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ASSESSING THE EFFECTIVENESS OF THE ACADEMIC STRATEGIES COURSE
FOR STUDENTS ON FIRST ACADEMIC PROBATION STATUS

by

Scedella Clemons

A Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Education

Major: Instruction and Curriculum Leadership

The University of Memphis

August 2019

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Dedication

In memory of my granny, Elizabeth McAtee. Thank you for setting a wonderful example and always leading the way. Also, in memory of my mother, Carolyn McAtee. You proved to be tougher than we could have ever imagined. May you both rest peacefully. I pray I have made you proud.

Acknowledgement

First, I would like to thank my family. My husband, Jesse Clemons, who has been absolutely amazing and supportive throughout this process. I couldn't ask for a better partner in life. My three wonderful children, Raymond III, Daija and Devin who continue to be my source of encouragement. To my Dad, Antonio and my aunt, Angela, thank each of you for always believing in me. To my mother in Christ, Vicky Young, I truly thank God for you. You were heaven sent. Our daily phone calls are something I will treasure forever.

Next, I would like to thank my dissertation committee and department chair. Drs. J. Helen Perkins, Colton Cockrum, and Donna Menke, thank you all for always making the time to be there for me when I needed you. Dr. Craig Shepherd, thank you for stepping in during a time I felt defeated. Thank you for providing the guidance and support I needed to keep striving. Also, I would like to add a special thanks to Dr. Jennifer Townes for serving as a peer mentor.

I have had amazing cheerleaders during this process. There are countless of other family members and friends who I owe my gratitude. It's simply too many of you to list. But, I want you all to know I appreciate each encouraging word and your warm wishes while I pursued my dream of obtaining my doctorate degree.

Abstract

The purpose of this quantitative, correlational study was to examine the influence that completion of course module activities in an academic strategies course have on academic probation students' academic achievement (change in term GPA) and semester-to semester retention, while considering potentially influential demographic and environmental variables. There were two research questions included in this study: How does completion of course module activities (predictor variable) predict academic achievement (criterion variable), measured by change in term GPA, of first-time academic probation students enrolled in an academic strategies course and how does completion of course module activities (predictor variable) predict semester to semester retention (criterion variable) of first-time academic probation students enrolled in an academic strategies course? A predictive correlation design was used in this study. The results of the multiple regression analysis indicated in two of the predictor variables, gender and classification were not statistically significant in the stepwise model. However, three predictor variables, course completion, race (black) and college (College of Communication and Fine Arts; and Academic Counseling Center), were statistically significant to predicting change of term GPA. The results of the binomial logistics regression analysis indicated two predictor variables, gender and race, were not statistically significant. The other three predictor variables—course completion, classification, and college (College of Engineering)—were statistically significant to predict the criterion variable, retention.

Keywords: academic probation, student retention

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List of Abbreviations

Abbreviation

Academic Probation 1 (AP1)

Center for Academic Retention and Enrichment Services (CARES)

Desire to Learn (D2L)

Grade Point Average (GPA)

Institutional Review Board (IRB)

Learning Environment, Processes, Outcomes (LEPO)

Office of Institutional Research (OIR)

Statistical Package for the Social Science (SPSS)

Science, Technology, Engineering, and Mathematics (STEM)

University Identification (UID)

Universal Design for Learning (UDL)

Information Technology Services (ITS)

CHAPTER ONE: INTRODUCTION

The purpose of the introduction chapter is to provide a framework for the problem of practice that is being investigated. The chapter will provide the background of the problem of practice, details of the identified problem, the purpose statement, and the importance of the investigation for the target audience. The research questions and hypotheses are also provided, along with the definition for key terms included in the study. The introduction contains several subsections.

Introduction

The United States Department of Education, National Center for Education Statistics (NCES, 2017) reported retention rates of full-time degree-seeking students at four-year institutions between 59%- 81%. Students who are failing to achieve academically or who are on academic probation are more likely to drop out (Barouch-Gilbert, 2016a). Therefore, higher education institutions employ a variety of interventions and support services such as academic advising, success courses and meeting with academic counselors, to improve retention rates as well as academic achievement (Crosling, Heagney, & Thomas, 2009). Decades of research have been conducted to examine these interventions and to promote reformation of higher educational practices (Tinto, 2003). In the early 1990s, studies by Lipsky and Ender (1990) found students who participated in a study skills course improved their grade point averages (GPA) and were less likely to be on probation in semesters following the interventions than those students who did not participate in the course. The study skills course in this study included topics on time-management, the environment where students study, note-taking, and test-taking skills that were identified as skills that impact students' study techniques. Newton's (1990) research demonstrated similar results. Students participating in a probation intervention seminar that ran

for 10 weeks improved their academic standing, were removed from academic probation, and persisted at the institution, compared to those who did not attend the intervention seminar. The seminar focused on students' personal issues, the influence of peers on students, how students approach problem solving, and the student's academic skills building. The academic skills building activities included note-taking techniques and exam preparation. The interventions in each of these studies differed, however they both were reported to have increased GPAs and better retention among the students who participated in the interventions.

Various interventions at a variety of institutions have been effective at retaining students. More recently, studies involving students on academic probation demonstrated that various interventions continue to be employed across higher education institutions. For example, some institutions have found mandatory counseling effective in improving students' academic achievement levels and GPA (Yang, Yon, & Kim, 2013); while other institutions used supplemental courses, academic counseling, face-to-face tutoring, individual advising, face-to-face group advising and/or workshops (Bettinger, Boatman, & Long, 2013; McGrath & Burd, 2012; Moss & Yeaton, 2015; Renzulli, 2015; Seirup & Rose, 2011) as interventions to improve students' academic achievement levels. Petty (2014) recommended higher education institutions provide a combination of group and individual academic support initiatives for students who have barriers and challenges that affect their academic performance. By providing more than one academic support initiative for academic probation students, institutions may be able to meet the needs of underperforming student populations. The institution in which the current study takes place, provides multiple academic support initiatives based on the academic status of the students. Each academic status and the applicable academic support initiatives will be discussed further in this chapter.

Moss and Yeaton (2015) contended that it is vital for each higher education institution to identify and use effective interventions that help underperforming students improve their academic achievement levels and remain enrolled at the institution. Identifying the most effective interventions to meet the needs of diverse groups of students at specific institutions has been a continuous challenge for higher education institutions (James, 2010). Interventions used at higher education institutions must be evaluated to determine their effectiveness. The effectiveness of initiatives used at institutions must be assessed to support the validity of the initiative at each institution (Vander Schee, 2007). The goals of developing effective interventions are to improve underperforming students' academic achievement levels and improve student retention rates. The current study will provide an evaluation of an academic intervention employed at a minority-serving public, mid-south university.

Problem of Practice

Retention and graduation rates at the university where the study took place were substantially lower than the national average. The Office of Institutional Research (OIR) at the university reported that the six-year retention rate of the 2016- 2017 undergraduate, full-time student cohorts ranged between 43.6-51.1%. Similar to other higher education institutions across the United States, the university where the study took place has begun to focus on academic success interventions in an effort to improve academic achievement and semester-to-semester retention rates. The university is a state institution that reported retention rates as a performance measure. Retention of students was a performance measure that impacted the funding received by the institution from the state. The university had a team of academic counselors who were dedicated to developing initiatives/interventions to increase the academic achievement level and retention of low performing students, based on the students' academic status.

The institution had four academic statuses: good standing, academic warning, academic probation, and academic suspension. Low performing students were defined by the institution as students who fell into any academic status other than good standing. Two GPA criteria, the last term of completion GPA (term GPA), and the overall combined GPA were the only determinants for the academic status of all enrolled undergraduate students. Students who had both a term GPA and overall combined GPA of 2.0 or higher had an academic status of good standing. Those students who fell below a term GPA of 1.0 or an overall combined GPA of 2.0 received an academic status of academic warning. Students could only be placed on academic warning status once during the life of their enrollment at the university. There was a two-part intervention for students on academic warning. First, academic warning students were required to complete a survey regarding their academic performances. The second part of the intervention was 30-minute face-to-face academic coaching sessions, offered bi-weekly. Students who had a subsequent term GPA below 2.0 or overall combined GPA below 2.0 were placed on first-time academic probation (AP1). The primary AP1 intervention was an online self-paced academic strategies course. Students could continue at the academic status of academic probation in any subsequent term where their term GPA was below 2.0 or their overall combined GPA was below 2.0. Each semester that a student continued on academic probation, the intervention provided was bi-weekly meetings with academic counselors. Students who reached academic probation status, and who later fell below 2.0 term GPA and below 2.0 overall combined GPA in a subsequent semester, were placed on academic suspension. Students on academic suspension were not allowed to enroll at the university during the next semester. At times, students might be suspended for two semesters (a full academic year). The length of the suspension term was based on the student's past academic performance and the student's participation in designated

interventions while at other academic statuses. After the suspension period ended and the student returned to the institution, the bi-weekly meetings with an academic counselor continued. All undergraduate students who received an early alert (failing grades, low test scores, or poor attendance), no matter their academic status, were contacted to make an appointment with an academic counselor. The current study only focuses on first-time academic probation (AP1) students who were required to complete the academic strategies course. The primary intervention for first-time academic probation students was the online self-paced academic strategies course.

The online academic strategies course was developed by university personnel. The goals of the course were "...to help the student introspectively identify the barriers to their success and to help the student avoid Academic Suspension" (Center for Academic Retention and Enrichment Services, 2018, para. 5). The aims of the course were (1) to provide academic strategies and tools to students on academic probation, as aids to improve their academic achievement level; (2) to help students return to the academic status of good standing, and (3) to help students to persist in their programs of study. The academic strategies and tools included proper study habits, identifying and enrolling in proper credit hours, and setting academic goals. Six academic counselors facilitated the applicable sections of the academic strategies course.

In spring 2017, the course was redesigned by an instructional designer and academic counselor to accommodate 100% online delivery. The redesign included changes in the content, learning objectives, and structure of the course. The content was in electronic format and delivered on an online learning platform instead of in a traditional classroom. The learning objectives were self-reflective. The Universal Design for Learning (UDL) model was used as the guide for redeveloping the course, to ensure the course met standards for online course delivery. The course provided multiple means of (a) engagement, (b) representation, and (c) action and

expression, as listed in the UDL guidelines. The course was delivered in the university's designated Desire to Learn (D2L) platform, where an online orientation, review of the online features, and instructions on how to navigate through the platform was provided. Crawford-Ferre and Wiest's (2012) review on approaches to effective online instruction in higher education suggested inclusion of such elements to help familiarize students with the course content and design.

To date, the effectiveness of the academic strategies courses, as assessed by the students' academic progression (change in term GPA) and semester-to-semester retention, had not been examined.

Purpose Statement

The purpose of this quantitative, correlational study was to examine the influence that completion of course module activities in an academic strategies course have on academic probation students' academic achievement (change in term GPA) and semester-to semester retention, while considering potentially influential demographic and environmental variables.

The data were used to examine the association between completion of the academic course module activities and to the students' academic performances and retention. The study is significant to research on initiatives that influence the academic performance and retention among low performing students enrolled in higher education institutions. The stakeholders in this research were the administrators at the institution, including the Center for Academic Retention and Enrichment Services (CARES) department, the Vice Provost of Academic Innovations, the academic counselors who facilitated the multiple sections of the academic strategies course, and the students enrolled in the course. With permission from the institution, the results of the research study will also be shared with other staff and faculty at the institution.

The results of this study are an addition to research on the topic of academic probation. The study extends the current literature on the research topic. The researcher provided an evaluation of an academic success initiative administered to students who reached academic probation status for the first time. The outcome of the study provides an evaluation of the effectiveness of the intervention used at the institution in which the study took place. The Vice Provost of Academic Innovations and all other stakeholders will be informed of the progression of students enrolled in the academic strategies courses beyond the term in which the students were on first-time academic probation status.

Research Questions

Two research questions guided this study:

1. How does completion of course module activities (predictor variable) predict academic achievement (criterion variable), measured by change in term GPA, of first-time academic probation students enrolled in an academic strategies course?
2. How does completion of course module activities (predictor variable) predict semester to semester retention (criterion variable) of first-time academic probation students enrolled in an academic strategies course?

Null Hypotheses

The hypotheses statements support the above research questions.

The null hypotheses for this study are:

H₀: There will be no significant predictive relationship between the change in GPA (the criterion variable) and completion of course module activities, race, gender, classification and program of study (the predictor variables), for first time academic probation students enrolled in an academic strategies course.

H₀: There will be no significant predictive relationship between semester to semester retention (the criterion variable) and completion of course module activities, race, gender, classification and program of study (the predictor variables) for first time academic probation students enrolled in an academic strategies course.

Definitions

Several key terms must be defined as the terms pertain to the current study. A few terms relevant to the study may have had more than one meaning in prior literature. Therefore, a list of these terms and the definitions, for the purpose of this study, are as follows:

Academic probation. An academic status given to students who have progressed past academic warning status and who have a subsequent term GPA below 2.0 or overall combined GPA below 2.0.

Academic self-efficacy. Students' perceptions of their abilities to perform academically. (Richardson, Abraham, & Bond, 2012)

Academic status. The academic ranking/standing of the student based on the student's GPA, per academic term.

Academic success. Maintaining both a term GPA 2.0 or higher and an overall combined GPA of 2.0 or higher, at the undergraduate level.

Academic suspension. An academic status assigned to students who have previously been on first time academic probation status, and who later fall below 2.0 term GPA and below 2.0 overall combined GPA in a subsequent semester.

Academic warning. An academic status assigned to students who fall below a term GPA of 1.0 or an overall combined GPA of 2.0, for the first time.

College (Program of study). The name of the undergraduate college in which a student is enrolled at the university.

Completer(s). Academic probation student(s) who complete the academic strategies course.

Early alert. A written notification added to a student's profile which signals any of the following: failing grades, low test scores, or poor attendance.

Good standing. An academic status assigned to students who have both a term GPA and overall combined GPA of 2.0 or higher.

Grade point average (GPA). The most often used numerical measurement to account for academic achievement; regularly measured on a 0.0 to 4.0 scale (York, Gibson, & Rankin, 2015).

Incompleter(s). Academic probation student(s) who do not complete the academic strategies course.

Program of study (College). The name of the undergraduate college in which a student is enrolled at the university.

Self-efficacy. "The belief in one's capabilities to organize and execute courses of action required to produce given attainment" (Bandura, 1997, p. 3).

Student retention. For this study, student retention is student enrollment into the next semester at the institution.

Universal design for learning. Universal design for learning requires accessible content and information as well as accessible pedagogy (Rose, Harbour, Johnston, Daley, & Abarbanell, 2006).

CHAPTER TWO: REVIEW OF THE LITERATURE

In this chapter, the researcher provides an overview of the Learning Environment, Processes, Outcomes (LEPO) framework, which is the theory that guides the current study. A brief history of the theory, the main contributors of the theory, and the connection between the theory and the current study are provided. Then, the researcher reviews the recent literature on the topics of academic probation, academic achievement, and student retention.

Introduction

The problem identified in the current study is the need of a program evaluation for the intervention used for first-time probation students. The current intervention, the academic strategies course, has not been evaluated for the effectiveness of the learning outcomes for the students who are required to enroll in the course. The purpose of the study is to provide an evaluation on the effectiveness of the academic strategies course in relation to the knowledge demonstrated by the first-time academic probation students enrolled in the course and the retention of said students. The researcher completed the evaluation by using an appropriate e-learning assessment method, the LEPO framework (Phillips, McNaught, & Kennedy, 2011).

Theoretical Context

In the LEPO framework, learning is divided into three components: the learning environment, the learning processes, and the learning outcomes (Phillips et al., 2011). The three learning components are outlined in the LEPO framework as interrelated dimensions (Carr, Kelder, & Sondermeyer, 2014). The interactions between teachers, students, and the three learning components provide the full LEPO framework. The learning environment is the environment in which learning takes place, whether it be a physical building or a virtual platform. Students and teachers interact within the designated learning environment. The

learning processes are the actual tasks and activities that students complete in the learning environment. The learning processes are usually facilitated by the teachers in the learning environment. Learning outcomes are the knowledge, skills, and/or understanding the students obtain from completing the processes (tasks and activities) included in the learning environment. The learning outcomes are assessed by the teachers. Figure 1 is a representation of the LEPO Framework components as related to the current study.

In the current study, the learning environment was the academic strategies course. Due to the course being an online course, the learning environment extended to the location in which the students complete the course. Students can complete the course on a computer, laptop or any handheld mobile device that connects to the internet. Therefore, students could have completed the course on campus in a computer lab, in the student's place of residence, or while the student is in transit. The learning environment provided the learning processes. The learning processes were the tasks and learning activities the students are required to complete while engaged in the course. These learning processes were facilitated by the teachers and delivered in the learning environment. Students' completion of the learning processes led to the learning outcomes. Learning outcomes were demonstrated by the students and assessed by the teachers. The learning outcomes helped determine the effectiveness of the learning environment. During that time, there was also interaction between the students on first time academic probation status and the CARES Counselors, who served as the teachers.

The LEPO framework was developed by Rob Phillips, Carmel McNaught and Gregor Kennedy (2011). The framework is a blend of five other e-learning and higher education research pieces. Those five research pieces are identified by Phillips et al. 2011 (p. 28) as:

- Presage, Process, Product (3-P) model by Biggs (1989)

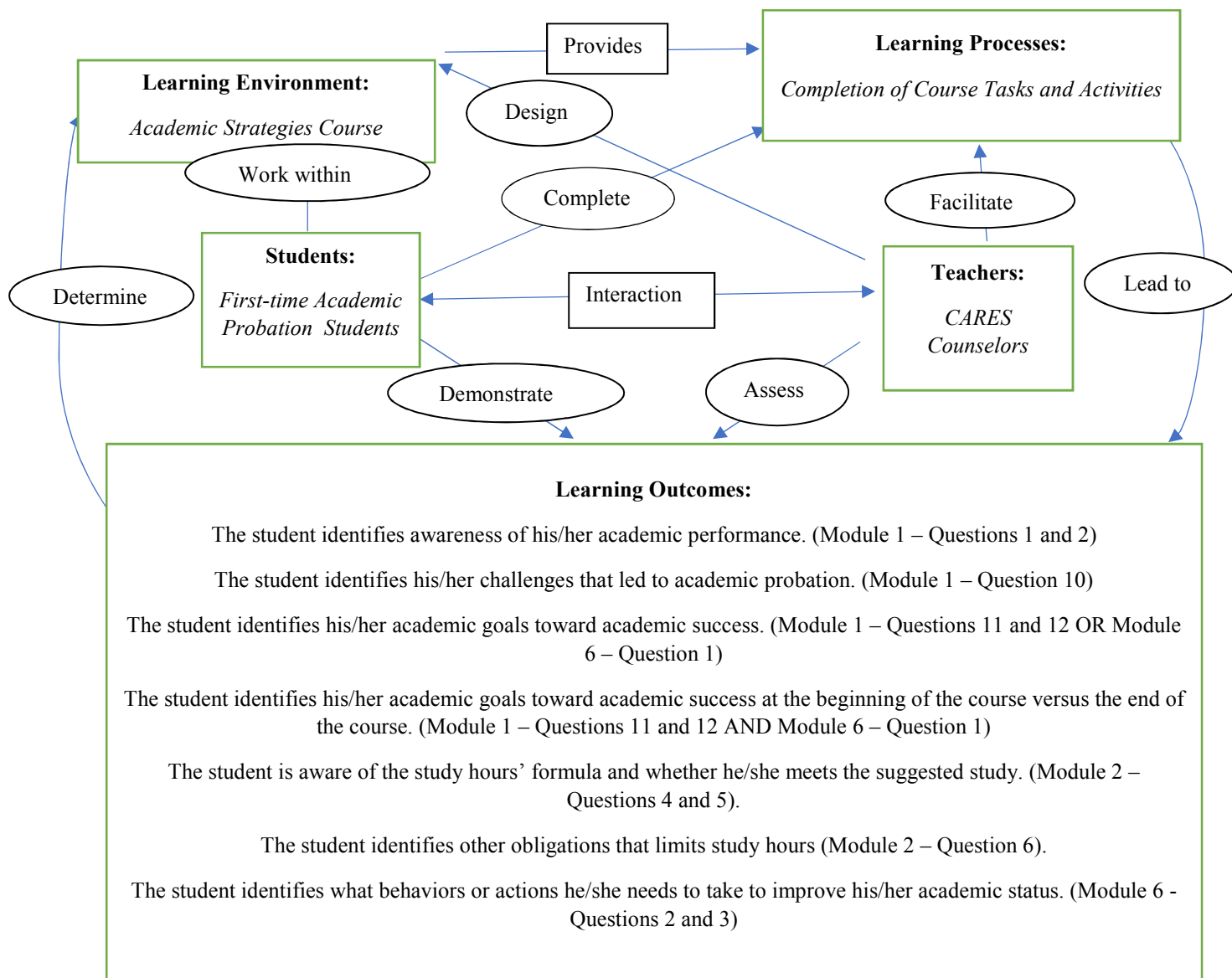


Figure 1. LEPO Framework applied to the academic strategies course

- Laurillard's (2002) Conversational framework
- The Learning-centered Evaluation Framework by Bain (1999)
- Reeves and Reeves'(1997) model for interactive learning on the web
- Goodyear's problem of educational design by Ellis and Goodyear

The developers (Phillips et al., 2011) integrated elements of these five frameworks into one conceptual framework model. The developers' purpose of developing the LEPO framework was

to contribute a model that would improve the quality of educational design of learning and teaching environments, which includes the learning tasks and the learning outcomes. According to Phillips et al. (2011) and Carr et al. (2014), the LEPO framework can be used as an evaluation tool by educational researchers to evaluate the effectiveness of the e-learning environment. For an e-learning environment to be deemed effective, certain characteristics must be present in each of the LEPO framework learning components.

Learning Environment Characteristics in LEPO Framework

The learning environment is where the learning takes place. The learning environment is a contributing factor that determines the outcome of students' performance (Nouh et al., 2016). More specifically, Malik and Rizvi (2018) defined the learning environment as “the conditions in which learning takes place” (p. 208). In the e-learning environment, learning takes place in a designed artifact or learning management system. An effective learning environment specifies the details about the learning activities and tasks. It also specifies the content for the unit of study. Included in the environment are learning objectives, assessment activities, and the applicable deadlines for assessment activities. Aided with the internet, students can receive instruction and complete learning tasks from anywhere at any time in the e-learning environment (Sher, 2009).

Student and teacher interaction also should take place in the learning environment. The teacher's role during student and teacher interaction includes delivering information, encouraging students, and providing feedback (Moore, 1993). The student's role during student and teacher interaction is to engage with the instructor by asking questions or communicate about course activities (Moore, 1993). According to Ahmad (2008), in an effective online environment, the student and teacher interaction should be a form of two-way communication.

The presence and involvement of the teacher is necessary in the online environment to improve learning outcomes (Sun & Chen, 2016; Yuan & Kim, 2014). An effective learning environment also includes appropriate learning processes that can demonstrate learning outcomes.

Learning Processes Characteristics in LEPO Framework

Learning processes are the actual tasks and activities that students complete in the learning environment (Phillips et al., 2011). The learning activities and tasks included in the learning environment are provided by teachers and completed by students. The activities can be assessment activities, personal activities, or social engagement activities. Multiple types of learning activities include tests, surveys, and assignments. Effective learning processes include cognitive activities in which students demonstrate their knowledge and understanding. Cognitive activities require learners to activate existing knowledge, explore related knowledge, store new knowledge, convert new knowledge, or assimilate new knowledge (Chi, 2009). These cognitive activities can include problem solving and/or reflective exercises.

The manner that activities are to be completed (individual or group) should be specified. Also, whether the learning activities are teacher-directed or student-directed should be detailed. Student-directed learning, also known as self-regulated learning, is a learning style in which students are taught to regulate their own learning behavior (Agran, 1997). Self-regulated learning consists of activities where students set academic goals, monitor their progress, self-evaluate, and self-reinforce improved academic behavior; whereas the teacher demonstrates how to complete learning during teacher-directed learning activities (Mithaug & Mithaug, 2003). According to Wehmeyer, Agran, and Hughes (2000) education research suggests that self-directed learning activities are just as effective as teacher-directed activities. The most effective activities include self-directed goal setting, self-instruction, self-evaluation, and self-

reinforcement (Wehmeyer et al., 2000). In the LEPO framework, effective learning processes within an e-learning environment require not only interaction between the student and the teacher but also interaction between the student and technology (Phillips et al., 2011). A student's completion of effective and appropriate learning processes should lead to the student's ability to demonstrate learning outcomes from participation in the learning environment (Phillips et al., 2011).

Learning Outcomes Characteristics in LEPO Framework

In higher education settings, learning objectives define what students should be able to do after the course of study, while learning outcomes are the results of what students can actually do after the course of study (Phillips et al., 2011). Learning outcomes are defined as “[w]hat students are expected to know and be able to do at the end of the course” (Sankar & Raju, 2011, p. 47). Similarly, Kennedy (2007) defined learning outcomes as what the student has achieved and what the student can demonstrate at the conclusion of learning activities. Additionally, Harden (2002) defined learning outcomes as a description of what students should possess after completing a course that can be added into curriculum planning and added into the student's study guides. In an effective learning environment learning outcomes can be presented in several ways. Based on the LEPO framework, an effective learning environment will result in students who can present the following learning outcomes (Phillips et al., 2011):

- Demonstrate their range of knowledge acquired
- Demonstrate their range of skills acquired
- Acknowledge understanding of course content/information
- Apply new knowledge and skills gained from completing learning processes

LEPO Framework: Program Evaluation

The LEPO framework was categorized by the developers as an e-learning evaluation model that can be used to (a) understand how learners learn in the e-learning environment and (b) to help make judgements on the e-learning environment. Evaluation models, such as the LEPO framework, are used in academic research to “describe the nature and effects of the intervention as it relates to knowledge” (Rossi, Lipsey, & Freeman, 2004, p. 36). The LEPO framework was used in the current study with its intended purpose, as a guide to evaluate the effectiveness of the e-learning academic strategies course designed for students who were on first-time academic probation status. The developers of the LEPO framework identified five forms of evaluation research in which the LEPO framework can be used. Those five forms are baseline analysis, design evaluation, project-management evaluation, formative evaluation, and effectiveness research (Phillips et al., 2011). Baseline analysis is useful when an analysis of educational need and learner characteristics is needed for future cycles of design and development of the e-learning environment. Design evaluation is used to provide feedback on whether the e-learning environment is consistent with the baseline analysis. Project-management evaluation looks at the development of the e-learning project. The e-learning platform and the e-learning environment are evaluated in formative evaluation. Effectiveness research of learning outcomes is defined by Phillips et al. (2011) as

Effectiveness research focuses on the learning processes and learning outcome elements of the LEPO framework. This evaluation-research form mixes components of evaluation and research by attempting to confirm the effectiveness of the e-learning environment and to increase understanding of how learners engage with the learning environment. (p. 137)

Carr et al. (2014) utilized the LEPO framework for a program evaluation in their study. More specifically they used the effectiveness research of learning outcomes in their study to assess how effective the learning processes generated shifts in students' understanding. They also used this research analysis to determine the impact of students' capabilities to acquire new skills. The students in this study completed self-reflective essay questions, a questionnaire, and assessments. The goal of the researchers was to assess how completion of the tasks in the program would impact the students' knowledge, understanding, and behavior in relation to cultural diversity. The researchers concluded that the learning processes must include appropriate assessments to determine the impact students' completion of the learning processes have on the students' learning outcomes.

Similarly, the focus of the current research study was to determine whether students' completion of course activities and tasks in the e-learning environment had an impact on the students' learning outcomes. The researcher used the effectiveness research of learning outcomes analysis, which focuses on the relationship between the learning processes and the learning outcomes of the LEPO framework, to complete the evaluation. Also, a detailed description of the learning environment is provided in the Intervention section of Chapter 3. According to Phillips et al. (2011), when a learning environment is well defined, it is easier to determine whether the environment will lead to the desired outcomes. The researcher identifies which characteristic of the learning processes and learning outcomes (previously mentioned) are present or excluded in the e-learning environment. All three of the learning components: learning environment, learning processes, and learning outcomes of the LEPO framework are interconnected; therefore, if one of the components is flawed it can adversely affect one or both of the other learning components (Nouh et al., 2016).

When conducting the evaluation research, the researcher completed the following steps: (a) collect data, (b) analyze and interpret the data, (c) check the validity and reliability of the data, and (d) report the findings. Explicit details regarding the investigation process will be provided in Chapter 3. In the next chapter, the researcher describes the academic strategies course (learning environment), examines how students' completion of the activities and tasks (learning processes), facilitated by the teachers, influenced how the academic probation students demonstrate their knowledge, skills, and/or understanding (learning outcomes) as a result of being engaged in the academic strategies course.

Review of the Literature

The researcher completed a review of current literature on the topics of academic probation, academic achievement, and student retention. The researcher conducted a database search which included ERIC, GoogleScholar, Researchgate, Education Full Text, JSTOR, and PsychINFO. The researcher completed a search on the term *academic probation* and related terms such as *at-risk students*, *low academic performance*, and *probationary students*. The researcher also searched for academic probation interventions, initiatives, and programs.

The subsequent section will begin with a brief overview of student retention, followed by an overview of academic probation and the factors that contribute to students being placed on academic probation. Then a review of the variables in relation to academic achievement (GPA) and student retention will be provided along with a review of support programs and interventions used at higher education institutions for students on academic probation. This section will end with a summary.

Student Retention

Student retention has been a major area of focus for higher education institutions for over four decades (Drake, 2011; Elkins, Braxton, & James, 2000; Tinto, 2006). There are both

financial and academic implications for higher education institutions that have low retention rates (Aljohani, 2016). Some institutions have moved toward a performance funding model which looks at student retention and degree completion as performance measures, rather than student enrollment (Dougherty, Natow, Bork, Jones, & Vega, 2013). The percentage of funding from the state is impacted based on retention and degree completion measures. The state provides the measure for institutions to obtain funding. Also, on an international level, the reputation and accountability of the institution are impacted based on retention percentage (Crosling et al., 2009). Therefore, maintaining higher levels of student retention is a goal of higher education institutions on both a national level and an international level (Aljohani, 2016; Elkins et al., 2000).

A majority of the literature on student retention focused on students' personal and social attributes and their higher education institution's practices (Astin, Tsui & Avalos, 1996; Peltier, Laden & Matranga, 1999; Thomas, 2002; Tinto, 1987, 1993). Astin et al. (1996) provided research on race, gender, and institutional types (public university, private university, Christian college or Catholic college) in relation to student retention. The researchers found that the type of higher education institution (2-year or 4-year institution) and the number of years students took to pursue an undergraduate degree differed, which resulted in the outcome of the students' retention from semester to semester and their ability to obtain a degree. Students who were allowed six years to complete a degree were more likely to be retained and obtain a degree, compared to those students who were allowed four years to complete. Peltier et al. (1999) reviewed prior literature on student persistence in higher education and found multiple factors that affected persistence, including gender, age, race, and socioeconomic status.

Over the years, the issue of student retention moved from being all the fault of the student to a shared issue between both the student and the higher education institution (Tinto, 2006). Tinto, who is recognized as one of the earliest researchers to contribute a theory to explain student departure, also contributed literature on student retention that synthesized an array of research. Through his work, he identified causes and solutions to student departure which included both student attributes and the impact of the learning environment (Tinto, 1987). Students' individual attributes that impact retention were based on academic performance, social integration, and level of commitment to achieving academic goals (Tinto, 1987). Early on, student retention research focused on the students being less prepared, less able, and lacking motivation as key factors that influence retention. As the subject of student retention broadened, institutional factors were examined as influences of retention (Tinto, 2006). Institutional factors that impacted student retention were support initiatives, student integration, institutional information, and the learning environment (Tinto, 1999). After many years of research on the topic of student retention, Tinto (1999) provided four ways in which higher education institutions can increase student retention:

- The learning environment must include clear and consistent information with a road map to completion for students to form and complete their personal academic goals.
- Institutions should provide various forms of support: academic, social and personal support.
- Students must feel valued in the learning environment, which is displayed by frequent and high-quality contact with faculty, staff and their peers.
- Students must learn while participating in the designated learning environment. (pp. 5-6)

According to Tinto (1987, 1999, 2006), the learning environment and what happens in the learning environment are just as vital as the students' personal attributes, in relation to student retention.

The terms retention and persistence are often interchanged when defining the continuation of students at a higher education institution (Reason, 2009; Tinto 1987, 2006). Researchers measured retention in multiple ways. Some researchers measured retention from one semester to the next. Other researchers defined retention as enrollment of a student until degree completion. In the current study, the term retention was defined as the act of a student to persist from one semester to the next semester. More specifically, the current study focused on semester-to-semester student retention of first-time academic probation students.

Academic Probation: A Definition and Students' Perspectives

Academic probation is a term used at many higher education institutions to categorize students who have low academic performance. Yet, no consistent definition for the term exists in literature. Arcand and LeBlanc (2012) acknowledged the difficulty in tracing a definition or origin for the term. Thus, when defining the term, "authors usually use their university's academic regulations to explain conditions of academic probation, however, they do not formally define the notion" (p. 215). Arcand and LeBlanc also found the literature they reviewed on the topic "suggests that students were put on academic probation when their grade performance was below a satisfactory threshold" (p. 215). Recently, Hamman (2018) offered a definition for academic probation that is relevant to this study given the research site's academic regulations:

Academic probation is defined by most institutions as a status for students who are unable to achieve satisfactory academic progress, determined by a combination of number of credits earned with cumulative grade point average (GPA). Colleges and

universities generally define academic probation as those students whose cumulative GPA is below 2.0 on a 4.0 scale. The standard has been set at that level since a 2.0 GPA is required to graduate from most institutions and also allows for students to continue qualifying for federal and state financial aid programs. (p. 163)

In the current study, undergraduate students were placed on academic probation when they did not achieve satisfactory academic progress for a second term. During a prior enrolled term, the student reached academic warning status and later progressed to academic probation status for the first time. The students' term GPA and overall combined GPA were both below 2.0 on a 4.0 scale.

Although there was not a consistent definition or set of criteria for academic probation among higher education institutions, there was a consistent feeling among students placed on academic probation. Literature that includes students' perspectives when placed on academic probation reveals those students find the term "academic probation" as negative (Arcand & LeBlanc, 2012; Barouch-Gilbert, 2016b; James, 2010). For example, in the qualitative study conducted by Arcand and LeBlanc (2012), a student on academic probation stated that he felt like a "failure" once he fell below the university's acceptable academic threshold and was placed on academic probation (p. 223). Barouch-Gilbert (2016b) provided accounts of several former academic probation students' perspectives on the term academic probation and the impact that it had on their academic progress. Students in this study used terms of such as "mediocre," "blacksheep," "terrible," and "put in a box" to describe how they felt once they were placed on academic probation (p. 422). Having the label of academic probation can have a negative impact on students' beliefs in their abilities to achieve academic success (Arcand & Leblanc, 2012; Barouch-Gilbert 2016b). Many academic probation students become discouraged to persist.

Yet, other students on academic probation view the label as a signal to regain focus in a pursuit to return to good standing (Tovar & Simon, 2006).

Factors contributing to academic probation. Multiple factors contribute to students being placed on academic probation. Some contributing factors are attributed to the student. Those factors include attendance, financial problems, number of hours worked, enrolled course hours, family problems, and lack of goal setting (Trombley, 2001). More recent studies of students on academic probation include factors such as language barriers, poor communication skills, involvement in other activities, incorrect course selection, personal problems, time management, and procrastination as contributing factors to students being placed on academic probation (Ahmed, Chowdhury, Rahman, & Talukder, 2014; Fauzan, Vellasamy, Prabha, Gurusamy, & Alias, 2017). Also, socioeconomic factors contribute to students being on academic probation. Socioeconomic factors such as financial constraints, emotional difficulties, prior academic experience, and social experience have been identified as major contributors of students who are placed on academic probation (Lightweis, 2014). Other contributing factors were attributed to the higher education institution. Those factors included funding, cost of attending college, academic support programs, advising, learning environments, teachers, and technology (Lau, 2003).

While the factors that contribute to academic probation are complex, higher education institutions are willing to provide support for academic probation students to improve their academic achievement and retention. To improve the retention and academic performance of academic probation students, higher education institutions must continue to provide effective support programs to assist students who struggle academically (Hamman, 2018).

Completion of intervention. It is a customary practice for institutions to give students written notice when the student is placed on academic probation; it is also customary for institutions to provide some form of support (Isaak, Graves, & Mayers, 2007; Moss & Yeaton, 2015). However, as institutional policies and performance thresholds for students on academic probation vary, so do the interventions and supports provided (Casey, Cline, Ost, & Qureshi, 2018). Therefore, there is not a set standard or set of best practices among higher education institutions for students who land on academic probation. Included in the following section are programs and interventions employed at higher education intuitions to support at-risk students, such as students on academic probation.

Academic support programs for students on academic probation. While practices and interventions vary, the consensus among researchers is that students on academic probation need immediate and effective interventions that provide academic support (Abele, Penprase, & Ternes, 2013; Ahmed et al., 2014; Boretz, 2012). Boretz (2012) urged for early interventions such as mid-semester grade reporting, academic workshops, and institutional wide outreach as forms of academic support for academic probation students. Many higher education institutions have moved toward models to help incoming students avoid academic probation (Bettinger et al., 2013; Connolly, Flynn, Jemmott, & Oestreicher, 2017; Klatt & Ray, 2014; Rodgers, Blunt, & Tribble, 2014). These institutions were taking a proactive approach to identify barriers and challenges of at-risk students. They used early intervention support programs as a form of rehabilitation to provide academic support to students identified as being at-risk.

Academic support programs for students on academic probation are not one-size-fits-all for higher education institutions, and not all programs are beneficial to all academic probation student populations (Damashek, 2003). Damashek's (2003) review of academic support

programs found that the type of academic support program differed by institution. The programs reviewed included mandatory and voluntary interventions. Mandatory programs included in the review were counseling with advisors, orientation courses covering academic skills, and weekly group sessions on ways to improve students' academic motivation. Voluntary programs included in the review were individualized counseling programs and a study skills program. Throughout the literature, academic support interventions, discussed and evaluated, included academic success workshops (Boretz, 2012), meetings with academic counselors, written warning letters to students on academic probation (Moss & Yeaton, 2015), academic learning strategy courses (Renzulli, 2015), and academic coaching sessions (Yang et al., 2013). An academic success workshop is a group intervention for academic probation students, whereas meetings with academic counselors, self-regulated learning style courses, and advising by academic coaches are interventions completed in a one-on-one setting.

These various interventions have varied levels of effectiveness and varied outcomes. In the study conducted by Boretz (2012), the academic success workshop provided to freshmen with at least one grade of D+ or lower improved the level of engagement among participants and their academic advisors. Renzulli (2015) reported that the undergraduate academic probation student participants who enrolled in the academic learning strategies course found the course information useful in their future academic achievement. Participants also reported increases in their study hours after they completed the course. Abele et al. (2013) found the earlier that interventions and strategies are provided for at-risk students, the more likely they are to improve their academic performance. For example, Rodgers et al. (2014) employed an early intervention strategy for at-risk, low performing students enrolled in science, technology, engineering, and mathematics (STEM) majors as an effort to improve retention rates. The intervention included

intrusive advising and a seminar course. The retention rates improved for participants who received the intervention; yet remained the same for STEM students who did not participate in the intervention. Likewise, freshmen academic probation students at a 4-year institution in the Southwest who completed a success course improved their academic performance and persistence rates compared to those freshmen who did not complete the success course during the term (McGrath & Burd, 2012). Swecker, Fifolt, and Searby (2013) conducted a study on retention of first-generation students from one fall semester to the following fall semester. They found the more face-to-face advising sessions a student had with an advisor, the more likely the student would persist. However, not all interventions proved to have successful or impactful outcomes. The study conducted by Moss and Yeaton (2015) resulted in no significant change in term GPA for academic probation students who were sent warning letters by postal mail or email. The researchers found both methods of letter delivery (postal mail and email) failed to significantly increase academic probation students' GPA.

With the various forms of interventions, as well as the varied outcomes of said interventions, it is imperative that intervention used at higher education institutions meet the needs of their academic probation students (DeBard, 1987; James, 2010).

Predictor Variables and Criterion Variables

While the main purpose of this study was to examine the effectiveness of the academic strategies course in relation to the knowledge demonstrated by first-time academic probation students enrolled in the course, there are other variables of influence. Variables such as gender, race, classification, and program of study/college can potentially influence academic probation students' GPA and their retention; therefore, these variables must be considered. This section

will include a brief discussion of each of these variables in relation to GPA and retention, thus justifying their inclusion in the current study.

Gender in relation to GPA and student retention. The gender of college students has been identified as a significant predictor of GPA since as early as the 1990s (Betts & Morell, 1999). Sheard (2009) found gender to be a predictor of GPA among the 134 university undergraduate students included in his study on predict academic success. In the study, female students' final degree GPA were significantly higher than male students. GPA was also significantly higher for female students than male students in the structural equation modelling analysis of how the motivation of higher education students affect academic performance (Kusurkar, Ten Cate, Vos, Westers, & Croiset, 2013). As it relates to gender and student retention, Lindo, Sanders, & Oreopoulos's (2010) study on ability, gender and academic performance found there to be no significant impact on retention rates for female academic probation students; yet, the rate of male students not persisting after they were placed on academic probation nearly doubled. Some researchers may argue that students' perspectives on their academic self-efficacy differs based on gender. According to a study on the perspectives of male and female academic probation students by Najimi, Sharifirad, Amini and Meftagh (2013), male students identified the role of the instructor as a contributing factor in their academic failures, while female students identified socioeconomic environments as a contributing factor to their academic failures.

Race in relation to GPA and student retention. Recent studies of academic probation students that included race as a variable showed that African American and Latino/Hispanic students were represented at a disproportionate rate (Boretz, 2012; Gershenfeld, Hood, & Zhan, 2016; Tovar & Simon, 2006). Further, African American and Latino students who struggled

academically were less likely to persist at the higher education institution than their white peers (Gershenfeld et al., 2016). Not only was there a disproportionate rate of African American and Latino students who struggled academically, researchers also suggested that female students in these races were also underprepared in courses such as science, engineering, and math (MacPhee, Farro, & Canetto, 2013). This lack of preparedness could impact their academic achievement levels as well as their abilities to persist.

Program of study in relation to GPA and student retention. The program of study selected by undergraduate college students can be a predictor of academic achievement measures such as course grades, GPA, and student retention (Dayioğlu & Türüt-Aşık, 2007). Science, technology, engineering and math (STEM) is a area of study in which female students and minority students are underrepresented. Citing an abundance of research, Alexander & Hermann (2016) concluded that (a) lack of student retention occurred more in STEM majors than in other majors, (b) male STEM majors were more likely to persist than female STEM majors, and (c) female STEM majors continued to be underrepresented. MacPhee et al. (2013) conducted a study on students participating in a U.S. Department of Education TRIO program. The study, which focused on the academic performance of STEM majors based on gender, ethnicity, and social class, found minority female STEM students achieved lower GPAs than their white peers due to the lack of preparedness for minority female students in the majors that made up the STEM program.

Abele et al. (2013) reviewed eight years of academic data for nursing students placed on academic probation at an American higher education institution. The researchers recommended all programs of study should conduct a review of academic performance of students based on the specified program of study in an effort to predict retention of the students enrolled in the

program. Many studies on academic probation students and students at-risk of being on academic probation were delimited to one discipline/program of study, since the researchers recognized that discipline may be a confounding variable.

Classification in relation to GPA and student retention. Past and present research based on a student's classification has overwhelmingly focused on freshmen students. Tinto (2012) contended that academic support programs are most critical during the first year of attendance at a higher education institution. The relevant literature that focused on sophomores, juniors, and seniors on academic probation is outdated. Earlier literature included studies on academic probation at higher education institutions including junior colleges and community colleges (Capper, 1969; Graham & Dallam, 1986; Weiss, Brock, Sommo, Rudd, & Turner, 2011). Smith and Winterbottom (1970) included freshmen students and sophomore students in their study on personality characteristics of academic probation students. They found that academic probation students who set unrealistic academic expectations, lacked motivation, and tended to continue to struggle academically, whereas the students who improved their academic performance and were most likely to be improve their academic status, were more realistic in academic expectations. West (1971) analyzed the academic achievement levels of sophomore academic probation students who attended a university's intervention counseling program compared to the academic achievement levels of sophomore students who did not attend the intervention program. She concluded that the students who did not attend counseling sessions performed just as well academically as those students who attended the counseling sessions. West's study is an earlier example of when a prescribed intervention did not provide the desired outcome of improved academic achievement levels for students on academic probation.

The search for recent literature on the topic of academic probation, academic achievement and student retention combined with students' classification, produced several studies focused on freshmen academic probation students (Bettinger et al., 2013; Connolly et al., 2017; Klatt & Ray, 2014; McGrath & Burd, 2012; Rodgers et al., 2014). Although the classification of the students was mentioned in these studies, their classification was not analyzed as a variable that predicted or influenced GPA or student retention. Therefore, a consistent theme of how a student's classification may influence GPA or student retention cannot be formed. Given the delimitation of classification and studies that control for classification, classification appears to be a relevant variable for control.

What Works for Academic Probation Students

Historically, higher education institutions have employed various interventions to improve the GPA and retention of students on academic probation. Research on the subject included various intervention models with varied levels of outcomes. Although there was not a one-size fits all model, there were some practices that have resulted in positive outcomes of improved GPA and student retention. Rather than focusing only on the type of intervention used at the various institutions, the researcher of the current study identified the tasks completed in the interventions that provided successful outcomes for academic probation students. This notion supports Tinto's (1987, 1999, 2006) idea that student attributes as well as the quality of the learning environment and the learning outcomes contribute to student struggles academically (and therefore to student retention).

Interventions that have helped improve students' GPA and retention rates include one or more of the following tasks: self-reflective tasks, student decision making, identification of campus resources, exercises to improve study skills (such as note-taking and test-taking), group

discussions, ways to improve time management, peer networking, and development of academic plans/goal setting (Boretz, 2012; McGrath & Burd, 2012; Moss & Yeaton, 2015; Renzulli, 2015; Rodgers et al., 2014). Table 1 provides the authors of the studies, the type of intervention, and the tasks completed in the intervention.

Several of the identified tasks completed in prior interventions for low performing students are also included in the academic strategies course of the current study. The tasks included in the academic strategies course will be detailed more in the intervention section of Chapter 3 of this manuscript. The researcher's goal is to evaluate the impact of the tasks completion as it relates to the change in the student's term GPA and semester-to-semester retention.

As mentioned in Chapter 2, the effectiveness research of learning outcomes evaluation method was used to analyze the learning processes and the learning outcome elements of the LEPO framework. Whether there was an influence of tasks (learning processes) completion on the learning outcomes of academic probation students enrolled in the academic strategies course (learning environment) was evaluated. The researcher predicted students who participate in the learning environment by completing course module tasks would have a significant difference in their change in term GPA and semester-to-semester retention. The students illustrated their knowledge, retained skills, and level of understanding in the module surveys. Surveys are a data source used in evaluation research to help determine the effectiveness of the e-learning environment.

Table 1

Academic Probation Tasks by Intervention

Author(s)	Type of Interventions(s)	Task(s)
Boretz (2012)	Workshops	Complete a self-reflection assessment
McGrath & Burd (2012)	Academic Success Course	Study-skills; Group discussions; Reflective writing
Rodgers et al. (2014)	Meetings with academic advisors; Academic Course	Academic planning; Resource Identification; Peer networking
Renzulli (2015)	Academic Strategies Course	Goal setting; Time management; Study-skills; Academic Planning

Surveys may also be used to assess how students engage in the learning environment (Phillips et al., 2011). According to Phillips et al. (2011), researchers use surveys in evaluation research, to help determine:

- What knowledge, skills, and understanding were developed by students.
- The extent to which students achieved the learning outcomes.
- If there were any observed benefits that were limited to some learners or widespread to all learners.

Summary/ Solution

The literature reviewed on the topic of academic probation resulted in an undefined term, with varying criteria, based on the higher education institution in which the term was used.

Despite the lack of a clear definition that was consistent in literature, there was a consistent

theme among students that the term, academic probation, evoked negative feelings. Literature on the topic of academic probation students has three consistent themes (a) there are factors that contribute to students being placed on academic probation status, (b) higher education institutions provide various support programs to students on academic probation in efforts to assist the students to return to good standing, and (c) students on academic probation who participate in support programs/interventions are more likely to improve their GPAs and return to academic good standing in future terms.

Recent studies conducted at American higher education institutions were based on the perspectives of participants who had once been on academic probation or were on academic probation at the time of the study, whereas international studies focused on the academic probation intervention and the outcomes of the intervention. Recent contributors who have conducted studies and research on the topic of academic probation recommended additional research on the topic be done. Researchers suggested future research should include information on academic probation students based on demographics and other variables that could correlate with the students' academic achievement (Barouch-Gilbert, 2016a; Lindo et al., 2010). The current research contributes to the topic of academic probation by examining the effectiveness of an academic probation intervention used in an American higher education institution with an evaluation model (the LEPO framework) that encompasses the full learning environment.

CHAPTER THREE: METHODOLOGY

Introduction

The purpose of this study was to examine the influence that completion of course module activities in an academic strategies course have on academic probation students' changes in term GPA and semester- to-semester retention while considering the students' gender, race, classification, and college. The course was the intervention used at the university where the study took place as a form of academic rehabilitation for students on academic probation for the first time. The course had recently been redesigned to be delivered completely online.

The content in this chapter will provide details about the research conducted in the current study. The chapter includes a descriptive outline of the research design, the intervention, the instrumentation used to conduct the research, and the processes of data collection and analysis. Data were analyzed to provide answers to the following research questions:

1. How does completion of course module activities (predictor variable) predict academic achievement (criterion variable), measured by change in term GPA, of first-time academic probation students enrolled in an academic strategies course?
2. How does completion of course module activities (predictor variable) predict semester to semester retention (criterion variable) of first-time academic probation students enrolled in an academic strategies course?

The Investigation Plan: Methods

A predictive correlation design was used in this study. The predictive correlation design was found to be the most appropriate design for this study because a predictive correlational design “allows you to predict an outcome, such as the prediction that ability, quality of schooling, student motivation, and academic coursework, influence student achievement”

(Anderson & Keith, 1997, as cited in Creswell, 2011, p. 338). Prior studies have used predictive correlation designs to analyze factors of influence on both GPA and student retention. Kornilova, Kornilov, and Chumakova (2009) evaluated how a student's self-concept and intelligence may predict the student's GPA and exam grades. DeBerard, Speilmans, and Julka (2004) investigated how identified risk factors would predict students' GPA and retention. In the current study, the researcher seeks to examine whether the completion of module tasks in the academic strategies course will predict academic probation students' change in term GPA and the students' semester to semester retention, while controlling for the students' sex, race, classification, and college.

Learner Characteristics

The researcher gathered archival data on the first-time academic probation students enrolled in the academic strategies course during the fall 2017 semester and spring 2018 semester, as these semesters make up the first academic year in which the course was facilitated uniformly. Course instructors received training to ensure they facilitated each course section the same. Instructors used the same content, schedules, and methods to deliver each section. The students enrolled in the academic strategies course consisted of all undergraduate students enrolled at the university who had an academic status of academic probation for the first time during the identified semesters. The academic status of the students was the only determining factor that required students to be enrolled in the academic strategies course. Undergraduate students in all years of study/classification, programs of study, race, and gender could be enrolled in the course, based on their academic status. Students who reached academic probation status for the first time, had progressed beyond the academic warning status and had both a term GPA below 2.0 and an overall combined GPA below 2.0 on a 4.0 scale.

Learner Characteristics: Fall 2017

The first-time academic probation student population during the fall 2017 semester was 596 students. The students' classifications were as follows: 265 freshmen, 130 sophomores, 107 juniors, and 94 seniors. There were seventy-five different majors, across ten programs of study in which the academic probation students were enrolled. The numbers of academic probation students by program of study were as follows: 164 students in the Academic Counseling Center, 122 students in the College of Arts and Sciences, 12 students in the College of Education, 50 students in Communication and Fine Arts, 68 students in the College of Business and Economics, 46 students in the College of Engineering, 35 students in the School of Health Studies, 43 students in University College, 13 students in the School of Hospitality and Resort Management, and 43 students in the College of Nursing. There were 349 Black students, 171 White students, 21 Hispanic students, and 55 students of other races (American Indian, Asian, multi-race, and non-resident alien) enrolled in the academic strategies course during the fall semester. There were 324 female students and 272 male students. The students were enrolled into 14 sections of the academic strategies course during the fall 2017 semester. The maximum student enrollment for any section was fifty students.

Learner Characteristics: Spring 2018

The first-time academic probation student population during the spring 2018 semester was 349 students. The students' classifications included 83 freshmen, 104 sophomores, 77 juniors, and 85 seniors. The number of academic probation students by program of study included 65 students in the Academic Counseling Center, 80 students in the College of Arts and Sciences, 12 students in the College of Education, 31 students in Communication and Fine Arts, 53 students in the College of Business and Economics, 35 students in the College of

Engineering, 13 students in the School of Health Studies, 35 students in University College, 6 students in the School of Hospitality and Resort Management, and 19 students in the College of Nursing. The demographic information for the students enrolled in the spring 2018 semester of the academic strategies course included 201 Black students, 109 White students, 16 Hispanic students, and 23 students of other races (e.g., American Indian, Asian, multi-race and non-resident alien). There were 188 female students and 161 male students. The students were enrolled into seven sections of the academic strategies course during the spring 2018 semester. Again, the maximum student enrollment for any section was fifty.

Students in the Academic Counseling Center were students who were undecided on a major and students who had selected a major but had not yet been accepted into their programs. Students are advised in the Academic Counseling Center until they have been placed in their college. The University College program of study allowed students to individualize their degrees. Students were required to complete their general education requirements and were able to obtain an interdisciplinary degree that is not traditionally offered by the university.

Setting

The study took place at a large public four-year research university located in west Tennessee. The Carnegie Classification of Institutions of Higher Education (2017) described the university as having a high undergraduate enrollment with a balanced arts and sciences/professions coexistence. According to university admission requirements, prospective students completed an admission application. Then the students sent their high school transcript and standardized exam results from the American College Test (ACT) or SAT. A comprehensive review of applications was completed to determine undergraduate admission to the university. The university's enrollment data from the Office of Institutional Research (2019)

showed that 17,394 undergraduate students enrolled at the university during the fall 2017 semester. The student body was 36% Black students, 49% White students, and 5% Hispanic students; all other race categories made up the remaining 10% of undergraduate students. During the spring 2018 semester, a total of 16,007 undergraduate students enrolled at the university. The student body was 35% Black students, 49% White students, and 5% Hispanic students; all other race categories made up the remaining 11% of undergraduate students (Office of Institutional Research, 2019).

Intervention

The academic strategies course, which was the intervention being examined, was an online self-paced course. The course consisted of six modules. Each module had the same five sections: (a) the overview, (b) learning objectives, (c) a list of tasks to complete, (d) applicable resources, and (e) a module survey. The content section of the course provided the course information and a helpful resources list. Students completed the course via a computer, laptop, tablet, or any other mobile device with internet access. The course was located on the university's learning management system platform, eCourseware. The course was available to first-time academic probation students during the full 15-week academic term. On average, students took one hour to complete each module. Course instructors suggested that students complete one module per week. Therefore, if students began the course in week one of the semester, they would complete the course by week six of the semester. When students followed the suggested schedule, they would complete the course prior to the semester break. However, the course was self-paced and students were allotted the full 15-week academic term to complete the course. The course was a non-credited course with no cost associated with it. Although the

course was non-credited and did not cost the students to be enrolled, it was the required intervention for first time academic probation students.

The course was designed by an instructional designer and an academic counselor. The course included self-regulated learning activities to help develop efficient self-regulated learners. The students who completed the course were expected to create academic goals and form behaviors that would positively affect their academic outcomes. McCann and Garcia (as stated in Mega, Ronconi & DeBeni, 2014, p. 122) defined self-regulated learners as “students who are aware of task requirements as well as recognize their own needs in relation to optimal learning experiences.” As previously stated, many of the tasks included in the academic strategies course have been present in other academic probation intervention models at other higher education institutions. Tasks such as self-reflection to identify learning goals and strategies, identification of campus resources, exercises to improve study skills (e.g., note-taking and test-taking strategies), ways to improve time management, and development of academic plans/goal setting (Boretz, 2012; McGrath & Burd, 2012; Moss & Yeaton, 2015; Renzulli, 2015; Rodgers et al., 2014) were all included in the academic strategies course. However, some tasks included in prior studies, such as group discussions (McGrath & Burd, 2012) and peer networking (Rodgers et al., 2014) were not included in the current academic strategies course. Each module of the course focused on a different topic (see Table 2). The students were required to complete a survey at the end of each module. The first and last modules required the students to complete reflective styled surveys. Modules two through four included required tasks to be completed along with module surveys. All modules were open throughout the duration of the course. Therefore, students did not have to complete the module activities in sequential order. Module tasks did not build from previous modules.

Table 2

Academic Strategies Course Information

Module	Topic	Learning Objectives	Tasks
One	Academic Performance Reflection	<ol style="list-style-type: none"> 1. Examine their past academic performance 2. Exhibit knowledge of their academic career through written expression 	<ol style="list-style-type: none"> 1. Complete the module one reflection survey
Two	Time Management	<ol style="list-style-type: none"> 1. Exhibit effective time management skills by balancing academic work with other activities such as social life, work, family and co-curricular activities. 2. Examine strategies for improving time management and organization. 	<ol style="list-style-type: none"> 1. Read the Courseload & Employment Recommendations Lesson Reading 2. Complete the Employment vs. Courseload Practice on Your Own Activity 3. Read the Calculating Study Hours for Success Lesson Reading 4. Complete the Calculating Study Hours Practice on Your Own Activity 5. Read the Get It Done! Lesson Reading 6. Read the How Well Do You Manage Your Time? Lesson Reading 7. Complete the Time Management Log Practice on Your Own Activity 8. Complete the module two survey

Table 2 Continued

Three	Organization & Preparation	<ol style="list-style-type: none"> 1. Create an Assignment Calendar using course syllabi 2. Devise a Personal To Do List 3. Summarize the importance of reading an assignment for understanding 4. Create a Project List using the reading an assignment for understanding instructions 	<ol style="list-style-type: none"> 1. Review the Creating an Assignment Calendar 2. Lesson Reading 3. Assignment Calendar Practice on Your Own Activity 4. Review the Preparing a To Do List Lesson Reading 5. Complete the Preparing a To Do List Practice on Your Own Activity 6. Review Reading an Assignment for Understanding Lesson Reading 7. Complete the Reading an Assignment for understanding Practice on Your Own Activity 8. Complete the Module Three Survey
Four	Studying	<ol style="list-style-type: none"> 1. Explain the difference between studying and doing homework 2. Rate your study skills and identify areas of improvement 3. Create a study plan using module three preparation and organization documents 4. Define a study plan and describe how it is used toward academic success. 	<ol style="list-style-type: none"> 1. Review the Studying is not the same as Doing Homework Lesson Reading 2. Complete the Rate Your Study Skills Practice on Your Own Activity 3. Review the study plan lesson reading 4. Complete the creating a Study Plan Practice on Your Own Activity 5. Complete the module four survey

Table 2 Continued

Five	Motivation & Procrastination	<ol style="list-style-type: none"> 1. Define three study techniques and how it is used when studying 2. Describe how to set priorities 3. Explain how to balance school, work and personal life 4. Define and construct a study plan 5. Describe how to prepare and organize study documents that will exhibit time management skills. 	<ol style="list-style-type: none"> 1. Review the Studying: Putting it All Together Lesson Reading 2. Complete the Steps to getting the most out of Studying Practice on Your Own Activity 3. Review the Pomodoro Study Technique Lesson Reading 4. Review the motivation and procrastination Lesson Reading 5. Review the motivation techniques 1 Lesson Reading 6. Review the Setting Priorities & Responsibilities Lesson Reading 7. Review the Tips for School-Work-Personal Life Adjustment Lesson Reading 8. Complete module five survey
Six	Final Reflection	<ol style="list-style-type: none"> 1. Summarize your learning experiences within this course through the lesson readings and practice on your own activities. 2. Review what you have learned in this course about yourself 3. Explain how you will improve your grade point average using the resources within this course 4. Describe two university resources and explain how you will use them to contribute toward the improvement of your grade point average. 	<ol style="list-style-type: none"> 1. Complete the module six reflection survey

The instructors received hands-on training on how to facilitate the course in a uniform manner. The training was provided by the counselor who helped redesign the course.

Instructors received a manual and schedule to refer to during the semester. The schedule

included dates for instructor tasks to be completed during the course. Tasks included weekly survey reviews, bi-weekly announcements on a course newsfeed for the completer's list, and contacting students with inaccurate or incomplete surveys. Instructors were required to review student surveys weekly. When a student completed surveys properly, the student was added to the completer's board on the course news announcement, which is the completer's list. If surveys were incomplete or insufficient, students were contacted by the instructor via course email. Students were also provided the opportunity to schedule a meeting with the instructor to discuss course-related concerns.

Once grades were final for the semester, all undergraduate students' academic statuses were updated. The CARES Director sent email notifications to the students' university email addresses regarding their academic status and the required intervention. Students who were on first-time academic probation were enrolled into the academic strategies course by the CARES Department. The course automatically appeared in the eCourseware platform for all identified first-time academic probation students enrolled at the university for the respective semester.

On the first day of classes, the course instructors sent an introduction email to the students enrolled in their course section(s). The introduction email served as a reminder of the students' current academic status, explained why the student was enrolled in the course, and provided a link for students to access the course section in which they were enrolled. At the beginning of each week, an automated news item was added to the newsfeed in the course. The weekly news item provided directions to the students regarding course module completion for the specified week. For example, the topic for Week 1 was Academic Performance Reflection and students were required to complete their first reflective survey.

Course instructors had limited interaction with students. The course instructors reviewed the module surveys weekly for all students enrolled in their course section(s). Students who adequately completed all module surveys were added to the course completers' board in the newsfeed section of the course. The completers' board was simply a list of students' names who completed all module surveys. Students who provided incomplete or insufficient survey answers were contacted via their university email by the course instructor. The course instructor identified which survey(s) were incomplete and instructed the students to fully complete the survey(s). Students who did not complete a course survey were sent an "Instructor Concern" letter, via course email, which addressed the students' lack of progress. Based on past schedules, the Instructor Concern letter was emailed four times during the semester. However, some instructors may have emailed the students more than the schedule required. Students were not provided feedback from the instructors regarding what the students wrote on the surveys. Only students who progressed to continuing on probation academic status would receive feedback about what they wrote on their surveys, during a subsequent semester.

Although it was not required, course instructors offered students who needed assistance with assessing the course and/or who were challenged with completing the tasks in the academic strategies course an opportunity to schedule an appointment to meet with the instructor. The students had the option to set an appointment via face-to-face meeting or virtual meeting. Students were not given a grade for any completed tasks or completed module surveys; however, at the end of the semester, students were reported as Completers or Incompleters. Those students who completed all six modules were considered Completers while those who completed zero to five module surveys were considered Incompleters. Being listed as a Completer or Incompleter of the academic strategies course was weighed in future semesters when a student continued on

academic probation status or reached academic suspension status. A student who reached academic suspension in a future semester, but did not complete the academic strategies course when the student was at first-time academic probation status, might be on suspension longer than a student who completed the academic strategies course while being on first-time academic probation status.

Instrumentation

The researcher collected data from two departments at the university, the CARES Office and the Office of Institutional Research (OIR). The University Identification Number (UID), name of enrolled first-time academic probation students, and the course completion information was collected from the CARES Office. Then the CARES Office requested the OIR to provide the demographic information and the enrollment information (classification, race, gender, college, academic status, last enrolled term GPA, end of term GPA, and next semester enrollment) for the students listed on the report. The researcher created a template to incorporate the data into one Microsoft Excel spreadsheet (see Appendix A). The students' personal information (i.e., student's first name, student's last name, student's UID number) was redacted from the reports once data were aggregated from both sources and prior to the data template being provided to the researcher. The researcher received the fully redacted data collection template. Data were collected on the following fields:

- University Identification Number (UID) *redacted from template
- First Name *redacted from template
- Last Name *redacted from template
- Classification (During the Semester of Course Enrollment)
- Race

- Gender
- Program of study (During the Semester of Course Enrollment)
- Academic Status (At the End of the Semester of Course Enrollment)
- Last Enrolled Term GPA (Prior Term than the Semester of Course Enrollment)
- Term GPA (At the End of the Semester of Course Enrollment)
- Retention/Enrollment into the following semester? (Term After the Semester of Course Enrollment)
- Course Completion (Yes or No)

The students' race was coded as 1-Black, 2-White, 3- Hispanic/Latino, 4-all other races. Because race variable was a categorical variable, each category of race was dummy coded to a dichotomous variable of 1-Yes and 0- No. There was a total of nine race categories at the university. However, the remaining six categories made up less than 10% of the student population per category. Therefore, those categories were combined into one category, 4-all other races. The student's gender was coded as 1-male or 2-female. The student's classification was coded as 1-freshman, 2-sophomore, 3-junior or 4-senior, according the number of completed hours the student has obtained. The student's program of study/college was coded as one of the following: 1-Academic Counseling Center, 2-College of Arts and Sciences, 3 College of Education, 4-College of Communication and Fine Arts, 5-College of Business and Economics, 6-College of Engineering, 7-School of Health Studies, 8-University College, 9-School of Hospitality and Resort Management, or 10-College of Nursing. The program of study/college was also a categorical variable, where each category of the variable was dummy coded to a dichotomous variable of 1-Yes and 0- No. All students' academic statuses at the end of the semester were coded as either 1-Good Standing, 2-Academic Probation, or 3-Academic

Suspension. A student could not return to the academic status of Academic Warning once a student had progressed to first time academic probation status. The student's term GPA (last enrolled term and end of term) was represented numerically form, with a range from 0.00 to 4.00. The change in term GPA was calculated as the difference between the last enrolled term GPA and the end of term GPA. The change in term GPA was represented numerically, but with a range from -4.00 to 4.00. Six modules were included in the course. Students who completed all six modules were identified as course Completers. Students who completed five or less modules were identified as course Incompleters. Whether the student completed all six modules was coded as 0-No and 1-Yes. Whether the students enrolled into the next semester (retention) was coded as 0-No and 1-Yes.

Procedures

The researcher submitted an application to the Institutional Review Board (IRB) to request permission to conduct the research. The IRB waived the study from further review as the study was considered to not be a human subject study. The researcher collected data from two departments, the CARES department and the OIR, at the institution where the study took place. The CARES department included the academic probation student's name, UID, and whether the students completed all six modules of the academic strategies course. The data collection template was shared among the CARES department and the OIR representative. The OIR representative created a data file to include the demographic information and the enrollment information (classification, race, gender, college, academic status, last enrolled term GPA, end of term GPA, and next semester enrollment) for academic probation students enrolled in the academic strategies course. The students' names and UID numbers were removed from the

template prior to the template being sent to the researcher to conduct the data analysis. The data and all applicable reports were stored in a secure password protected computer file.

Data Analysis

Descriptive statistics were used to summarize the predictor variables: gender, race, classification, college, and course completion. Statistical analysis was also used to conduct the data analysis. Two hypotheses were presented in the current study. Each hypothesis required a different analysis. The researcher used Statistical Package for the Social Science (SPSS) software, IBM SPSS Statistics 26, on a Windows 10 desktop computer, to conduct both a multiple regression analysis and a logistic regression analysis. The researcher compared the change in the student's term GPAs from the student's last enrolled term, versus the student's GPA at the end of the term in which the student was enrolled in the academic strategies course, to calculate the change in term GPA.

The first null hypothesis was **H01**: There will be no significant predictive relationship between GPA (the criterion variable) and completion of course module activities (the predictor variable) for first time academic probation students enrolled in an academic strategies course. A multiple regression was used to determine whether the completion of course module tasks in the academic strategies course explained a significant amount of variance in the change of term GPA. The researcher considered a hierarchical multiple regression, but later rejected it. With a hierarchical multiple regression, the predictor variable(s) must be presented in a sequential way based on relevance importance of the predictor variable to analyze how much it predicts the criterion variable (Petrocelli, 2003). Since the completion of each module task could not be represented in a sequential order to analyze how much the change in term GPA can be predicted,

the researcher decided a simple multiple regression analysis was the most appropriate fit to test the first null hypothesis.

The second null hypothesis was **H02**: There will be no significant predictive relationship between semester to semester retention (the criterion variable) and completion of course module activities (the predictor variable) for first time academic probation students enrolled in an academic strategies course. A logistic regression was used to determine whether course completion in the academic strategies course predicted students' semester to semester retention. Logistic regression is useful for a binary outcome, when one or more predictor variables are analyzed with a dichotomous criterion variable (Peng, Lee, & Ingersoll, 2002). In the current study, course completion, gender, race, classification, and program of study were the predictor variables and the dichotomous dependent variable was retention. The binary outcome variable was demonstrated in a "Yes" or "No" answer.

Multiple Regression

According to Laerd Statistics (2018b), researchers should conduct several assumptions of the data for each of these analyses. The assumptions for a multiple regression analysis are (Laerd Statistics, 2018b)

- Criterion variable should be measured on a continuous scale.
- Predictor variable(s) should be continuous or categorical.
- Independence of observations should be present.
- Linear relationship between the criterion variable and each of the predictor variables and criterion variable and the predictor variables collectively.
- Data should have homoscedasticity.
- Data must not show multicollinearity.

- No significant outliers, high leverage points or high influential points should be present.
- Check that residuals are approximately distributed.

The first two listed assumptions were checked, then the third, fourth, fifth, sixth, seventh and eighth assumptions were tested by completing the appropriate steps using the SPSS software.

The results of these tests will be provided in the next chapter. The data passed all eight assumption tests checks; therefore, the researcher proceeded with the multiple regression analysis in the SPSS software. The researcher will review, interpret, and report the output tables of the regression analysis in the next chapter. The researcher will provide the model's level of statistical significance, obtain the estimated model coefficients (adjusted R-squared), and review the statistical significance of the predictor variables. The threshold for the level of significance is .05. The results of the review will be written in Chapter 4.

Binomial Logistic Regression

The assumptions for the logistic regression analysis are (Laerd Statistics, 2018a)

- Criterion variable should be measured on a dichotomous scale.
- Predictor variable(s) should be continuous or categorical.
- Independence of observation where the criterion variables should be mutually exclusive and exhaustive categories.
- Linear relationship between any continuous predictor variables and the logit transformation of the criterion variable.

The first three listed assumptions were tested prior to checking the last assumption. The last assumption was checked by completing the appropriate steps using the SPSS software. The data passed the four assumption checks; therefore, the researcher proceeded with the logistic regression analysis. The researcher will review, interpret, and write a report of the output tables

in the next chapter. The significance level (.05) and variance will be provided in the written statement.

Limitations & Ethical Issues

There were several limitations in the current study. Predictive correlational research has a distinctive set of threats of validity, such as sample selection, omitted variables, and errors-in-variables. First, randomization was not possible in this study as the study was based on a particular group of students, first-time academic probation students, enrolled in an academic strategy course at the university. Another limitation was that the study was conducted at one institution on a specific group of students. Future research should expand the current study to include students at different academic status levels and the applicable interventions for those students. Also, future research should be conducted across multiple higher education institutions. Conducting research at other higher education institutions will maximize the threat of external validity regarding interaction of setting and treatment (Creswell, 2011).

Second, omitted variables is a common threat to validity in predictive correlational studies. All possible predictor variables and control variables are not usually included in a study. There was the possibility of other unidentified variables (such as the number of credit hours, personal factors, and institutional factors) that could potentially influence both, the change in the students' term GPA, and whether students are retained. There could also be (a) data entry errors or (b) errors with measuring variables that are included in the study, which are types of errors-in-variables.

The researcher assures that all ethical considerations, codes, and policies were followed during this research study. The researcher followed appropriate guidelines given by the IRB. The researcher completed the required Information Technology Services (ITS) Security

Awareness training required by the university. The researcher adhered to all requirements outlined in the university's data usage policy. The researcher properly collected and stored data in a secured and password protected location. The researcher adhered to all ethical standards while conducting and reporting on the study.

Summary

Chapter three included details on the research design, the intervention, learners' characteristics, the location of the study, the instruments used to conduct the research, and the process of how data were collected and analyzed for the study. Chapter four will include the findings of the data analysis and the results of the study.

CHAPTER FOUR: RESULTS

Introduction

The purpose of this quantitative, correlational study was to examine the influence that course completion in an academic strategies course had on academic probation students' academic achievement (change in term GPA) and semester-to semester retention, while considering influential demographic and environmental variables. The academic strategies course was the required intervention for students who reached academic probation status for the first time. Archival data were collected from two departments, the CARES Office and the OIR, at the institution where the course was provided. The data that were collected included the first two semesters, fall 2017 and spring 2018, in which the academic strategies course was delivered in a uniform manner for students who reached academic probation status for the first time. Over the two specified semesters, a total of 945 students enrolled in the academic strategies course and the data collected on those students were analyzed.

Descriptive Statistics of Predictor Variables

Demographic Variables

Descriptive statistics were used to describe the students' demographic features. There were slightly more female students ($n = 512$, 54%) than male students ($n = 433$, 46%). There was a greater number of Black students ($n = 550$, 58%) compared to other student races, which were made up of White students ($n = 280$, 30%), Hispanic students ($n = 37$, 4%), and other races (e.g., Native American, Pacific Islander, Asian; $n = 78$, 8%).

Institutional Variables

Descriptive statistics were also used to identify variables based on the students' enrollment into the higher education institution. Institutional variables in the current study

included student classification and program of study. The students' classification categories were made up of freshman ($n = 348$, 37%), sophomore ($n = 234$, 25%), junior ($n = 184$, 19%), and senior students ($n = 179$, 19%). There were ten categories included in the students' programs of study: Academic Counseling Center ($n = 229$, 24%), College of Arts and Sciences ($n = 202$, 21%), College of Education ($n = 24$, 3%), Communication and Fine Arts ($n = 81$, 8.5%), College of Business and Economics ($n = 121$, 13%), College of Engineering ($n = 81$, 8.5%), School of Health Studies ($n = 48$, 5%), University College ($n = 78$, 8%), School of Hospitality and Resort Management ($n = 19$, 2%), and College of Nursing ($n = 62$, 7%). Table 3 includes frequencies and percentages for all predictor variables of students enrolled in the academic strategies course.

Statistical Data Analyses

Assumptions Testing: Multiple Regression

A total of eight assumption tests were completed prior to running the multiple regression analysis. The first two assumption tests, Assumption 1. Criterion variable should be measured on a continuous scale and Assumption 2. Predictor variable(s) should be continuous or categorical, were performed by identifying the types of variable for the criterion variable and the predictor variables. The criterion variable, change of term GPA, is measured on a continuous scale of -4.00 to 4.00. The predictor variables (gender, race, classification, program of study, and course completion) were all categorical, as displayed on Table 3. Assumption tests 3 through 8 in the multiple regression analysis were conducted using the IBM SPSS Statistics 26 software, on a Windows 10 desktop computer.

- Assumption 3: Independence of observations should be present. Durbin-Watson statistic was used to test the independence of observations based on the change of term in GPA.

Table 3

Frequency Count of Predictor Variables

Variable	Category	n	%
Gender	Female	512	54
	Male	433	46
Race	Black	550	58
	White	280	30
	Hispanic	37	4
	Other	78	8
Classification	Freshman	348	37
	Sophomore	234	25
	Junior	184	19
	Senior	179	19
Program of Study	Acad. Counseling Center	229	24
	Arts & Sciences	202	21
	Education	24	3
	Communication & Fine Arts	81	8.5
	Business & Economics	121	13
	Engineering	81	8.5
	School of Health Studies	48	5
	University College	78	8
	Hospitality & Resort Management	19	2
	Nursing	62	7
	Completion	No	292
Yes		653	69

This statistic tests whether the residuals from a multiple regression are independent. The Durbin-Watson statistic ranges from 0 to 4, where a value closer to 2 suggests auto-correlation does not exist (Bercu & Proia, 2013). The statistic from the model in the

study indicated this assumption was met. The obtained value was 1.899 as appeared on the model summary (see Table 4).

Table 4

Model Summary with Durbin-Watson Statistic

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.370a	.137	.123	1.203310	1.899

- Assumption 4: Linear relationship between the criterion variable and each of the predictor variables and criterion variable. A scatterplot of the relationship between the dependent variable and each of the independent variables was produced. Scatterplots provide a visual representation of quantitative variables along a scale (Friendly, 1999). Scatterplots are typically used to visualize two continuous variables (Park, Kim & Elmqvist, 2015). However, each of the independent/predictor variables are categorical variables. The visualization of scatterplots when plotting continuous variables versus categorical variables appears as an overlap/overdrawing, which “gives rise to points forming ‘straight’ line patterns” (Park et al., 2015, p. 1). The straight-line patterns can be either vertical or horizontal. Each of the scatterplots in the model in the current study produced a straight line between the dependent variable and the independent variable (see Appendices B-F). The scatterplots indicated that this assumption had been met.

- Assumption 5: Data should have homoscedasticity, which is the assumption that the variance of the residuals is constant. This assumption was determined by review of scatterplot of standardized residuals versus standardized predicted values, where the dots are in a random array and exhibit no sign of funneling. The review of the scatterplot, Figure 2, indicated this assumption was met.

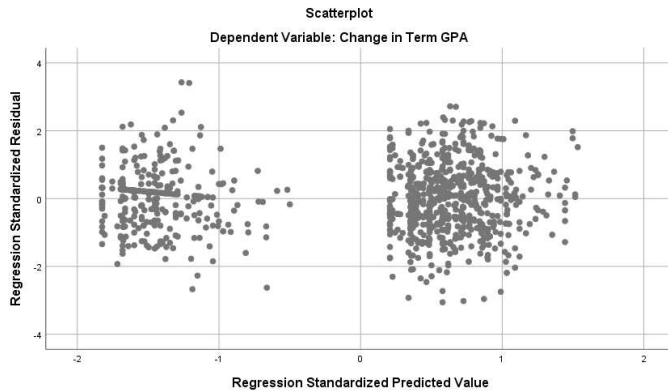


Figure 2. Scatterplot of standardized residuals vs. standardized predicted values

- Assumption 6: Data must not show multicollinearity, which is a test of the predictor variables correlation. The assumption is valid when the predictor variables are not too highly correlated. Both the Pearson Correlation (< 0.8) and the Collinearity Statistics (VIF scores below 10) were checked to assess this assumption. Review of the Pearson Correlation statistic (see Table 5) for each variable indicated this assumption was met, as each of the correlations was below 0.8 (the highest was .336). Analysis of the Collinearity Statistics (see Table 6) revealed this assumption was met, as the VIF scores were below 10 (the highest was 1.064) and the tolerance scores are above 0.2 (the lowest was 0.939).
- Assumption 7: No significant outliers, high leverage points or high influential points should be present. The Cook's Distance statistics was used to identify any high leverage

or high influential points. This assumption was met as the values of the Cook's Distance statistics were all under 1 for each individual case.

Table 5

Correlations Table

Correlations			
		Change in Term GPA	
Pearson Correlation	Change in Term GPA	1.000	
	Course Completer	.336	
	Classification	.097	
	Gender	-.022	
	Black	-.080	
	White	.053	
	Hispanic	.015	
	All Other Races	.046	
	Academic Counseling Center	-.096	
	College of Arts and Sciences	.031	
	College of Education	.033	
	College of Communication and Fine Arts	-.090	
	College of Business and Economics	.075	
	College of Engineering	.043	
	School of Health Studies	-.009	
	University College	.076	
	School of Hospitality and Resort Management	.008	
	College of Nursing	-.037	
	Sig. (1-tailed)	Change in Term GPA	.
		Course Completer	.000
Classification		.001	
Gender		.252	
Black		.007	
White		.053	
Hispanic		.322	
All Other Races		.080	
Academic Counseling Center		.002	
College of Arts and Sciences		.167	

Table 5 Continued

College of Education	.157
College of Communication and Fine Arts	.003
College of Business and Economics	.010
College of Engineering	.092
School of Health Studies	.395
University College	.010
School of Hospitality and Resort Management	.405
College of Nursing	.128

Note. N = 944

- Assumption 8: Check that residuals are approximately distributed; which is met when the values of residuals to be normally distributed. A scatterplot, P-P plot for the model, of the standardized values was used to test homoscedasticity. The P-P plot for the model (Figure 3) produced dots close to the diagonal line, which suggested that the assumption of normality of the residuals was valid.

Table 6

Coefficients Table with Collinearity Statistics

Model	Coefficients ^a				Collinearity Statistics	
	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Tolerance	VIF
(Constant)	-.430	.182		-2.363		
Course Completer	.914	.086	.329	10.632	.978	1.022
Classification	.059	.036	.052	1.643	.939	1.064

Table 6 Continued

Race	.102	.045	.071	2.290	.963	1.038
Gender	-.065	.081	-.025	-.807	.958	1.044
College	.008	.014	.018	.574	.951	1.051

a. Dependent Variable: Change in Term GPA

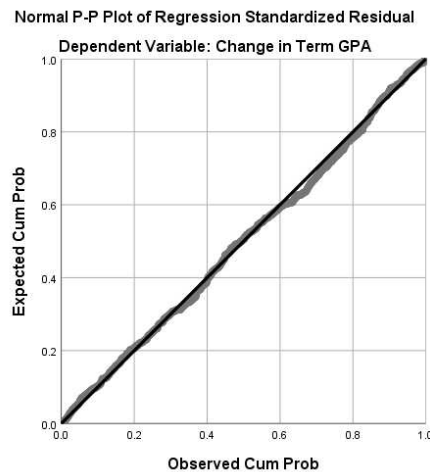


Figure 3. P-P plot of dependent/criterion variable and independent/predictor variables

Multiple Regression Analysis

After testing all eight assumptions and confirming the assumptions had been met, a multiple regression analysis was performed to analyze the first hypothesis of the study. The first null hypothesis (H01) states: There will be no significant predictive relationship between change in term GPA (the criterion variable) and completion of course module activities, gender, race, classification, and program of study (the predictor variables) for first time academic probation students enrolled in an academic strategies course. The data were uploaded to the SPSS software, using the IBM SPSS Statistics 26 version of the software. The data were coded as detailed in Chapter 3. A linear regression was selected. The criterion variable, change in term

GPA, was listed as the dependent variable and the predictor variables, course completion, gender, race, classification, and program of study were listed as the independent variables. The results of the multiple regression analysis indicated the model was a good fit to statistically predict change of term GPA of first-time academic probation students enrolled in the academic strategies course, $F(5, 938) = 26.156, p = .000$. The combination of the predictor variables explained 12.3% (adjusted R-squared = .123) of the criterion variable. The adjusted R-squared value accounts for the proportion of variance in the change in term GPA explained by all of the predictor variables in the model (Miles, 2014). Table 5 displays the level of significance for each predictor variable. The following predictor variables, course completion ($p = .000$) classification ($p=.001$), race category Black ($p = .007$), and four of the college categories, Communication and Fine Arts category ($p =.003$), Academic Counseling Center ($p =.002$) College of Business and Economics ($p = .010$) and University College ($p = .010$), were statistically significant to predict the criterion variable, change of term GPA. The p values for each of these were below the threshold of .05. The other predictor variables and categories listed on Table 5 were not statistically significant to predict the criterion variable, change of term GPA, as the p values for the remaining predictor variables were above the .05 threshold.

Once the model was confirmed as a good fit for the model, a stepwise procedure was selected as the method to analyze the model. The stepwise method was found to be the most appropriate, as this method removed variables that were not significant from the model. The stepwise, multiple regression was performed and a review of the output was conducted. There were four variables, course completion, college category College of Communication and Fine Arts, college category Academic Counseling Center, and race category Black, included in the model (see Table 7). Course completion accounted for 11.2% of the variance in the model.

Course completion along with college category College of Communication and Fine Arts), accounted for 11.7% of the variance in the model. Course completion, college category College of Communication and Fine Arts), and race (black) accounted for 12.4% of variance in the model. Course completion, college category College of Communication and Fine Arts, college category Academic Counseling Center, and race category Black accounted for 12.8% of variance in the model; as provided in the model summary (see R-squared values in Table 8) produced by the stepwise method. Table 9, the ANOVA table, displays the level of significance (.000), which was the same for each step of the model. The first step of the model included only course completion. The second step of the model included both course completion and college category College of Communication and Fine Arts. The third step of the model included course completion, college category College of Communication and Fine Arts, and race category Black. The fourth step of the model included Course completion, college category College of Communication and Fine Arts, college category Academic Counseling Center, and race category Black. Course completion reflected a stronger effect to the change in term GPA, than the other predictor variables in the model, compared to the change in term GPA. The standardized beta coefficients were as follows: .328 for course completion, -.095 for college category College of Communication and Fine Arts, -.70 for college category Academic Counseling Center, and -0.78 for race category Black (see Table 10).

Table 7

Table of Variables Entered from the Model

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method

Table 7 Continued

1	Course Completer	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	College of Communication and Fine Arts	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
3	Black	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
4	Academic Counseling Center	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: Change in Term GPA

Table 8

Stepwise Method Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.336 ^a	.113	.112	1.210947331428
2	.344 ^b	.119	.117	1.207496706645
3	.356 ^c	.127	.124	1.202452267127
4	.363 ^d	.132	.128	1.199843431204

a. Predictors: (Constant), Course Completer

b. Predictors: (Constant), Course Completer, College of Communication and Fine Arts

c. Predictors: (Constant), Course Completer, College of Communication and Fine Arts, Black

d. Predictors: (Constant), Course Completer, College of Communication and Fine Arts, Black, Academic Counseling Center

Table 9

ANOVA Table

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	175.338	1	175.338	119.571	.000 ^b
	Residual	1381.343	942	1.466		
	Total	1556.681	943			
2	Regression	187.337	2	93.669	64.368	.000 ^c
	Residual	1369.343	941	1.455		
	Total	1556.681	943			
3	Regression	197.543	3	65.848	45.541	.000 ^d
	Residual	1359.138	940	1.446		
	Total	1556.681	943			
4	Regression	204.874	4	51.218	35.578	.000 ^e
	Residual	1351.807	939	1.440		
	Total	1556.681	943			

a. Dependent Variable: Change in Term GPA

b. Predictors: (Constant), Course Completer

c. Predictors: (Constant), Course Completer, College of Communication and Fine Arts

d. Predictors: (Constant), Course Completer, College of Communication and Fine Arts, Black

e. Predictors: (Constant), Course Completer, College of Communication and Fine Arts, Black, Academic Counseling Center

Table 10

Coefficient Table

		Coefficients ^a			
		Unstandardized		Standardized	
		Coefficients		Coefficients	
Model		B	Std. Error	Beta	T
1	(Constant)	-.214	.071		-3.023
	Course Completer	.932	.085	.336	10.935
2	(Constant)	-.178	.072		-2.488
	Course Completer	.931	.085	.335	10.954
	College of Communication and Fine Arts	-.403	.140	-.088	-2.872
3	(Constant)	-.060	.084		-.719
	Course Completer	.935	.085	.337	11.040
	College of Communication and Fine Arts	-.377	.140	-.082	-2.694
	Black	-.211	.080	-.081	-2.657
4	(Constant)	.007	.089		.079
	Course Completer	.911	.085	.328	10.697
	College of Communication and Fine Arts	-.434	.142	-.095	-3.058
	Black	-.203	.079	-.078	-2.556
	Academic Counseling Center	-.211	.093	-.070	-2.257

a. Dependent Variable: Change in Term GPA

Assumptions Testing: Binomial Linear Regression

Binomial linear regression analysis includes four assumptions. The four assumption tests were completed prior to running the Binomial logistic regression. The first three assumptions test that were conducted by identifying the types of variable for the criterion variable and the predictor variables. Those assumptions were:

1. The criterion variable should be measured on a dichotomous scale.
2. Predictor variable(s) should be continuous or categorical.
3. Independence of observation must be present with the participants.

Assumption 1 was met. The criterion variable, retention, was measured on a dichotomous scale. There were only two groups “Yes” or “No.” Assumption 2 was met. The predictor variables (gender, race, classification, program of study, and course completion) were all categorical, as provided on Table 3. The third assumption was met as the students were only counted once in the study, which meets the criteria of independence of observation was met. Also, the criterion variable, retention, is mutually exclusive and exhaustive categories, as the student may either be retained or not retained. Assumption 4 was not applicable in this study as the assumption required a linear relationship between any continuous predictor variables and the dependent variable. None of the predictor variables were continuous, as they all were categorical, which resulted in assumption 4 being non-applicable. With all assumptions met, the binomial logistic regression was conducted using IBM SPSS Statistics 26 software, on a Windows 10 desktop computer.

Binomial Logistic Regression Analysis

The second null hypothesis (H02) states there will be no significant predictive relationship between retention (the criterion variable) and completion of course module activities, gender, race, classification, and program of study (the predictor variables), for first time academic probation students enrolled in an academic strategies course. The data were uploaded to the SPSS software and coded as detailed in Chapter 3. The binary logistic model was selected. The criterion variable, retention, was listed as the dependent variable and the predictor variables—course completion, gender, race, classification, and program of study—were listed as

the covariates. All of the predictor variables were defined as categorical variables. The options for statistics and plots included: Classification plots, Hosmer-Lemeshow goodness-of-fit, Casewise listing of residuals, and CI for exp(B). Then the binomial logistic regression was performed and a review of the output was conducted.

The model summary table (see Table 11) displays the R-squared values. The R-squared values indicate how much variation in the dependent variable was explained by the model. Using both the Cox & Snell statistic (.220) and the Nagelkerke statistic (.294), the model explained 22.0% to 29.4% range of variation. Both of these statistics are pseudo R-squared values that were used to calculate the variation in a model (Smith & McKenna, 2013). The Nagelkerke R-squared statistic is an adjusted or corrected version of the Cox & Snell statistic. The cut value is .500 which indicates the probability of a student being classified in the “yes” category is greater than 50% (see Table 12). The predictor variables, course completion ($p = .000$), classification ($p = .000$), and college category College of Engineering ($p = .013$) were statistically significant to predict the criterion variable, retention, as the p values were below the threshold of .05 (see Table 13). All other predictor variables were above the threshold of .05; therefore, the remaining variables were not statistically significant to predict the criterion variable, retention.

Table 11

Model Summary with R-squared Statistics

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1074.837 ^a	.220	.294

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table 12

Classification Table

Classification Table ^a						
	Observed	Retention		Predicted		Percentage Correct
		No	Yes	No	Yes	
Step 1	Retention	No	335	140		70.5
		Yes	146	324		68.9
Overall Percentage						69.7

a. The cut value is .500

Table 13

Table of Variables in the Equation

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Course Completer(1)	-1.614	.172	88.199	1	.000	.199
	Classification			40.668	3	.000	
	Classification(1)	-1.491	.263	32.264	1	.000	.225
	Classification(2)	-.863	.235	13.433	1	.000	.422
	Classification(3)	-.153	.246	.384	1	.536	.858
	Gender(1)	-.004	.162	.001	1	.981	.996
	Black(1)	.310	.281	1.216	1	.270	1.364
	White(1)	-.279	.297	.878	1	.349	.757
	Hispanic(1)	.156	.445	.123	1	.726	1.169
	Academic Counseling Center(1)	.139	.327	.179	1	.672	1.149
	College of Arts and Sciences(1)	-.037	.347	.011	1	.915	.964
	College of Education(1)	-.271	.538	.253	1	.615	.763

Table 13 Continued

College of Communication and Fine Arts(1)	.463	.393	1.389	1	.239	1.589
College of Business and Economics(1)	-.234	.372	.396	1	.529	.792
College of Engineering(1)	-.860	.407	4.471	1	.034	.423
School of Health Studies(1)	-.029	.452	.004	1	.949	.971
University College(1)	-.205	.412	.247	1	.619	.815
School of Hospitality and Resort Management(1)	.271	.589	.211	1	.646	1.311
Constant	1.878	2.651	.502	1	.479	6.541

a. Variable(s) entered on step 1: Course Completer, Classification, Gender, Black, White, Hispanic, Academic Counseling Center, College of Arts and Sciences, College of Education, College of Communication and Fine Arts, College of Business and Economics, College of Engineering, School of Health Studies, University College, School of Hospitality and Resort Management.

Summary

The data collected on the 945 students enrolled in the academic strategies course was examined to determine possible variables associated with the change in the students' term GPA and retention of students to the next semester. The data analyses included descriptive statistics, a multiple regression analysis, and a binomial logistic regression analysis. The assumption tests for both the multiple regression analysis and the binomial logistic regression were completed and the assumptions were met prior to conducting the analyses. The multiple regression analysis resulted in four predictor variables— course completion, college category College of Communication and Fine Arts, college category Academic Counseling Center, and

race category Black —being statistically significant to predict the change in term GPA. The binomial logistic regression analysis resulted in three predictor variables—course completion, classification, and college category College of Engineering —being statistically significant to predict retention. The next chapter will include a discussion of the findings, implications, and recommendations for future investigations.

CHAPTER FIVE: DISCUSSION AND CONCLUSIONS

Introduction

The purpose of this quantitative, correlational study was to examine the influence that completion of course module activities in an academic strategies course had on academic probation students' academic achievement (change in term GPA) and semester-to semester retention, while considering demographic and environmental variables. Data were collected from exiting datasets on 945 students enrolled in an academic strategies course during the fall 2017 semester and spring 2018 semester. Data were analyzed for 944 students, as one of the variables was missing for one student in the study. The researcher used multiple regression and binomial logistic regression to analyze the data. This chapter discusses the findings of the study, implications to students and the institution, and recommendations for future research.

Discussion

Five predictor variables (course completion, gender, race, classification and program of study) were included in the study. The predictor variables were identified through multiple pieces of literature (Dayioğlu & Türüt-Aşık, 2007; Gershenfeld et al., 2016; Kusurkar, et al, 2013; Sheard, 2009) regarding influences on students' academic achievement level (GPA) and student retention. There were two exclusive criterion variables in the study: change in term GPA and retention. Academic achievement level was defined as the change in term GPA from the students' last enrolled semester compared to the term GPA at the end of the semester the students were enrolled in the academic strategies course. Also, student retention was defined as student enrollment into the next semester at the institution.

In the first analysis, a multiple regression analysis was conducted to determine whether the predictor variables were statically significant to the criterion variable, change in term GPA.

This model resulted in a .123 adjusted R-squared index, which indicates approximately 12.3% of the criterion variable was explained by the predictor variables in the model. This low adjusted R-squared value suggested the predictor variables (course completion, race, gender, classification and program of study) explained a small percentage of the change in term GPA. Two of the predictor variables, gender and classification were not statistically significant in the stepwise model. However, three predictor variables, course completion, race (black) and college (College of Communication and Fine Arts; and Academic Counseling Center), were statistically significant to predicting change of term GPA. The variables race and college included multiple categories. Not all categories for these variables were statistically significant. Yet, the categories that were significant were included in the models. This study suggested both course completion, one category of race and two categories of college were influential factors to the academic probation students' academic achievement levels, defined by the change of term GPA. The first null hypothesis was **H01**: There will be no significant predictive relationship between the change in GPA (the criterion variable) and completion of course module activities, race, gender, classification and program of study (the predictor variables) for first time academic probation students enrolled in an academic strategies course. The first null hypothesis was rejected as the p-values for course completion, race (black) and college (College of Communication and Fine Arts; and Academic Counseling Center), race were below the 0.05 threshold.

A binomial linear regression analysis was conducted in the second analysis to determine whether the predictor variables were statically significant to the criterion variable, retention. This model resulted in a 22.0% to 29.4% range of variation. This low range of variation suggested the predictor variables (course completion, race, gender, classification, and program of study) explained a small percentage retention. Two predictor variables, gender and race, were not

statistically significant. The other three predictor variables—course completion, classification, and college (College of Engineering)—were statistically significant to predict the criterion variable, retention. Again, the variables race and college included multiple categories. Not all categories for these variables were statistically significant. The second null hypothesis was **H02:** There will be no significant predictive relationship between semester to semester retention (the criterion variable) and completion of course module activities, race, gender, classification, and program of study (the predictor variables) for first time academic probation students enrolled in an academic strategies course. The second null hypothesis was rejected as the p-values for course completion, classification, and college (College of Engineering) were below the 0.05 threshold.

The research findings of this study indicate influential factors that significantly predicted students' academic achievement levels and student retention. Completion of the academic strategies course and college help to predict both academic achievement level and student retention. Academic achievement (change in term GPA) was also influenced by race; while student retention was also influenced by classification. However, a potentially influential variable identified in the literature and included in the study, was not an influential factor to students on academic probation who were enrolled in the academic strategies course. That variable was gender. The low variation in the models, based on the R-squared values, suggested other factors may influence the change of term GPA and retention for these students.

Significant Predictor Variables

Race predicts GPA. Prior studies of students who had low academic achievement levels in higher education settings indicated race was a contributing factor. Tovar and Simon's (2006) study of academic probation students in higher education found Latino students have low academic achievement levels at a disproportionate rate compared to their peers of other races. In

their study on graduation rates of underrepresented students, Gershenfeld et al. (2016) found that Latino students along with African American students had low academic achievement levels at rates disproportionate to their peers and were less likely to persist. In the current study, African American students were on first-time academic probation status at a disproportionate rate compared to their peers of other races. While 36% of African American undergraduate students (listed in the descriptive statistics as Black) were enrolled at the university during the fall 2017 semester and spring 2018 semester, they accounted for 58% of the students on first-time academic probation status during the identified semesters. Latino students (listed in the descriptive statistics as Hispanic) comprised of only 5% of undergraduate students enrolled at the university during the fall 2017 semester and spring 2018 semester. Yet, they accounted for 4% of the students on first-time academic probation status during the identified semesters. Four to five percent are relatively low numbers of the population of students. The low percentage may not be significant to analyze in the models included in the study.

The findings of the current study did not align with the findings of prior studies (Boretz, 2012; Gershenfeld, et al., 2016; Tovar & Simon, 2006), which found that both Latino students and African American students enrolled in higher education institutions had lower academic achievement levels at disproportionate rates compared to their peers. The current study reflected African American students, but not Hispanic students, had lower academic achievements levels at a disproportion rate compared to their peers. Yet, research (Gershenfeld et al., 2016) continues to demonstrate that both Latino students and African American students are placed on academic probation at disproportionate rates compared to their peers.

Minority students who have low academic achievement levels are often characterized as underprepared students (Melzer & Grant, 2016). Underprepared college students are less likely

to be retained (Barbatis, 2010; Radford, Berkner, Wheelless & Shepherd, 2010) and less likely to seek academic support (Palmer, Davis, & Hilton, 2009) than students who are considered prepared. According to Tinto (1999) institutions may increase retention by providing academic support, social support and personal support to students. Due to the various backgrounds of students and the limited research on underprepared student's needs, higher education institutions are challenged on how to properly serve underprepared students (Melzer & Grant, 2016). Higher education institutions, including the institution in which the study took place, should identify better ways to support the underprepared student population enrolled at the institution.

Based on the findings of the current study, the institution where the study took place, should ensure there are support programs that focus on the needs of African American students. A study of the experiences and needs of African American students with low academic achievement at the institution would help faculty and administrators identify the proper support programs for these students. The study should include questions surrounding factors that impact students' academic performance and retention. Those factors include students' personal attributes (Astin et al., 1996; Peltier et al., 1999; Thomas, 2002; Tinto, 1987, 1993), students' socioeconomic status (Lightweiss, 2014), and institutional factors (Lau, 2003; Tinto, 2006).

Although academic support programs for students on academic probation at higher education institutions are not one size fits all (Damashek, 2003), the institutions should employ interventions that meet the needs of the students who are more frequently on academic probation. Further research is needed to analyze and address the specific needs of African American students on academic probation at the current institution.

Course completion predicts GPA and student retention. The academic strategies course was the primary intervention administered to first-time academic probation students

enrolled at the university where the study took place during the fall 2017 semester and spring 2018 semester. Although the academic strategies course does not mirror interventions included in prior studies, it does include a variety of the tasks included in those interventions. Those tasks included self-reflection exercise to identify learning goals and strategies, identification of campus resources, exercises to improve study skills (e.g., note-taking and test-taking strategies), ways to improve time management, and development of academic plans/goal setting (Boretz, 2012; McGrath & Burd, 2012; Moss & Yeaton, 2015; Renzulli, 2015; Rodgers et al., 2014). However other tasks that had been successful in prior research on low performing students were not included in the academic strategies course. The missing tasks were group discussions (McGrath & Burd, 2012) and peer networking (Rodgers et al., 2014). Both of these tasks require student to student interaction. Hrastinski (2008) contended an effective online learning environment includes learning processes that require students to communicate and maintain relationships with their peers. The institution should consider learning processes that require student to student interaction to be added to the academic strategies course. Adding learning processes that require students to interact with their peers will build a sense of community and belonging among the students in the learning environment (Swan, 2003).

The academic strategies course, like many other interventions, is a rehabilitation initiative required for students who have reached academic probation status. The goal of the course was to help improve both students' GPAs and retention rates of the students on first time academic probation status. As previously mentioned, it is vital that the intervention used at higher education institutions meet the needs of the academic probation students at that particular institution (DeBard, 1987; James, 2010). Currently, faculty at the university where the study took place, add early alerts (failing grades, low test scores, or poor attendance) and provide mid-

term grade reporting to identify students who are at-risk. These alerts are applicable to all undergraduate students enrolled at the university, no matter the students' academic status. These alerts trigger tasks for academic counselors to contact the identified at-risk students to schedule an academic coaching session. The academic coaching sessions are a voluntary support option and must be scheduled by the students with the academic counselor. However, students who were on first-time academic probation status were required to enroll in the online self-paced academic strategies course. The course was the only mandatory intervention for students on first-time academic status.

In addition to the current academic strategies course, there are other options the university may explore for students on academic probation. The university could also include academic workshops, and institutional wide outreach as forms of academic support for academic probation students (Boretz, 2012). Another option, instead of being reactive once the students reach academic probation status, the university could include models to help incoming students avoid academic probation. Models used at other institutions included mandatory and voluntary interventions (Damashek, 2003). These models included: counseling with advisors, orientation courses covering academic skills, and weekly group sessions on ways to improve students' academic motivation (Damashek, 2003; Bettinger et al., 2013; Connolly et al., 2017; Klatt & Ray, 2014; Rodgers et al., 2014). The university should conduct additional research to identify trends and factors, other than race, that lead the students enrolled at their institution to be placed on academic probation. Once the institution identifies these factors, a proactive model to combat academic probation should be developed.

Program of study predicts GPA and student retention. Although researchers have delimited prior studies on academic probation students to one discipline/program of study due

the discipline being a confounding variable, the current study included multiple programs of study. There were ten categories included in the program of study variable. All categories were coded and included in both analyses. Two programs of study/colleges, the College of Communication and Fine Arts, and the Academic Counseling Center, were found to be significant to predict the change in term GPA for students enrolled in the academic strategies course. Only one program of study, the College of Engineering, was found to be significant to predict retention. Some program of studies, such as the College of Nursing and the College of Engineering, require students to maintain an overall GPA above a set threshold. The threshold is set by the program of study and is usually higher than the 2.0 GPA threshold that determines a student's academic status. Students who fall below the GPA threshold of the program of study, are usually dismissed from the program but not the university. Those students who are retained at the university after dismissal from the program, usually select a different program of study.

Classification predicts retention. Outdated research, as early as 1970, included factors that influenced students' GPAs and retention, based on classification (Smith and Winterbottom, 1970; West 1971). Recent research on the topic of classification (Bettinger et al. 2013; Connolly et al., 2017; Klatt & Ray, 2014; Rodgers et al., 2014) specifically focused on freshman students. In those research studies, higher education institutions developed initiatives to support freshman students from being placed on academic probation. Classification was included in these studies as a descriptive statistic. Classification had not been analyzed to determine how it predicted or influenced GPA and retention. Yet, classification was determined to be a potentially influential factor in the current study. Classification was included as a predictor variable in the current study and was found to be significant to predict retention.

The findings of the current research revealed 37% of the first-time academic probation students enrolled in the academic strategies course were freshman students. Freshman students at the university where the study took place outnumbered all other classifications. This may be due to the limited number of support programs available to incoming freshman students at the university. The university currently offers a summer bridge program for eligible incoming freshman students. A freshman student is eligible if the student is a first-generation student, a student from a low-income family or a student with a disability (Student Success Programs, 2019, para. 1). However, there is not an existing academic support program available at the university that focuses on the needs of underprepared freshman students. The university should develop an academic support program, such as the summer bridge program, for underprepared freshman students. The program will connect the incoming underprepared freshman students to the university and their peers, prior to the start of their first semester. Development of such a program may require additional research to identify the factors that impact the underprepared student population enrolled at the university. Tinto (2012) advocated for higher education institutions to develop more academic support programs to aid students during their freshman year. He suggested the first year is the most vital year for retention of students.

Non-significant Predictor Variable

Gender does not predict GPA nor retention. Gender was the only variable found in prior studies to predict GPA and student retention, but was not found to be a predictor in the current study. Although male students and female students have contributed their lack of academic self-efficacy to different factors (Najimi et al., 2013), researchers who conducted studies on how gender impacts students' GPAs found gender to be significant to predicting GPA (Betts & Morell, 1999; Kusurkar et al., 2013; Sheard, 2009). MacPhee et al. (2013) found a

disproportionate percentage of female Latino students and disproportionate percentage of female African American students who struggled academically were also academically underprepared in subject areas such as science, engineering, and math. However, the current study did not show a significance among gender to predict change of term GPA or retention. There was not much difference in the percentage of men (46%) and percentage of women (54%) enrolled in the academic strategies course, which may have resulted in there being no significant predictive relationship between gender and GPA nor gender and retention.

While discussing the findings of the data analyses included in the study is key, discussing how well the LEPO framework aligned with the study is also essential. Next, the researcher will discuss what the findings suggested about the framework. The researcher will identify where the course aligned well with the components of the framework and where the course required improvements.

LEPO Framework Applied to the Current Study

The researcher's original goal was to use LEPO framework to evaluate how completion of the tasks included in the academic strategies course impacted the change in the students' term GPAs and semester-to-semester retention. The researcher planned to complete the evaluation by using the effectiveness research of learning outcomes evaluation method of the LEPO framework. Use of this method requires analysis of learning processes and the learning outcomes, while considering the learning environment. The researcher intended to analyze the correlation between each course module completed by the students in relation to the change in term GPA and retention. However, the data providers did not include course module completion data for the students enrolled in the course. Only the overall course completion for each student was provided. Although there were limitations to the data provided, the researcher was still able

to evaluate all three learning components of the LEPO framework as well as the details of the student and teacher interaction.

The learning environment and what happens in the learning environment are important factors in relation to academic performance (Nouh et al., 2016) and retention (Tinto, 1987, 1999, 2006). The learning environment in the current study included the online self-paced academic strategies course. Students were able to complete the course on a computer, laptop, or any handheld mobile device that connected to the internet. Due to the flexibility students had to access the course, the learning environment was extended to the location the students completed the course. The interactions of the teachers/instructors and students in the learning environment are important in this framework. The frequency of teacher to student interaction is not defined in the LEPO framework. Therefore, an assessment of the level of teacher involvement as related to the framework cannot be given. Yet, Tinto (1999) suggested an effective learning environment should include frequent and high-quality contact between the teacher and student, which will lead to the students feeling valued. Swan (2001) found students who perceived high levels of teacher and student interaction in online learning environments, reported higher levels of learning.

The interaction between the teacher and students in the learning environment of the academic strategies course, was limited. The teacher provided the schedule of activities, guidance on when to complete the learning processes/tasks, bi-weekly updates on module completion, and communications with the students via course email; which supported Tinto's (1999) notion that an effective learning environment should include a clear and consistent road map for students to follow and complete their personal academic goals. Students were expected to complete the learning processes/tasks timely and efficiently. Though, none of the tasks were

graded during the course nor were the students given feedback by the instructors regarding the information the students included in the module surveys while enrolled in the course.

Everything considered, the instructors were present but only somewhat involved throughout the duration of the course. The level of teacher involvement was not frequent or detailed. The teachers of the course also served as academic counselors for other undergraduate students who were on continued academic probation status and students who returned to the university after academic suspension. Therefore, the time teachers spent in the academic strategies course was purposefully limited to balance the teachers' caseloads. The learning environment may be improved with frequent teacher and student interaction and with teachers providing detailed graded/feedback of the learning processes completed by the students. Both which would require more time from the teachers.

The presence and involvement of the teacher is necessary in the online environment to improve learning outcomes (Sun & Chen, 2016; Yuan & Kim, 2014). Research that links teacher and student interaction to learning outcomes in the online learning environment, is based on perceptions of either students or teachers (Swan, 2003). The learning processes in the academic strategies course included tasks aimed to help students improve their time management skills, improve study skills, locate campus resources, and develop an individual academic plan. As previously mentioned, the tasks were not graded during the course, which meant students who completed the tasks did not receive direct feedback. Without grades or direct feedback from the instructors, students were unable to assess how well they achieved the learning outcomes. Additional learning processes, such as automated testing, could be added to the course to allow immediate feedback.

In the LEPO Framework, learning outcomes are to be demonstrated by the students and assessed by the teachers (Phillips et al., 2011). The instructors who facilitated the academic strategies course in the current study assessed the student surveys for completion only. Once the surveys were determined to be sufficiently completed, the instructor added the students to the list of course completers on the course newsfeed. The researcher requested permission to review the feedback of the surveys completed by the students at the end of each module. The data providers did not have the survey feedback available in the archival dataset. With the module completion information and survey feedback, the researcher could have better assessed which of the learning processes included in the learning environment influenced the learning outcomes.

The principle of the LEPO Framework is: students complete learning processes that are assessed by teachers which leads to learning outcomes that determines the effectiveness of the learning environment. The course in the current study did not include proper assessment and feedback of the learning processes. In order for the course to better align to the framework and other research on the topic of effective online learning environments (Jiang & Ting, 2000; Stavredes, 2011; Swan 2001, 2003), the teachers will need to provide specific feedback about the learning processes completed by the students. Specific feedback of learning processes points out student success or areas for improvement. Specific feedback also helps students to self-evaluate their performance; which will lead the students to develop plans to fill the learning gaps (Stavredes, 2011). The university should examine how the teacher's interaction with students in the academic strategies course correlated to the learning outcomes. The university should also obtain feedback from the students about their perceived learning based on interaction with the instructor and interaction with the content in the course (Swan, 2003).

Implications for Practice

The findings of the study illustrate that the academic strategies course aligned with some components of the LEPO framework. The course consisted of learning processes that led to learning outcomes which determined the effectiveness of the learning environment. However, the limited interaction between the teachers and students, in addition to the lack of feedback to students for completed learning processes, are two components of the course that require improvement. As mentioned, the academic strategies course was not previously evaluated for its level of effectiveness. Evaluation of the course had not taken place even before the changes to the course that occurred fall 2017. The course was originally offered in a traditional classroom setting. It was a one-hour credit bearing course which carried a cost for the students. When the course was moved to an online learning environment, the cost and credit hours were eliminated. The design of the course, the learning objectives, the learning processes and the schedule of the course were all reformed. Teacher and student interactions were also impacted. The students no longer received face-to-face learning opportunities and feedback for completion of learning processes was eliminated. These changes were made to lower costs while still providing an intervention for students on first-time academic probation status.

Improvements to the Academic Strategies Course

One way the course should be improved is with increased instructor involvement. Learning outcomes are improved in the online learning environment with the presence and involvement of the instructor (Sun & Chen, 2016; Yuan & Kim, 2014). Prior research on student retention found when high quality and frequent instructor involvement is present in the learning environment, students felt valued (Tinto, 1999).

Another way the course should be improved is by adding direct feedback to students. Automated assessments, grades for completed learning processes, and teacher detailed feedback of student surveys are ways to increase the feedback students receive in the course. Adding these forms of feedback will require more time from course instructors. The university will have to consider the time needed to include more feedback and the cost associated with it. This consideration may take time and approval from a higher authority within the university. In the interim, the university should implement a cost-effective way to share feedback. The university should use the data they have available from existing student surveys completed in the academic strategies course. Student responses to survey questions should be gathered and analyzed. Once analyzed, themes may be identified. These themes should be shared to develop best practices to better service the academic probation students and possibly other groups of students on campus. Currently there are multiple interventions on campus based on student groups. There are different interventions for first-generation students, TRIO students, and students at the various academic statuses. The sharing of themes and best practices for student groups serviced by the departments will create a more collaborative effort at the university.

According to Abele et al. (2013), the earlier that interventions and strategies are provided for at-risk students, the more likely students will improve their academic performance. Therefore, the earlier the academic probation students completed the academic strategies course, the more likely they were to implement what they learned and improve their academic performance. Thus, the university may want to reconsider how long students have to complete the course. It may be helpful to target semester breaks (approximately at mid-term) for deadlines as opposed to the entire 15-week semester. This would give an additional seven weeks for existing instructors to help students that struggled with the original deadline and hopefully

provide plans and opportunities for them to be successful in their work. Students who do not complete the course based on the recommended schedule, one module per week, should be required to complete a meeting with the instructor. Instead of the students being required to initiate the meetings with instructors, the instructors should initiate a required meeting with students. The meetings may be conducted face-to-face or virtually. The meeting options will allow the instructors to reach more students.

Improvements to Increase Retention Rates

Reduction in cost impacted the overall learning environment of the academic strategies course. Although the university's goal was to reduce the cost of the intervention, the university must ensure that the changes did not counteract with the goal of the course. The goal of the course was to improve students' academic achievement levels and to retain the students at the university. As previously mentioned, the university is a state institution where retention impacts funding received from the state. The university must consider the financial implications, academic implications (Aljohani, 2016), and its reputation (Crosling et al., 2009) as it considers costs associated with retention initiatives. The higher the retention rate, the more funding the university may receive from the state.

The university and other higher education institutions should include several methods to improve retention rates. Academic support initiatives are proven to increase retention (Tinto, 1999, 2006). Institutions must provide a combination of group and individual academic support initiatives for students who have barriers and challenges that affect their academic performance (Petty, 2014). The university in the current study may continue to use the academic strategies course as the individual academic support initiative. The university may expand support to the students enrolled in the course by also offering group initiatives. The university should adopt

group initiatives such as group discussions (McGrath & Burd, 2012) and peer networking (Rodgers et al., 2014), which were proven to be effective in prior studies. Student roundtables, where students share what is working and identify areas for improvement, should also be incorporated as a group initiative. Similarly to the required meetings with instructors, the group initiatives may be offered to students in a face-to-face setting or virtually. Group activities that require students to interact with their peers build a sense of community and belonging among the students in the learning environment (Swan, 2003).

Limitations and Recommendations for Future Research

The study was limited to archival data of students enrolled in an academic strategies course at a 4-year university in western Tennessee. Therefore, the results of this study may not be generalizable to other higher education institutions who serve a different population of students. However, the findings will help the current institution and other institutions who serve a similar demographic of academic probation students. Demographic variables were included in this study as suggested by previous researchers on the topic of academic probation. The researchers suggested demographic information be analyzed to determine if there were correlations to the students' academic achievement level (Barouch-Gilbert, 2016a; Lindo et al., 2010). As mentioned in Chapter 2, review of prior literature resulted in multiple factors that contributed to students' poor academic achievement and retention. The contributing factors differed by category. Some contributing factors were attributed to the student (Ahmed et al., 2014; Fauzan et al., 2017; Tinto, 1987; Trombley, 2001). Students' socioeconomic factors such as financial constraints, emotional difficulties, prior academic experience, and social experience were identified as major contributors of students who are placed on academic probation (Lightweis, 2014). Tinto (2006) suggested institutional factors were just as influential as

students' socioeconomic factors were to student retention and academic performance.

Institutional factors included funding, cost of attending college, academic support programs, advising, learning environment, teachers, and technology (Lau, 2003; Tinto, 2006).

This study included a limited number of potentially influential factors that impact academic achievement and student retention. Not all potentially influential factors identified in the literature could be included in the study. The data included in the study were derived from an archival data set of the first-time academic probation students enrolled in the academic strategies course during the fall 2017 semester and the spring 2018 semester. Therefore, the researcher could only collect and analyze the identified potentially influential factors available in the existing data set. The researcher requested students' course completion data for each module. Identifying which course modules were completed by the students could have provided more insight as to which learning processes correlated to academic achievement and retention. However, module completion data were not provided by the CARES Office. The overall course completion by the students was provided instead.

In the future, research should be expanded to include which module tasks were completed by each student. A hierarchal correlational analysis of the module tasks in relation to change in term GPA should be conducted. Future research should also include the review of the students' responses to survey items to determine the following (Phillips et al., 2011):

- What knowledge, skills, and understanding were developed by students?
- To what extent did students achieve the learning outcomes?
- Were there any observed benefits from completion of learning processes that were limited to some learners or widespread to all learners?

Although course completion was significant in the study, the researcher recommends a more in-depth study, including module completion, be conducted in future research. Identifying whether completion of one module compared to other modules in the course is significant and could provide beneficial details to the instructors who facilitate the academic strategies course in the future. These details could help the instructors develop a more effective learning environment. Additionally, review of the survey responses from the students could lead to development of themes about the group of students enrolled in the course. Themes will help the university to identify the factors that impact the population of academic probation students enrolled at the institution. The complete list of influential factors that impact academic achievement and student retention could not be included in this study. The researcher recommends future researchers include a more extensive group of factors that have been identified as influential factors of academic achievement and retention. Factors that influence academic achievement and retention fit into three categories: student personal attributes (Astin et al., 1996; Peltier et al., 1999; Thomas, 2002; Tinto, 1987, 1993) students' socioeconomic status (Lightweis, 2014), and institutional factors (Lau, 2003; Tinto, 2006).

Last, the researcher recommends an evaluation of the other initiatives employed at the institution for students who are on academic warning, continuing on probation, and academic suspension. A proper evaluation model for each of the initiatives should be identified and implemented.

Conclusion

In summary, course completion and race were found to be statically significant to predict the change in term GPA (academic achievement). Course completion, race, and classification were found to be statistically significant to predict student (semester-to-semester) retention. The

students' gender and college/program of study were not statistically significantly associated with the change in term GPA nor (semester-to-semester) retention. Further research should include analysis of additional potentially influential factors of academic achievement and retention such as other student personal attributes, students' socioeconomic status, and institutional factors. The researcher used the LEPO framework to evaluate the online learning environment of the academic strategies course. The researcher identified where the course aligned with the framework and areas where the course could be improved to align with the framework and other research on effective online learning. All components of the framework were included in the course. However, the level of teacher interaction with the students, needs to be improved. Teachers should interact with students more frequently and the teachers should provide feedback to the students regarding the learning process completed by the students. Also, the module surveys should be collected and examined. There were self-reflective surveys included in the course. Examination of the student's responses to the surveys would allow themes to be formed. Themes will allow the institution to identify factors that impact the students who are on academic probation at the institution. The institution may then develop a model to help students avoid academic probation in the future.

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APPENDIX A

Screenshot of Data Collection Template for Fall 2017 Semester

	A	B	C	D	E	F	G	H	I	J	K	L
	UID	First Name	Last Name	Course Completer (Yes or No)	Classification Fall 2017	College Fall 2017	Last Enrolled Term GPA (Transcript)	Fall 2017 Term GPA (Transcript)	Change in Term GPA	Race	Gender	Enrollment into Spring 2018 Semester (Yes or No)
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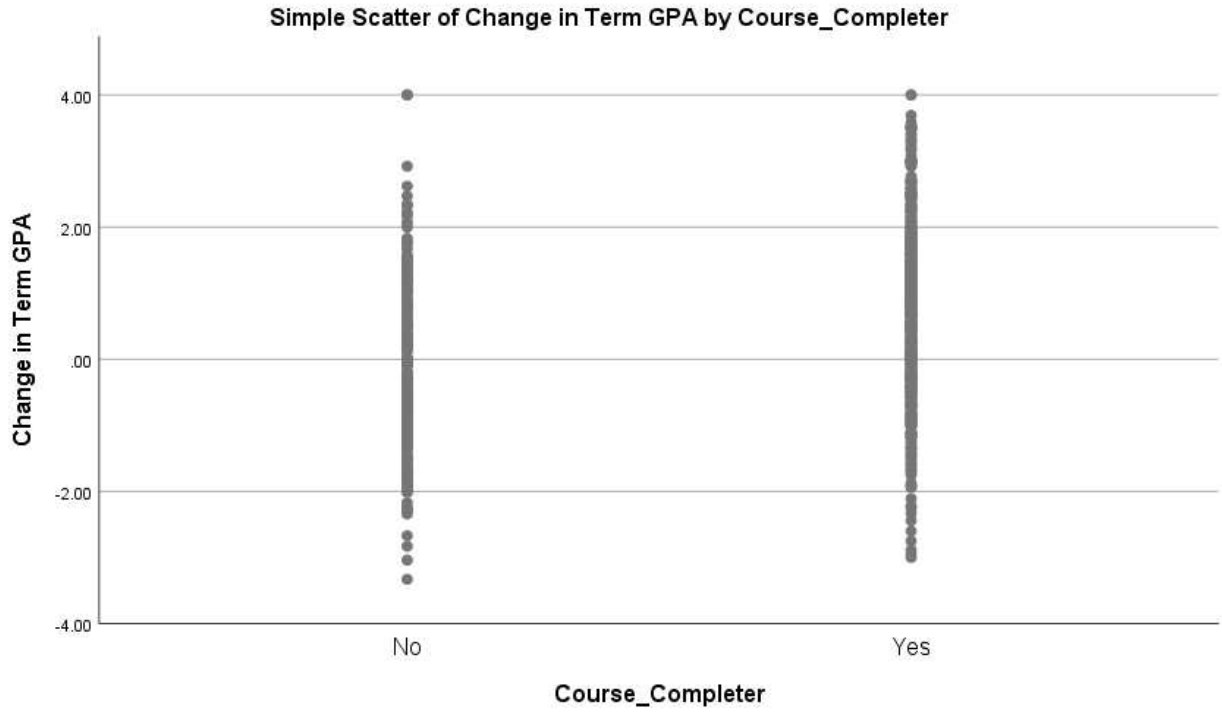
APPENDIX B

Screenshot of Data Collection Template for Spring 2018 Semester

	A	B	C	D	E	F	G	H	I	J	K	L
	UID	First Name	Last Name	Course Completer (Yes or No)	Classification Spring 2018	College Spring 2018	Last Enrolled Term GPA (Transcript)	Spring 2018 Term GPA (Transcript)	Change in Term GPA	Race	Gender	Enrollment into Summer or Fall 2018 Semester (Yes or No)
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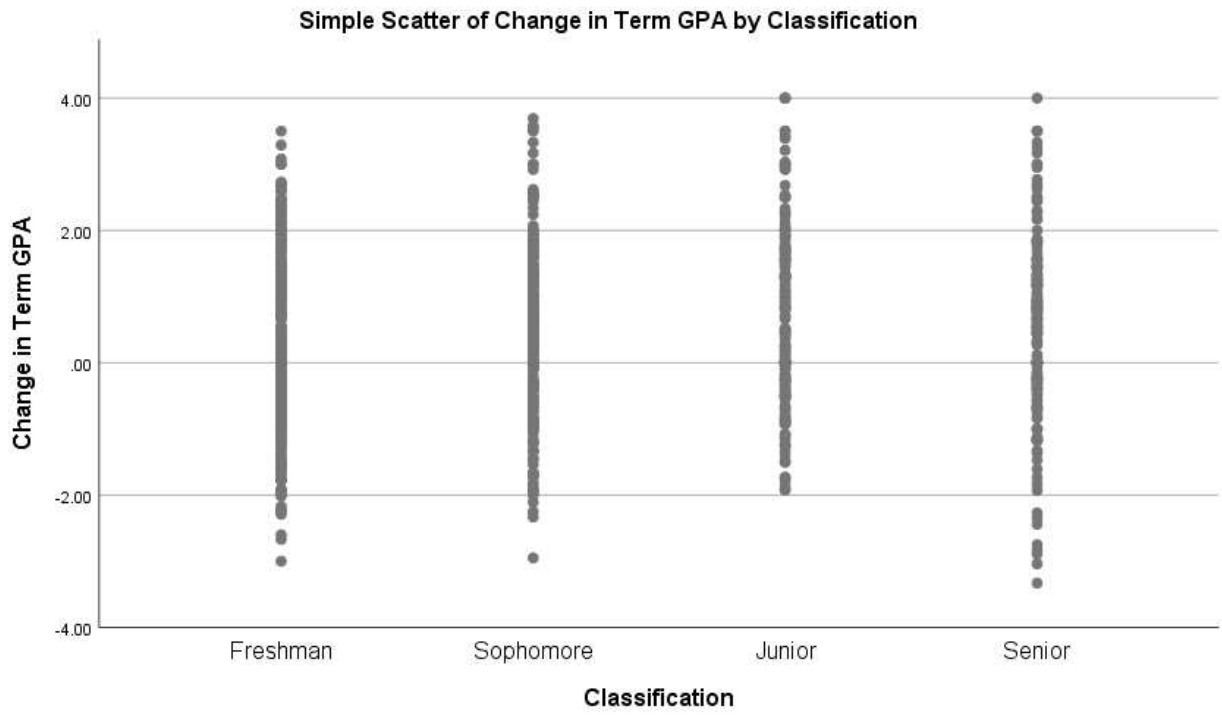
APPENDIX C

Scatterplot of Change in Term GPA by Course Completion



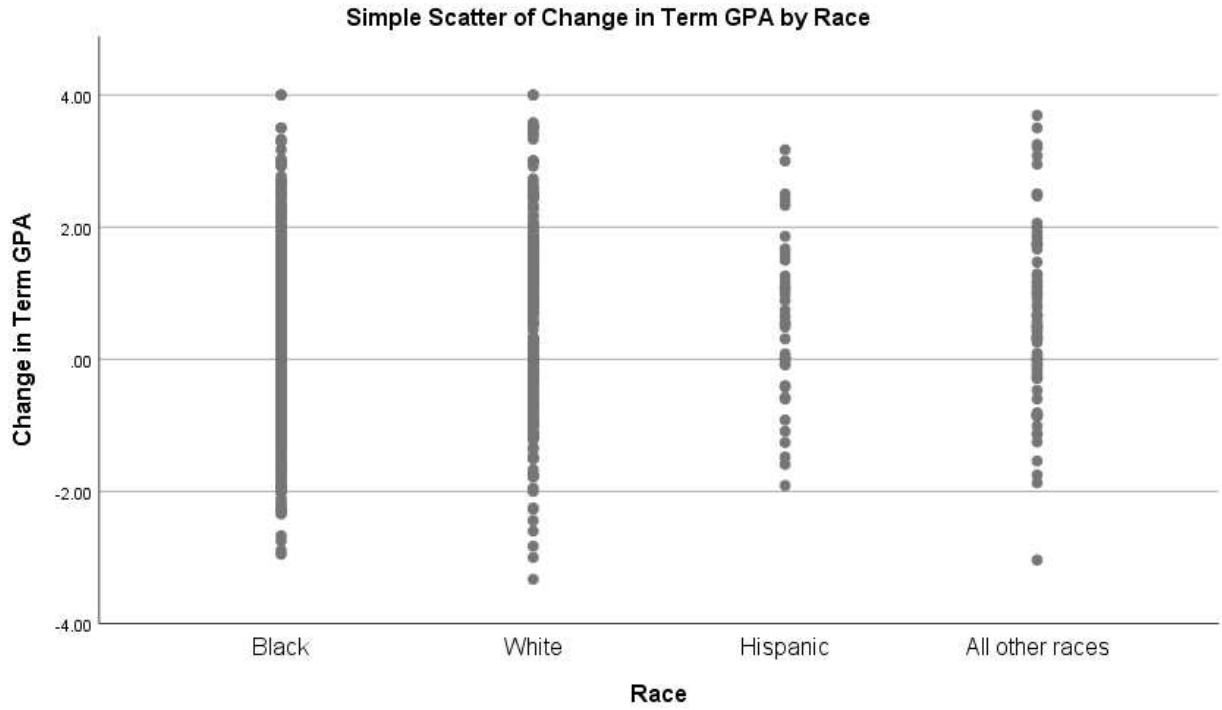
APPENDIX D

Scatterplot of Change in Term GPA and Classification



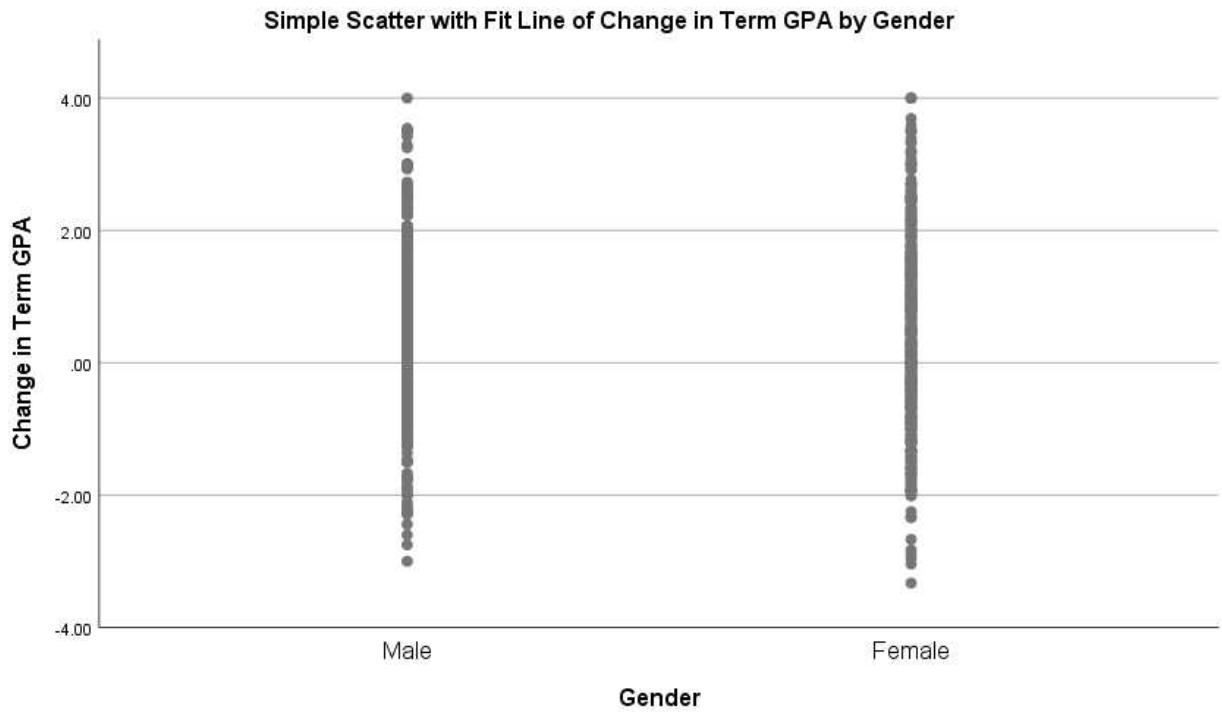
APPENDIX E

Scatterplot of Change in Term GPA and Race



APPENDIX F

Scatterplot of Change in Term GPA and Gender



APPENDIX G

Scatterplot of Change in Term GPA and College/Program of Study

