .01$ 

### Prediction of Probation

Another LR was performed to examine the contribution of the predictor variables in explaining probation. Gender, ethnicity, and admission status were entered into the LR model first and accounted for 6.10% of the variation, which was statistically significant,  $\chi^2 (3, N = 2,925) = 132.15, p < 0.01$ . The prediction power of the model with the three variables was 66.20%. The LAP usage was entered next. The four predictors together accounted for 11.10% of the variation, which was statistically significant,  $\chi^2 (4, N = 2,925) = 245.36, p < 0.01$ . The unique contribution of the LAP usage was 4.90%. The model with the four predictors correctly classified 68.50% of the cases. The goodness-of-fit test was not statistically significant,  $\chi^2 (8, N = 2,925) = 15.74, p = 0.05$ , indicating that the model fit the data. Results are summarized in

Table 5. The prediction equation was:  $Probation = 1.43 - 0.40 (Gender) + 0.58 (Ethnicity) - 0.88 (Admission Status) - 0.90 (LAP Usage)$ .

Table 5

Logistic Regression Model for Probation, n = 2,925

Predictor	B	Wald	p
Gender	-0.40	24.34	< 0.01
Ethnicity	0.58	50.28	< 0.01
Admit Status	-0.88	103.48	< 0.01
LAP Usage	-0.90	108.63	< 0.01
Constant	0.66		

Coding: LAP usage (0 = no use, 1 = use), gender (0 = male, 1 = female), ethnicity (0 = non-Hispanic, 1 = Hispanic), and admission status (0 = alternative admission, 1 = standard admission), probation (0 = no, 1 = yes)

Simple associations and odds ratios were used to examine the practical significance of the findings. As can be seen in Table 6, all associations were statistically significant. There were more females, non-Hispanics, standard admits, and LAP users who were placed on probation than were the students in comparison groups. Specifically, females were 1.55 times as likely to be placed on probation as were males. Non-Hispanics were 1.61 times as likely to be placed on probation as were Hispanics. Students whose admission status was standard were 1.82 times as likely to be placed on probation as were those with alternative admission. Finally, students who had used the LAP were 1.91 times as likely to be placed on probation as were students who had not used the LAP. After controlling for gender, ethnicity, and admission status, the LAP use was the best predictor of probation.

Table 6

Gender, Ethnicity, Admission Status, and LAP Usage by Probation Associations, n = 2,925

	Probation				$\chi^2$
	Yes F	%	No F	%	
Gender					
Male	805	60.20	532	39.80	30.53*
Female	1112	70.00	476	30.00	
Ethnicity					
Non-Hispanic	1048	70.90	431	29.10	37.02*
Hispanic	869	60.10	577	39.90	
Admission Status					
Alternative	802	58.40	571	41.60	57.59*
Standard	1115	71.80	437	28.20	
LAP Usage					
No	812	58.00	589	42.00	67.76*
Yes	1105	72.50	419	27.20	

\* $p < .01$ 

### Prediction of GPA

A hierarchical multiple regression (HMR) analysis was performed to examine the contributions of the four variables in explaining the variation in the prediction of GPA. The average variance inflation factor (VIF),  $[1.07 + 1.07 + 1.00 + 1.01] / 4 = 1.04$ , was greater than 1.00, indicating multicollinearity. The critical hat element,  $h = 3(4+1) / 2,925 = 0.005$  was used to look for outliers among independent variables. The observed measures ranged from 0.001 to 0.002, indicating there were no cases that could bias the results. Cook's Distance measures ranged from 0.00 to 0.01, suggesting no influential cases. Standard residuals ranged from -2.89 to 2.35, indicating that there were no outliers on the basis of the dependent variable. The HMR residual statistics are shown in SPSS Output 1.

SPSS Output 1

Hierarchical Multiple Regression Residual Statistics

Residuals Statistics <sup>a</sup>					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.4228	3.0845	2.2929	.39509	2925
Std. Predicted Value	-2.202	2.004	.000	1.000	2925
Standard Error of Predicted Value	.039	.046	.041	.002	2925
Adjusted Predicted Value	1.4179	3.0892	2.2929	.39508	2925
Residual	-2.88221	2.34622	.00000	.99540	2925
Std. Residual	-2.894	2.355	.000	.999	2925
Stud. Residual	-2.896	2.358	.000	1.000	2925
Deleted Residual	-2.88807	2.35115	-.00001	.99712	2925
Stud. Deleted Residual	-2.900	2.360	.000	1.000	2925
Mahal. Distance	3.431	5.187	3.999	.580	2925
Cook's Distance	.000	.003	.000	.000	2925
Centered Leverage Value	.001	.002	.001	.000	2925

a. Dependent Variable: DV\_GPA

The three predictor variables of gender, ethnicity, and admission status were entered first into the regression equation first and accounted for 6.70% of the variation, which was statistically significant,  $F(3, 2,921) = 69.41, p < 0.01$ . The LAP usage was entered next. The four variables accounted for 13.60 % of the variation. The unique contribution of LAP usage was 6.90%. The prediction equation,  $GPA = 1.76 + 0.58 (LAP Usage) + 0.54 (Admission Status) - 0.34 (Ethnicity) + 0.20 (Gender)$ , was statistically significant,  $F(4, 2,920) = 115.00, p < 0.01$ . The standard error of estimate was 1.00. Results are summarized in Table 7.

Table 7

Hierarchical Multiple Regression Model for GPA,  $n = 2,925$ 

Predictor	B	t	p
Gender	0.20	5.45	< 0.01
Ethnicity	-0.34	-9.17	< 0.01
Admit Status	0.54	14.05	< 0.01
LAP Usage	0.59	15.33	< 0.01
Constant	1.76		

Coding: LAP usage (0 = no use, 1 = use), gender (0 = male, 1 = female), ethnicity (0 = non-Hispanic, 1 = Hispanic), and admission status (0 = alternative admission, 1 = standard admission), GPA (range: 0.00 to 4.00)

To better understand the contribution of each of the four predictors in explaining the GPA, mean difference effect sizes were computed and characterized as 0.20 = small effect, 0.50 = medium effect, and > 0.80 = large effect (Cohen, 1988). Females scored higher on GPA ( $M = 2.40$ ,  $SD = 1.02$ ) than did males ( $M = 2.16$ ,  $SD = 1.11$ ), and the mean difference effect size was 0.23. Non-Hispanics had higher GPAs ( $M = 2.44$ ,  $SD = 1.03$ ) than did Hispanics ( $M = 2.14$ ,  $SD = 1.09$ ), and the mean difference effect size was 0.28. Standard Admits had higher GPAs ( $M = 2.47$ ,  $SD = 1.04$ ) than did alternative admits ( $M = 2.09$ ,  $SD = 1.07$ ), and the mean difference effect size was 0.37. The students who had used the LAP had higher GPAs ( $M = 2.51$ ,  $SD = 0.92$ ) than did those who had not used the LAP ( $M = 2.05$ ,  $SD = 1.17$ ); the mean difference effect size was 0.46.

### Summary of the Results

The study was conducted to answer three research questions: (1) To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the retention of first-time-in-college freshman students?; (2) To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the

probation status of first-time-in-college freshman students?; and (3) To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the GPA of first-time-in-college freshman students?

A series of regression analysis were performed. Both the binary logistic regression and hierarchical multiple regression showed that, after controlling for gender, ethnicity, and admission status, the use of Learning Assistance Programs was useful in predicting retention, probation, and GPA among first-time-in-college freshman students at a regional HSI university in South Texas.



## **CHAPTER V**

### **SUMMARY, CONCLUSIONS, AND DISCUSSION**

#### **Introduction**

The study assessed the link between Learning Assistance Programs (LAPs) and retention, probation, and grade point average (GPA) of first-time-in-college (FTIC), freshmen students at a regional Hispanic-serving Institution (HSI) in South Texas. The predictor variables were gender, ethnicity, admission status, and utilization of LAPs. The students with dual credits, previously earned hours, or placed on behavioral/judicial probation were excluded from the study. The data were obtained from 2,925 FTIC freshmen student records for students entering Fall 2012, Fall 2013, and Fall 2014. The following research questions guided the study:

1. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the retention of first-time-in-college freshman students?
2. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the probations status of first-time-in-college freshman students?
3. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the GPA of first-time-in-college freshman students?

The study's significance relates to the call for higher education administrators to improve first-year retention and completion rates; accordingly, LAPs are often the support services most commonly approached to address this challenge. Additionally, within the field of Learning Centers, the call for LAPs to provide empirical evidence to support program efficacy is an increasing trend (Norton & Agee, 2014). As such, the study examined a South Texas LAP, comprised of programs such as tutoring, supplemental instruction, and writing centers, as an environment in Astin's (1993) I-E-O model, to determine which student outcomes may be

positively affected by certain attributes and in understanding the importance of providing adequate student support and funding for LAPs at institutions of higher education, particularly in a time of state budget constraints placed on colleges and universities. Specifically, for the purpose of the study, input (I) was defined by gender, ethnicity, admission status, and LAP usage; environment (E) was the LAP; and outcomes (O) were retention, probation, and GPA.

### **Summary of the Results**

The study used existing institutional data for three consecutive years of first-time-in-college (FTIC) freshman students and employed univariate and multivariate statistical techniques to analyze the categorical and continuous data. Analysis of the data revealed after controlling for gender, ethnicity, and admission status, the use of a Learning Assistance Programs was useful in predicting retention, probation, and GPA among first-time-in-college freshman students at a regional HSI in South Texas.

More specifically, in predicting retention, more females, non-Hispanics, standard admits, and LAP users were retained than were males, Hispanics, alternative admits, and LAP non-users. Specifically, females were 1.34 times as likely to be retained as were males. Non-Hispanics were 1.24 times as likely to be retained as were Hispanics. Students whose admission status was standard were 1.19 times as likely to be retained as were those with alternative admission. Finally, students who had used the LAP were 1.68 times as likely to be retained, as were students who had not used the LAP. After controlling for gender, ethnicity, and admission status, the LAP use was the best predictor of retention. The analysis provided a binary logistic regression prediction equation:  $Retention = 0.66 - 0.26 (Gender) + 0.26 (Ethnicity) - 0.33 (Admission Status) - 0.59 (LAP Usage)$ .

In predicting probation, there were more females, non-Hispanics, standard admits, and LAP users who were placed on probation than were the students in comparison groups. Specifically, females were 1.55 times as likely to be placed on probation as were males. Non-Hispanics were 1.61 times as likely to be placed on probation as were Hispanics. Students whose admission status was standard were 1.82 times as likely to be placed on probation as were those with alternative admission. Finally, students who had used the LAP were 1.91 times as likely to be placed on probation as were students who had not used the LAP. After controlling for gender, ethnicity, and admission status, the LAP use was the best predictor of probation. The binary logistics regression prediction equation for probation is as follows:  $Probation = 1.43 - 0.40 (Gender) + 0.58 (Ethnicity) - 0.88 (Admission Status) - 0.90 (LAP Usage)$ .

In determining the contribution of predictor variables, namely, gender, ethnicity, admission status, and LAP usage in accounting for the variation in GPA, an analysis of the data revealed females scored higher on GPA than did males, non-Hispanics had higher GPAs than did Hispanics, standard admits had higher GPAs than did alternative admits, and students who had used the LAP had higher GPAs than did those who had not used the LAP. The following hierarchical multiple regression prediction equation was formulated:  $GPA = 1.76 + 0.58 (LAP Usage) + 0.54 (Admission Status) - 0.34 (Ethnicity) + 0.20 (Gender)$ .

### **Conclusions**

Findings of the study point to several conclusions. Primarily, LAP usage is a necessary *environment* for the successful *outcome* of retention, with three or more instances of use of any combination of services in this specific LAP. Predictably, those students who seek supplemental academic assistance from a LAP outside the classroom are more likely to find greater success in GPA. Of note, students who utilize the LAP are more likely to be placed on probation; however,

it is often the case students find themselves on probation within the first academic term of entry, thus impacting institutional GPA, and therefore probationary status. It is fair to conclude that although LAP usage is a predictor of probation, it is traditionally students who are struggling and seeking assistance in their courses who utilize the LAP, particularly during the first semester as they become acclimated to the new educational environment. As initially discussed, those students who utilized the LAP at least three or more times were more likely to be retained fall to fall and have higher GPAs than those who had fewer than three visits or no LAP usage.

### **Discussion**

First-time-in-college (FTIC) students commonly struggle academically in their first semester and in their first year of higher education. Data in the study revealed one of the variables of successful or non-successful GPAs and retention were linked to admission status. While admission status is not the only factor, it is a factor and it is well known and well discussed in the literature (Kuh, et al., 2005) and in professional venues such as conferences, webinars, and listservs. A widely-held notion is this struggle is attributable to the lack of transferability of high school skills to the college environment in addition to social factors that may impede a student's academic success within the first semester and the first year (Astin, 1993; Kuh et al., 2005; DeBerard, Spielmans, & Julka, 2004). It becomes increasingly clear alternatively admitted students will need additional academic support outside of the classroom; however, to assist these students and to positively impact outcomes, academic support programs, like LAPs, need an ever-increasing presence on college and university campuses.

Factors such as retention, probation, and GPA are often influenced by the student's willingness to engage and integrate into the academic environment upon facing an unfamiliar academic terrain. Learning Centers and LAPs draw upon Austin's (1993) I-E-O model and

theory along with the potential impact of these experiences, such as seeking interventions from LAPs in higher education. The LAPs provide the environment for educational outcomes that are more likely to lead to higher retention and GPAs, a desirable outcome of not only students but also of institutions in Texas.

As new initiatives for student success are provided by the Texas Higher Education Coordinating Board such as “Closing the Gaps” and “60X30,” colleges and universities are simultaneously faced with reduced funding and constrained budgets. In determining where funds should be allocated, one needs only to research the priority the State, not only Texas but other states as well, place on retention. A Google search or a flip through the *Chronicle of Higher Education* will easily reveal the number of for-profit companies with services to enhance and increase retention rates, from ready-made online tutoring programs, customizable early alert systems, or specialty consulting groups focusing specifically on higher education retention, reinforcing the importance placed on enhancing and increasing retention.

Hence, it becomes progressively clear LAPs are an essential component of most students’ academic success, at one point or another in their academic career, but most importantly in the first and second years. Utilizing Astin’s I-E-O framework helps place perspective on the inputs with which students enter the institution; what environment or LAPs are provided for students’ integration into the new academic culture; and intended outcomes, both for the student and the institution. Studies, such as the one conducted, also help place focus on what is working in terms of student academic success.

## **Implications**

In relation to answering Norton and Agee’s call for Learning Centers to enhance and provide more empirical data to grow the field of Learning Assistance, this study approached the

challenge by moving beyond simple usage or “bean counting,” and utilized statistical techniques to provide support for the contributions of the LAP examined in this study. Additionally, the resulting prediction equations can have practical implications.

The study resulted in three prediction equations, specifically, two binary logistic regression (BLR) and one hierarchical multiple regression (HMR) equations. The BLR equations for retention and probation were:  $Retention = 0.66 - 0.26 (Gender) + 0.26 (Ethnicity) - 0.33 (Admission Status) - 0.59 (LAP Usage)$  and  $Probation = 1.43 - 0.40 (Gender) + 0.58 (Ethnicity) - 0.88 (Admission Status) - 0.90 (LAP Usage)$ . The HMR equation for GPA was:  $GPA = 1.76 + 0.58 (LAP Usage) + 0.54 (Admission Status) - 0.34 (Ethnicity) + 0.20 (Gender)$  and the standard error of estimate was 1.00.

Following the procedures described in Chapter III, the predicted outcomes for a female Hispanic student who was admitted into the university via alternative admission criteria and used the LAP would be:

$$Retention = 0.66 - 0.26 (1) + 0.26 (1) - 0.33 (0) - 0.59 (1) = 0.66 - 0.26 + 0.26 - 0.00 - 0.59 = 0.07$$

$$p(\text{retention}) = 1 / (1 + e^{-z}) = 1 / (1 + 2.718^{-0.07}) = 1 / (1 + 0.93) = 0.52; \text{odds} = 0.52 / (1 - 0.52) = 1.08; \text{suggesting that the student will likely be retained.}$$

$$Probation = 1.43 - 0.40 (1) + 0.58 (1) - 0.88 (0) - 0.90 (1) = 1.43 - 0.40 + 0.58 - 0 - 0.90 = 0.70$$

$$p(\text{probation}) = 1 / (1 + e^{-z}) = 1 / (1 + 2.718^{-0.70}) = 1 / (1 + 0.50) = 0.67; \text{odds} = 0.67 / (1 - 0.67) = 2.03; \text{suggesting that the student will likely be placed on probation.}$$

$$GPA = 1.76 + 0.58 (1) + 0.54 (0) - 0.34 (1) + 0.20 (1) = 1.76 + 0.58 + 0.00 - 0.34 + 0.20 = 2.20.$$

These prediction equations can be used by concerned educators and administrators at the study's HSI to identify the students who may require extra assistance in completing their undergraduate education.

There is, however, a larger challenge, and that is to ensure support and buy-in at the local level. That is, administration, faculty, and staff support is necessary for LAPs to continue to serve a growing body of students who need academic assistance or intervention. This study has provided evidence of the contributing factors to student success and retention in the first year by examining a LAP's contributions. In order to continue to serve students and have them successfully progress through Astin's I-E-O model, focus on academic support programs, such as LAPs, is paramount. Participation in new student orientation and incorporation and promotion of LAP services in the classroom and across departments and units will go far in aiding students to help find academic success. The LAPs should become an integral part of the culture of an institution.

Centralizing academic support programs under one unit or division with adequate funding is essential if LAPs are to continue to serve, with success, an increasing number of students who, as many have noted nationally, are just not as prepared for college (Ishiki-Hendrikson, Yang, Love, & Hall, 2005; Keeling, Underhile, & Wal, 2007). As the uptick in national enrollment continues, so will the need for services and funding, and at some point, with the uncertainty at the national and state level, that funding may need to be derived from local sources.

One centralized unit or division with a specialty in academic support should be encouraged. Many colleges and institutions find there are many similar programs across their institutions offering, at varying level of expertise, related types of services; however, confusion

can be found amongst these different programs. Students are not quite sure if they qualify for a program or service, they are confused by what program offers which services, and silos inevitably evolve creating an impediment to communication and inadvertent competition for funding. This is not unique to any one institution, but what is unique is what one institution can do to ensure students receive the support they need by people involved in the field of Learning Centers and Academic Support. Partnerships with different units and departments can be utilized, and clear communication on all fronts to students, faculty, and staff will dispel any preconceived notions or misconceptions and break down silos (Keeling, et al., 2007).

### **Recommendations for further research**

Learning Centers and their constituent Learning Assistance Programs are often noted for their usage of qualitative approaches to examining effectiveness. Focus groups, case studies, interviews, and surveys are standard. Though yielding valuable information, as Norton and Agee (2014) contended, there still remains a need for quantitative approaches. While this study was comprised of quantitative approaches, a mixed methods approach, incorporating both qualitative and quantitative data focusing on Astin's I-E-O and variables provided in this study could still achieve Norton and Agee's (2014) call for research while still capturing some student "voice" and providing a fuller perspective by utilizing the same group of participants tracked over all four years.

Additionally, this study could be replicated and expanded to examine five years' data and the addition of graduation as a dependent variable. Furthermore, the study can be replicated at a larger HSI with similar admission practices in a different locale. It would be of interest to review results of such a study and compare to the results found in this study. Ultimately, there are still many opportunities to add to the field of Learning Centers, and with the pressure to increase



retention rates in higher education across the nation, there are many possibilities for research related to retention in relation to Learning Centers and LAs.

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## Appendix A



OFFICE OF RESEARCH COMPLIANCE  
Division of Research, Commercialization and Outreach

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

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<b>Human Subjects Protection Program</b>	<b>Institutional Review Board</b>
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APPROVAL DATE: May 17, 2016  
TO: Noelle Ballmer  
CC: Dr. Kamiar Kouzekanani  
FROM: Office of Research Compliance  
Institutional Review Board  
SUBJECT: Initial Approval

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Protocol Number: IRB #60-16  
Title: Assessing the link between learning assistance programs and the retention, probation, and grade point average of freshman university students  
Review Category: Qualifies for Exemption

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

Eligible for Exemption (45 CFR 46.101)

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

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

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**Provisions:**

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

---

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

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

participants, all correspondence to or from the IRB or Office of Research Compliance, and any other pertinent documents.

5. Adverse Events: Adverse events must be reported to the Research Compliance Office immediately.
6. Post-approval monitoring: Requested materials for post-approval monitoring must be provided by dates requested.

Appendix B

FOR COMPLIANCE OFFICE  
USE ONLY:

IRB#

Date Received:

Revision

Application for Review of Research  
Involving Human Subjects  
Institutional Review Board (IRB)



Texas A&M University-Corpus Christi

**INSTRUCTIONS**

**1. Complete CITI Training**

*CITI training is required for all researchers and faculty advisors listed on the protocol. Completion reports DO NOT need to be sent with protocol application if CITI was completed through TAMUCC.*

**2. Complete Form**

*All sections of the form are required. The protocol review will not begin if any section is incomplete.*

**3. Submit Application & Completed Supplemental Documents: IRB protocol application forms are ONLY accepted in electronic format. Please utilize digital signatures and email form with the IRB Protocol Application Form to IRB@tamucc.edu. Review of application will not begin until all required documentation is received.**

*Please contact Cassandra Brown at (361)825-2892 or kassandra.brown@tamucc.edu or Erin Sherman at (361)825-2497 or erin.sherman@tamucc.edu for questions or assistance completing this application.*

**INVESTIGATOR INFORMATION**

	Name	Email (USE TAMUCC EMAIL ADDRESS)	College	Category	Category (Other)
PI	Noelle Ballmer	noelle.ballmer@tamucc.edu	Education	Graduate Student	
Co-PI (1)	Dr. Kamiar Kouzekanani	Kamiar.Kouzekanani@tamucc.edu	Education	Faculty	methodologist
Co-PI (2)					
Co-PI (3)					
Co-PI (4)					
Co-PI (5)					

**PROJECT INFORMATION**

A. Research Classification:  Other:

*Please review the Human Subject Research Categories at the end of the protocol form before completing B.*

B. Review Classification:

*Submit copies of external funding proposal with IRB protocol application, if applicable.*

C. Is the project externally funded?  Funding Start Date:  Funding Agency:

D. Project Title:

E: The starting date CANNOT be a date before IRB approval is received. If you will start as soon as approval is received, enter "Upon IRB Approval" for the starting date.  
 F: The completion date is an estimated date of completion. A Completion Report is REQUIRED at the conclusion of the project noting the actual completion date.

E. Starting Date:  F: Estimated Completion Date:

**PROJECT PURPOSE & OBJECTIVES**

A. Describe Project Purpose. *Be specific and thorough.*

The purpose of the study is to determine the extent by which the Learning Assistance Program (LAP) usage, in conjunction with selected independent variables, predict the grade-point average (GPA), retention, and probation of freshman university students. The specific predictors identified for this study are LAP usage, gender, ethnicity, and admission status.

B. Describe Project Objectives and/or Research Questions. *Be specific and thorough.*

1. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the GPA of first-time-in-college freshman students?
2. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the retention of first-time-in-college freshman students?
3. To what extent do learning assistance programs, in conjunction with gender, ethnicity, and admission status, predict the probations status of first-time-in-college freshman students?

**RESEARCH SUBJECTS & RECRUITMENT** (Description, Source and Recruitment of Research Subjects)

A. Indicate whether the following populations will be specifically targeted for inclusion in the project. Inclusion and exclusion criteria needs to be described in detail in Section B. **Select Y or N for each participant category.**

Adults over the age of 18 (ABLE to legally consent)	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Prisoners (adults or juveniles)	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>
Adults over the age of 18 (UNABLE to legally consent)	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>	Participants whose first language is NOT English	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>
Individuals under the age of 18 (minors)	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>	Students enrolled in a researcher's course(s)	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>
Pregnant Women, fetuses, and/or neonates <small>Note: Projects including this vulnerable population are generally health care/medical studies specifically targeting research of pregnant women, fetuses, and/or neonates. Pregnant women can be included in projects if all inclusion criteria is met and a specific exclusion is not part of the project design. Select "No" unless the project specifically involves the inclusion of pregnant women, fetuses, and/or neonates.</small>	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>	Employees under the direct supervision of a researcher	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>

B. Describe the inclusion and exclusion criteria that will be used to define who is included or excluded in the final participant population (ex. minimum age, grade range, physical characteristics, learning characteristics, professional criteria, etc.)

The study takes place at TAMUCC. Existing data will be utilized for the purposes of the study; no participants will be contacted for data collection and no identifiers will be included in the data. The data include gender, ethnicity, admit status, GPA, retention status, and probation status of first-time-in-college students, utilizing services at the Center for Academic Student Achievement (CASA) from Fall 2012 to Fall 2015.

C. Target number of participants (Include minimum target if a specific target is not appropriate for project design.)

As of this writing, it is expected to have data for 5,000 TAMUCC first-time-in-college students who utilized the CASA services from fall 2012 to fall 2015.

**D. THIS SECTION MUST BE COMPLETED WHEN CONDUCTING RESEARCH AT OR RECRUITING PARTICIPANTS FROM NON-TAMUCC FACILITIES**

- NOTES:**
1. Specifically name locations for research and/or recruitment of participants.
  2. Written permission (email, letter, etc.) required for all non-TAMUCC locations. See IRB Forms website for specific permission requirements.
  3. Written permission must be submitted with IRB protocol application.

N/A - Not conducting research or recruiting participants from non-TAMUCC facilities

Specify location(s) of project and/or recruitment of participants.  
See notes for off-campus locations above.

Not applicable; existing data will be used.

#### E. RECRUITMENT

##### NOTE:

Submit copies of all recruitment materials (emails, online postings, fliers, etc.) with IRB protocol application. Written scripts are needed for any verbal recruitment materials.

**E(1).** Describe the methods that will be used to identify pool of potential participants.

Not applicable; existing data will be used.

**E(2).** Describe when, where and how potential participants will be recruited.

Not applicable; existing data will be used.

**E(3).** Describe materials that will be used to recruit participants.

**\*See note above regarding submission of recruitment materials.**

Not applicable; existing data will be used.

**E(4).** Describe how materials to recruit participants will be distributed/how participants will be contacted (ex. online, via email, through faculty members, through a professional association, etc.). Include description of any assistance that will be needed to distribute recruitment materials (ex. listserv owners, faculty permission for classroom recruitment, etc.)

Not applicable; existing data will be used.

**E(5).** Describe the amount, source and timing(s) of any payment(s)/incentive(s) to participants, if applicable.

Not applicable; existing data will be used.

#### RESEARCH DESIGN, METHODS, & DATA COLLECTION/PROTECTION PROCEDURES

##### METHODS NOTE:

Submit copies of project materials with IRB protocol application (ex. survey, interview questions, data collection form, demographic questionnaire, etc.)

**A.** Select the appropriate description for data collection and project records below.

##### DEFINITIONS:

*Anonymous: the collection of data in a manner where no one, including the researcher(s), will be able to identify the participant providing responses/data*

*Confidential: the collection of data in a manner where data may be linked to individual participants through the use of codes, audio/video recordings, or other identifiers*

Anonymous

**B.** Describe the study design including methods and procedures step-by-step in common terminology. Describe each procedure in detail, including frequency, duration and location of each procedure. The methods must be described completely and in detail (ex. type of data collected, how data will be collected, who will conduct interaction/data collection, etc.).

\*For projects with multiple participant classifications (ex. students and teachers, athletes and coaches, etc.): Describe the study design including methods and procedures step-by-step for each classification of participants.

The LAP that serves as the focus for this study is situated at TAMUCC. The campus is predominately comprised of Hispanic and White (non-Hispanic) students, representing 46% and 39% of the 10,000 plus student population, respectively; females account for 60% of the student body. At this institution, all traditional first-time-in-college freshman students are accepted as a "standard admit," which is defined as fully accepted by meeting the minimum qualifications for admission through standard admissions criteria, such as high school GPA, standardized testing, or high school graduation rank. The other admission status is "alternative admit" for the applicants who do not meet the minimum qualifications for admission through standard admissions criteria but are accepted into the institution by a committee review.

The study's data will be collected from the Office of Retention Support and Analytics (ORSA), which utilizes ARGOS and Banner reporting and also compiles the LAPs student utilization data. The following student demographic and LAP utilization data will be requested for the Fall 2012, Fall 2013, and Fall 2014 cohorts: (a) retention into the subsequent fall semester (yes or no), (b) first-year GPA, (c) first-semester academic standing (probation or non-probation), (d) number of the LAPs visits, (e) gender, (f) ethnicity, and (g) admission status (standard or alternative). Permission to use the data for the purpose of the study has been obtained (attached)

The study employs a correlational design. Due to non-experimental nature of the study, no causal inferences will be drawn.

In the proposed study, the attribute variables of the LAPs utilization (1 = yes, 0 = no), gender (1 = female, 0 = male), ethnicity (1 = Hispanic, 0 = Non-Hispanic), and admission status (1 = standard admit, 0 = alternative admit) serve as the predictors. The outcome measures are the GPA, probation, and retention. The GPA is measured on a continuum, ranging from 0.00 to 4.00 and is treated as a continuous variable. Retention (1 = retained or 0 = not retained) and probation (0 = probation or 1 = non-probation) are binary variables.

The raw data for academic years 2012 – 2013, 2013 – 2014, and 2014 – 2015 will be imported into the Statistical Package for the Social Sciences (SPSS), which will be used for the purpose of data manipulation and analysis. Descriptive statistics will be used to summarize and organize the data. At the univariate level, Pearson's Correlation Coefficient and Chi-Square Test of Independence will be used to examine the nature of the bivariate associations. At the multivariate level, for the GPA, Hierarchical Multiple Regression Analysis will be conducted to examine the unique and combined contribution of the LAPs utilization, gender, ethnicity, and admission status in explaining the outcome. For probation and retention, Logistic Regression will be performed to examine the power of the four independent variables in predicting the two binary outcome measures. Effect sizes will be computed to examine the practical significance of the findings.

C. Describe any equipment (including audio and video equipment) utilized during the project. Note whether the equipment is owned by the researcher(s), university, or other source. Include description of how and where equipment is stored throughout the study (including any security such as password protection on equipment).

The PI's personal computer will be used to store the data and perform data analysis. The computer is located at the PI's home office. The computer is kept locked and password-protected when not in use.

D. Describe data protection methods including a minimum of the following: location of data storage, methods for data protection, names of individuals who will have access to data, etc.

\*For projects utilizing video and/or audio recordings: Describe, at a minimum, the methods for storage or recordings, transcription of recordings, whether recordings will be erased following transcription, etc.

CASA's Office of Student Retention Support & Analytics will provide the PI with an electronic copy of the raw data. Both the PI and the dissertation methodologist, Dr. Kamiar Kouzekanani, will save the data in their computers. Both will also make backup copies of the data and maintain them for at least 3 years. Both computers are kept locked and password-protected when not in use.

E. Describe retention methods, including at a minimum how long project materials (including consent documents, project data, etc.) will be retained, format of storage (digital, paper, etc.), etc.

\*Note: All project materials must be retained for a minimum of three years beyond the completion of the project. Completion of the project is defined as no longer collecting, using, studying or analyzing data.

**\*Note: Completion report must be submitted at the completion of the project. Please submit to IRB@tamucc.edu.**

All data will be stored electronically for a minimum of three years beyond the completion of the dissertation study.

## RISKS & PROTECTION MEANS

A. Select all levels of risk that apply to the project. Select Y or N for each risk category.

<b>No risk</b>	Y <input checked="" type="checkbox"/>	N <input type="checkbox"/>
<b>Minimal risk</b> Definition: the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>

<b>Greater than minimal risk</b>	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>
----------------------------------	----------------------------	---------------------------------------

**B.** Describe each potential risk and the steps taken to protect human subject participants from the risk (ex. breach of confidentiality, possibly injury, psychological distress, pressure to conform, pressure to participate/coercion, etc.). Consider physical, psychological, social, legal and economic risk.

	<b>Risk</b>	<b>Protection Mechanism</b>
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

**C.** Describe the protection means specifically and how participants will be provided information regarding and gain access to any necessary outside assistance (ex. medical care, counseling, etc.) if available.

--

### **BENEFITS**

**A.** Describe the potential benefits individual participants may experience from taking part in the research, or note no potential benefits to individual participants. *Benefits DO NOT include payments/incentives for participation. See research subjects section for payments/incentives.*

There are no direct benefits to the participants whose already collected data will be used for the purpose of the study.
--

**B.** Describe the potential benefits to society, others and/or generalizable knowledge.

Results of the study will be used to examine the relationship between Learning Assistance Program usage and academic achievement and retention, which may be of practical importance to educators and other concerned individuals.
--

### **INFORMED CONSENT PROCESS**

#### **CONSENT METHODS NOTE**

Submit copies of all consent forms with IRB protocol application (ex. information sheet, online consent, signed consent, assent, parental consent, translated consents, etc.view questions, data collection form, demographic questionnaire, etc.)

<b>A(1).</b> Is a waiver of <u>signed</u> informed consent requested (ex. information sheet, online consent, etc.)? <b>Select Y or N for waiver of signed consent.</b>	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>	<b>A(2).</b> If yes, select the appropriate criteria from description at end of IRB protocol form.	C
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**B. Describe methods for obtaining informed consent from human subject participants.**

Be specific and thorough. At minimum, describe how researcher(s) will gain access to participants, how participants will be provided the consent documentation, in what format the consent will be provided, any discussion that will take place with participants, and methods of communication utilized to keep participants aware of their rights throughout the study, if applicable.

**\*Note:**

(1) Participants must be given time to review the consent/informational documents and ask questions.

(2) Projects involving minors must include parental consent and a separate assent written at a level appropriate to the age group of participants. Parental consent must be available in English and Spanish when the possibility exists that English may not be the first language of parents/guardians.

(3) Information sheets should be utilized for exempt studies in which the only record of participants would be signed consent forms.

(4) The online consent template should be utilized as a guide for online survey consent.

Not applicable; existing data will be used.

**INVESTIGATOR(S) QUALIFICATIONS**

**A. Describe qualifications or attach CVs/resumes of ALL researchers and faculty advisers to conduct human subjects research.**

The PI is a doctoral student at TAMUCC and has already completed the on-line CITI course on the protection of human research participants. The Co-PI is the faculty methodologist and the dissertation committee member; he is a Professor of Quantitative Methods in the College of Education and Human Development at TAMUCC.

**SIGNATURES: INVESTIGATOR(S) RESPONSIBILITIES & CONFLICT OF INTEREST CERTIFICATION**

**RESPONSIBILITIES:**

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

- A. An amendment will be filed for review and approval will be received from the Institutional Review Board before making ANY changes are made in this research project.
- B. Any adverse event will be immediately reported to the Institutional Review Board.
- C. A continuation will be approved for expedited and full review studies BEFORE the protocol approval expiration date. The study will CEASE once approval expires unless a continuation is approved.
- D. Signed informed consent documents and all project records will be kept for the duration of the project and for at least three years after the completion of the project at a location approved by the Institutional Review Board and as described in the protocol.

**CONFLICT OF INTEREST:**

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

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

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

Financial conflicts of interest include:

- a) A financial interest in the research with value that cannot be readily determined;
- b) A financial interest in the research with value that exceeds \$5,000.00;
- c) Have received or will receive compensation with value that may be affected by the outcome of the study;
- d) A proprietary interest in the research, such as a patent, trademark, copyright, or licensing agreement;
- e) Have received or will receive payments from the sponsor that exceed \$5,000.00 in a specific period of time;
- f) Being an executive director of the agency or company sponsoring the research;
- g) A financial interests that requires disclosure to the sponsor or funding source; or
- h) Have any other financial interests that I believe may interfere with my ability to protect participants.



PROVIDE DETAILS AS ATTACHMENT FOR ANY NON-FINANCIAL CONFLICT OR FINANCIAL CONFLICT OF INTEREST RELATED TO THIS PROJECT.			
<b>ALL INVESTIGATOR(S) AND ADVISOR(S) MUST SIGN THE PROTOCOL AND IDENTIFY WHETHER A FINANCIAL CONFLICT OF INTEREST EXISTS.</b> The Principal Investigator should save a copy of the IRB Protocol Form after emailing the form to the Office of Research Compliance for review. Type the name of each individual in the appropriate signature line. Add additional signature pages if needed for all Co-Principal Investigators, collaborating and student investigators, and faculty advisor(s).			
	Typed Name	Conflict of Interest (SELECT ONE)	Date
PI	Noelle Ballmer	No conflict of interest with this project	5/2/2016
	PI Signature: <b>Noelle C. Ballmer</b>	Digitally signed by Noelle C. Ballmer Date: 2016.05.02 14:54:02 -05'00'	
Co-PI (1)	Dr. Kamiar Kouzekanani	No conflict of interest with this project	
	Co-PI (1) Signature: <b>Kamiar Kouzekanani</b>	Digitally signed by Kamiar Kouzekanani Date: 2016.05.04 15:20:04 -05'00'	
Co-PI (2)			
	Co-PI (2) Signature:		
Co-PI (3)			
	Co-PI (3) Signature:		
Co-PI (4)			
	Co-PI (4) Signature:		
Co-PI (5)			
	Co-PI (5) Signature:		

### Human Subject Research Categories

**Please Note**

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

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

**Studies involving audio taping and/or videotaping *DO NOT* qualify for exempt review.**

#### ***Exempt Review Categories***

- 1) Research conducted in established or commonly accepted educational settings, involving normal education practices, such as (i.) research on regular and special education instructional strategies, or (ii.) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
- 2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless (i.) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii.) any disclosure of human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.
- 3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview

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

- 4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.
- 5) Research and demonstration projects that are conducted by or subject to the approval of federal department or agency heads, and that are designed to study, evaluate, or otherwise examine (i.) public benefit or service programs (ii.) procedures for obtaining benefits or services under these programs (iii.) possible changes in or alternatives to those programs or procedures; or (iv.) possible changes in methods or levels of payment for benefits or services under those programs
- 6) Taste and food quality evaluation and consumer acceptance studies (i.) if wholesome foods without additives are consumed or (ii.) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture

### ***Expedited Review Categories***

- (1) Clinical studies of drugs and medical devices only when condition (a) or (b) is met.
  - a. Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review.)
  - b. Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling.
- (2) Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows:
  - a. from healthy, nonpregnant adults who weigh at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8 week period and collection may not occur more frequently than 2 times per week; or
  - b. from other adults and children' considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period and collection may not occur more frequently than 2 times per week.
- (3) Prospective collection of biological specimens for research purposes by noninvasive means.

Examples: (a) hair and nail clippings in a nondisfiguring manner; (b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction; (c) permanent teeth if routine patient care indicates a need for extraction; (d) excreta and external secretions (including sweat); (e) uncannulated saliva collected either in an unstimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue; (f) placenta removed at delivery; (g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor; (h) supra- and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the process is accomplished in accordance with accepted prophylactic techniques; (i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings; (j) sputum collected after saline mist nebulization.
- (4) Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications.)

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

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

- (6) Collection of data from voice, video, digital, or image recordings made for research purposes.
- (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)
- (8) Continuing review of research previously approved by the convened IRB as follows:
  - a. where (i) the research is permanently closed to the enrollment of new subjects; (ii) all subjects have completed all research-related interventions; and (iii) the research remains active only for long-term follow-up of subjects; or
  - b. where no subjects have been enrolled and no additional risks have been identified; or
  - c. where the remaining research activities are limited to data analysis.
- (9) Continuing review of research, not conducted under an investigational new drug application or investigational device exemption where categories two (2) through eight (8) do not apply but the IRB has determined and documented at a convened meeting that the research involves no greater than minimal risk and no additional risks have been identified.

### ***Criteria for Waiver of SIGNED Consent***

- (c) An IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent set forth above, or waive the requirement to obtain informed consent provided the IRB finds and documents that:
  - (1) The research or demonstration project is to be conducted by or subject to the approval of state or local government officials and is designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs; **and**
  - (2) The research could not practicably be carried out without the waiver or alteration.
- (d) An IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent set forth in this section, or waive the requirements to obtain informed consent provided the IRB finds and documents that:
  - (1) The research involves no more than minimal risk to the subjects;
  - (2) The waiver or alteration will not adversely affect the rights and welfare of the subjects;
  - (3) The research could not practicably be carried out without the waiver or alteration; and
  - (4) Whenever appropriate, the subjects will be provided with additional pertinent information after participation.