

THE RELATIONSHIP BETWEEN TRADITIONAL STUDENT SUCCESS VARIABLES
WITH RETENTION OF THE TENNESSEE LOTTERY
SCHOLARSHIP PROGRAM

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ABSTRACT

The purpose of this study was to evaluate whether a relationship existed between a set of prescribed student success quality indicators and retention of the Tennessee lottery scholarship after 24 attempted semester hours. There were two primary research questions:

- Research Question 1 (RQ1): Does a relationship exist between lottery scholarship retention (LSR) and any single or combination of student progression variables for first-time, full-time enrolled freshmen after 24 attempted semester hours?
- Research Question 2 (RQ2): Does LSR relate to continuous enrollment at the initial awarding institution after the first 24 attempted semester hour checkpoint?

Data were collected about lottery scholarship recipients enrolled at a moderately selective higher education institution in the southeastern region of the United States. A Pearson chi-square analysis was administered to examine RQ1. The results revealed a) a strong relationship with high school grade point average, cumulative attempted hours, and overall college grade point average; b) a moderate relationship with standardized admission test score; and c) a weak relationship with gender, residency status, and race/ethnicity with retention of the lottery scholarship. Pell grant eligibility, college, and parent adjusted gross income did not indicate a relationship with retention of the lottery scholarship. Logistic regression analysis revealed two variables, college grade point average and cumulative attempted hours, had a significant value in predicting retention of the lottery scholarship.

Correlation analysis for RQ2 demonstrated retention at the initial awarding institution and retaining the lottery scholarship award were strongly related. Students who retained the award were more likely to return to the initial awarding institution. Additionally, a review of the

frequency distribution revealed that every student who retained the lottery award returned to the initial awarding institution.

Ultimately, this type of research could assist universities with understanding and predicting success characteristics of incoming students. Higher retention and persistence rates within post-secondary institutions potentially impact economic growth through increased completion rates (Angrist, Oreopoulos, & Williams, 2014). Additionally, if students are able to maintain lottery eligibility, the findings from this study might permit institutions to reallocate funds from internal scholarship accounts toward student success programs.

DEDICATION

This dissertation is dedicated to my super supportive family. Rafielle, my life partner, thanks for your support and constant reminders about why I had to finish. Yancy, Jr. and Camille, thanks for being my purpose. To my mother, Mary Rambert, I miss you immensely. I hope you are proud of me. Clarence and Bettye Boone, my parents in love, and my siblings (Jean, Georgetta, Bo, Patricia, Roy, Eric, Derrick, Marlon, Ashlie, and Casey) you have no idea how much your love sustains me.

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CHAPTER I

INTRODUCTION

Background

The Complete College Tennessee Act (CCTA) of 2010 represents recent legislation approved by the Tennessee General Assembly to address college completion rates and degree attainment within the state's higher education institutions (Jenkins & Rodriguez, 2013). The CCTA directly connects institutional performance formula funding for Tennessee's public supplemented institutions to student success outcomes. The new legislation divides the limited state fiscal resources budgeted for higher education into a linear budget model. This model awards additional base dollars to institutions with the highest student success rates and reduces funding to those colleges with poor outcomes. Jenkins and Rodriguez (2013) wrote,

Performance funding differs from traditional enrollment based funding in that it shifts the basis of funding from educational inputs to outputs that reflect state priorities. Specifically, some states fund colleges and universities based not on how many students they enroll, but at least in part on how many they graduate, transfer, or place in jobs. (p. 200)

CCTA stipulates the distribution of performance funding dollars for Tennessee higher education institutions is driven by a variation of the following output ratios: number of bachelor's degrees, graduation rate, time to degree, research expenditures, numbers of students by classification (i.e., freshman through senior years), level (i.e., undergraduate, graduate, doctoral), transfers, low income, veteran, and adult student enrollment (McKeown-Moak, 2013).

University administrators are actively searching for the best predictive model to understand student academic success factors. Specifically, administrators are interested to examine how high school performance indicators, such as standardized admission tests and student motivation, are related to collegiate student retention and persistence data (Mattern, 2012; Mattson, 2007; McCormick, 2014). Many university admission officers and researchers have begun measuring and challenging the relevance and predictive value of standardized college entrance test scores (Mattern, 2012; Mattson, 2007). The new developing knowledge regarding the use of standardized test scores to predict college success in the first year has caused higher education admission leaders to focus on a multivariate approach (e.g., high school grade point average [GPA], socioeconomic factors, gender, race, and ethnicity) in the applicant decision and selection process (Mattson, 2007). A study conducted by Mattern, Patterson, and Swerdzewski (2012) discovered the number of times an applicant tested and the test administration date had no impact on first year college GPA. Mattson's (2007) study reviewed success factors including race, ethnicity, gender, standardized college entrance test score, and high school GPA to assist college admission professionals in improving the decision process for entering applicants. Furthermore, Mattson (2007) found the high school GPA was more statistically significant in predicting success than any other measurement factor, including standardized test scores, for first-time freshman students.

In an attempt to increase academic performance and the number of high school seniors enrolling in postsecondary institutions, several states have implemented a merit based state scholarship program funded by lottery proceeds (Trant et al., 2014). However, the formation of state funded lottery programs continues to emerge as a controversial issue among opponents challenging the value of creating these types of scholarship programs (McKinney, 2009;

Rubenstein, 2002). One significant negative controversy surrounding lottery scholarship funding is whether these programs have increased college enrollment and persistence for only the families who could afford to pay without these dollars. McKinney (2009) addressed the issue after an examination of Florida's Bright Futures program. The Bright Futures program represents Florida's version of a merit based lottery scholarship. McKinney (2009) recommended Florida legislators establish a hybrid scholarship model. Under the McKinney (2009) hybrid model, need and merit worthy students would receive funding in an effort to equally address intelligence and affordability concerns. The McKinney (2009) model is analogous to the Tennessee Education Lottery Scholarship (TELS) because both programs offer additional funds above the baseline award for merit or demonstrated student financial need (Menifield, 2012).

Similar to the Bright Futures Program, several researchers have examined the success of the TELS program by reviewing improvement on standardized college entrance exam scores (Menifield, 2012; Menifield & Lawhead, 2009; Pallais, 2009). In a study reviewing the impact of the lottery scholarship on increasing American College Test (ACT) scores, Pallais (2009) found the TELS program “did not achieve one of its stated goals, inducing more students to prefer to stay in Tennessee for college” (p. 199). However, according to Pallais (2009), the TELS program had a direct correlation with higher scores on the ACT. Although Pallais (2009) did not address how Tennessee students were able to increase standardized test scores, the researcher found a 7.6 percentage point increase in post-TELS ACT scores versus pre-TELS ACT comparisons. This research demonstrated merit based scholarship awards may have a relationship with high school achievement.

Statement of the Problem

The use of lottery scholarship dollars by Tennessee students to offset higher education costs becomes increasingly important for institutions considering the implementation of a performance funding revenue model (Menifield, 2012; Trant et al., 2014). Rising persistence, retention, and graduation rates for enrolled students in Tennessee translate into increased levels of institutional funding from state coffers (Jenkins & Rodriguez, 2013). Therefore, university administrators should strive to understand academic success quality indicators. If higher education leaders effectively understand these key metrics, the opportunity to improve college completion rates and drive institutional sustainability is possible (Gross, 2014). Serdar (2010) emphasized leaders within higher education institutions must behave like profit oriented organizations by understanding their business processes and innovatively creating enhancements to ensure maximum performance. Gross (2014) and Serdar (2010) concur by suggesting a clear understanding of institutional business processes and operational goals ensures sustainability for higher education.

This research examined whether traditional student success quality predictors (e.g., gender, class attendance, and active student engagement in campus activities) are related to the retention of the Tennessee HOPE lottery scholarship after completion of 24 attempted semester hours. The researcher anticipates the findings from this study may inform the development of a prediction model for higher education institutions. This model may potentially assist higher education leaders to understand, plan, and provide appropriate academic support resources for lottery scholarship recipients who have the highest lottery retention risk factors. Given the national debates about access to higher education and continually evolving student success outcomes, this prediction model may furnish a context for institution leaders to direct limited

support resources to improve student retention and success results (Baum, 2013; Jenkins & Rodriguez, 2013).

Purpose and Significance of the Study

This research study was designed to determine whether a relationship existed between a set of prescribed student success quality indicators and retention of the Tennessee lottery scholarship after 24 attempted semester hours. Current data from the participating institution indicate more than one-third of all first-time Tennessee HOPE recipients fail to maintain the scholarship award after the first 24 attempted semester hour checkpoint period (Appendix A). This research may inform the creation of a prediction model of factors related to the retention of the lottery scholarship by analyzing multiple student quality indicators of HOPE recipients at the completion of the first year of study (i.e., at 24 attempted semester hours). For the purposes of this study, any coursework attempted by participants prior to high school graduation is excluded from the total hours examined. It is important to note the 24 credit semester hour threshold represents the first continuation checkpoint for TELS recipients within the study group. After the initial checkpoint, students must meet appropriate academic standards by achieving a 3.0 TELS college GPA after 48, 72, and 96 attempted credit hours to maintain eligibility (Menifield, 2012).

This study has comprehensive implications for higher education institutions operating under a performance based funding model. According to Gross, Hillman, and Tandberg (2014), financial solvency under an outcomes and performance funding model requires institutions to pay closer attention to the holistic success needs of students, especially lottery scholarship recipients. Gross, Hillman, and Tandberg (2014) wrote,

Performance funding programs make the basic assumption that institutions can do more to improve completions; however, if they lack the necessary resources to make the

changes (e.g., student support services, financial aid) to respond to the incentives, the program will inevitably fail. (p. 852)

As the body of literature on the relationship between college completion and economic development continues to expand, research in this area could assist universities to predict and plan for increased persistence rates, postsecondary degree completion rates, and economic growth in the state by graduating more college prepared students (Angrist et al., 2014).

Additionally, if students are able to maintain lottery eligibility, the findings from this study might permit institutions to reallocate funds from internal scholarship accounts toward student success programs (Alarcon & Edwards, 2013).

Institutional leaders may use the results of this study to understand the relationship between traditional student success variables (Appendix B) and retention of the lottery scholarship. Additional research could expand this study by examining why each variable specifically relates to promoting retention of the lottery scholarship. The findings from this study could be generalized to urban or metropolitan public higher education institutions with a moderate level of admission selectivity. Moreover, higher education institutions with a student enrollment between 8,000 to 20,000 undergraduates may find this study relevant and applicable.

Research Questions and Hypotheses

This study explored numerous student progression variables (Appendix B) to examine whether a relationship exists with retention of the state funded lottery scholarship award. This study focused on retention of the Tennessee HOPE lottery scholarship award at the first continuation checkpoint (i.e., 24 attempted semester credit hours) for recipients enrolled at a higher education institution within the state. There were two primary research questions for this study.

- Research Question 1 (RQ1): Does a relationship exist between lottery scholarship retention (LSR) and any single or combination of student progression variables for first-time, full-time enrolled freshmen after 24 attempted semester hours?
- Hypothesis 1: There will be a relationship between class attendance, college GPA, and gender with LSR. Ethnicity, high school GPA, ACT scores, and credit hours attempted will not relate to LSR.
- Research Question 2 (RQ2): Does LSR after the first 24 attempted semester hour checkpoint relate to retention or continuous enrollment at the initial institution in the second year?
- Hypothesis 2: Retention of the Tennessee lottery scholarship will demonstrate a relationship with retention at the initial institution in the second year.

Overview of Methodology

The purpose of this study was to evaluate whether a specified student success characteristic or a combination of characteristics demonstrated a relationship with retention of the Tennessee lottery scholarship at a regional university. Student engagement (i.e., social and academic integration, extracurricular activities, motivation, and ability) is a key to driving academic success and retention for undergraduates (Mattson, 2007; McCollum & Kajs, 2007; Tinto, 2006). This study analyzed potential student success variables (Appendix B) of lottery scholarship recipients attending a moderately selective, master's level Carnegie institution in the southern United States. All scholarship recipients were domiciled in the awarding state as a requirement for initial eligibility. Recipients originated from 94 different counties within the awarding state (Institutional Research, 2015). This study used institutional enrollment census

data for the most recent academic year. Admission eligibility for applicants requires minimum criteria in cumulative high school GPA, standardized composite test score, and high school core curriculum courses.

This study followed an ex post facto, quantitative research design. Data about lottery award recipients were grouped into four categories: Group A for lottery scholarship retainer and re-enrolled at initial awarding institution, Group B for non-scholarship retainer and re-enrolled at initial awarding institution, Group C for lottery scholarship retainers and did not re-enroll at initial awarding institution, and Group D for non-scholarship retainers and did not re-enroll at initial awarding institution. Data for this study were collected from the participating institution's student information system using a report-writing tool. Data analysis was conducted using International Business Machines Statistical Package for Social Science (IBM-SPSS) software (Machines, 2015).

Any lottery recipient missing information (e.g., GPA, standardized test scores, and class attendance data) was excluded from consideration within this study. After the correlation analysis, the researcher conducted a binary logistic regression analysis on each variable to assess the relationship between several combined variables to retention of the lottery scholarship award. All statistical tests were based on a minimum .05 alpha level. Finally, data regarding the variance attributed to a combination of variables was used to create a prediction model for identifying characteristics of those students who retain the award.

Definition of Terms

Census - the official institutional enrollment profile at the end of the 14th day of classes for a specified term (Commission, 2015).

First-Time Freshman - any student enrolling in college immediately following high school graduation (Menifield & Lawhead, 2009).

First Year Retention Rate - the number and percentage of first-time freshman students returning for the following fall term measured by a cohort model after the first year of enrollment (Hagedorn, Maxwell, & Hampton, 2001).

Forfeiture - lottery scholarship recipients who begin a term as a full time student, but fail to maintain full time enrollment status after the census date (Erik C. Ness & Tucker, 2008).

Graduation Rates - the number and percentage of students completing a bachelor's degree program measured by a cohort model over six years (Scott, Bailey, & Kienzl, 2006).

Lottery Scholarship Checkpoint - number of semester credit hours attempted within any enrollment period for consideration of continuation for the award. The criteria for this study includes review of the cumulative GPA at the end of 24, 48, 72, and 96 attempted hours (Menifield, 2012).

Lottery Scholarship Retention (LSR) - represents continuation of eligibility for the Tennessee HOPE scholarship award after 24 attempted semester hours (Menifield, 2012).

Moderately Selective Admission - represents institutions operating under rolling admission status (i.e., identifiable admission criteria). Other college admission selection criteria include highly selective or holistic review and open admission (Chimes, 2003).

Persistence Rates - number and percentage of students meeting the credit hour checkpoint toward progression of the degree program (Schreiner & Nelson, 2013).

Standardized Test Scores - assessment tool used for consideration in university admission requirements. For the purposes of this study, students are measured using the ACT or the Scholastic Achievement Test (SAT) exam (Mattern, 2012).

Limitations of the Study

Tinto (2006), one of the leading theorists regarding student retention, suggested there are three major reasons why students are not retained. Tinto (2006) identified those reasons as (a) academic difficulties, (b) an inability to resolve academic or educational goals, and (c) a failure to become or remain engaged in the intellectual or social life of the institution (Tinto, 2006; Ullah & Wilson, 2007). Tinto's (2006) theory supports a limitation of this study. Students who become over engaged in student and campus activities potentially risk losing the scholarship award if they cannot balance these activities with appropriate study time.

Since the study measured student engagement in campus activities, involvement in more than two activities may skew the results without consideration of other factors. Furthermore, the absence of a common curriculum for all high schools in the state poses a potential limitation. A common curriculum across the state conceivably ensures student exposure, or lack thereof, to concepts, ideas, and principles critical to college preparedness. Additionally, the availability of academic and campus resources to encourage student success could potentially skew the retention results from the study. The level of academic support will differ from one academic unit to another within the institution and between each distinct institution. There is no mechanism to account for the variety of resources available to students or whether recipients will utilize those tools as the institutions intend. Finally, diverse student categories (e.g., transfer, dual enrollment, and adult learners) may demonstrate different statistical relationships for a variety of reasons. Two potential reasons might include the distinct differences in eligibility continuation requirements for these categories and the diversity of degree attainment goals between groups (E. C. Ness & Mistretta, 2009; Welch, 2014). These limitations describe the complex nature of examining how certain variables correlate to retention of a state sponsored

lottery scholarship program. Each limitation offers an opportunity to develop further research in the field of student success in relation to the lottery scholarship programs.

Delimitations of the Study

This study has been delimited to examining first-time (i.e., immediately following high school graduation), full time enrolled freshman students at a public higher education institution in Tennessee. Results may vary at different types of institutions (i.e., private, selective admission, and/or research intensive). This study measured the relationship between student retention of the lottery scholarship and a number of student success factors. The selected variables in the study were not all-inclusive of potential student success variables. The relationship with additional variables, experience in University Studies courses or participation in Summer Bridge, and retention of the lottery scholarship are beyond the scope of this study. Any lottery recipient missing information (e.g., GPA, standardized test scores, class attendance data) was excluded from consideration within this study.

Methodological Assumptions

The researcher conducting this study made the assumption class absences, standardized admission test scores, gender, high school GPA, race, ethnicity, and overall college GPA were appropriate independent variables to examine a relationship with retention of the lottery scholarship program. No relationship may exist after assessing each isolated independent variable or any combination of those within this study. Furthermore, these variables may not advance the opportunity to create a predictive model for understanding retention of the lottery scholarship.

The researcher also assumed each lottery recipient at the institution had the goal to remain enrolled and maintain eligibility for the scholarship award. This assumption is made based on the students' acceptance of the institutional offer of admission and use of the scholarship funds toward educational expenses. It should be noted that lottery scholarship recipients lacking motivation, a desire to learn, or attainable goals could have an impact on the results of this study. Students should establish viable and attainable educational goals, demonstrate sufficient self-motivation to achieve academic success, and actively seek learning opportunities to ensure retention in higher education institutions (Alarcon & Edwards, 2013; McCollum & Kajs, 2007; Tinto, 2006). Alarcon and Edwards (2013) found ability and motivation were significant drivers of success, while McCollum et al. (2007) suggested educational goals were equally important. For the purposes of this study, the researcher assumed each recipient was sufficiently equipped with goals, motivation, and cognitive ability.

Summary

The purpose of this study was to understand how specific and traditional student success variables, such as race and ethnicity, high school GPA, and standardized test scores, relate to retention of the Tennessee HOPE lottery scholarship program. The study focused on lottery scholarship recipients enrolled at a medium sized, moderately selective university. The scope of the study did not include behavioral factors (e.g., motivation and intelligence), thus future research focusing on these variables could extend the literature in this field. SPSS was used in this study to analyze the relationship between retention of the lottery scholarship for enrolled eligible students and select variables. The final outcome was intended to create a predictive

model for institutions to potentially provide resources to ensure student progression and graduation.

CHAPTER II

LITERATURE REVIEW

Student Success and Retention

Higher education institutions across the United States are experiencing an increase in the expectation of accountability for student academic success metrics, perhaps more than any time in the history of postsecondary studies (Baum, 2013; Jenkins & Rodriguez, 2013). The number of states implementing the new performance based funding model is growing across the country despite the concerns from some higher education leaders (Jenkins & Rodriguez, 2013; Lahr et al., 2014). These leaders believe a performance based approach weakens academic standards, increases compliance costs, decreases faculty voice, narrows institutional mission, and restricts student admissions to select high performing students (Lahr et al., 2014). The expectation for higher education institution leaders to demonstrate value and minimize costs is the new aspiration to ensure sustainability. Baum (2013) supported this notion by writing,

The prevalent view seems to be that colleges and universities, especially those in the public sector, should simply find ways to do more with less. If nothing else, sheer political prudence requires colleges to redouble their efforts to accomplish just that, and to undertake those efforts in the most visible possible way. (p. 36)

In 2008, the federal legislative body approved a maintenance of effort (MOE) provision under the Higher Education Opportunity Act (F. Alexander, 2011). The MOE provision emphasized the federal government's responsibility to monitor transparency and accountability measures for higher education institutions. The new accountability measure forced higher education institutions to provide full disclosure of enrollment related expenses to the general

public. Additionally, the provision forced states to play a more active role in funding state supported institutions to mitigate the increasing financial burden on students through tuition increases (F. Alexander, 2011). Under this provision, federal and state government, as well as higher education institutions, share responsibility for allaying public distrust. Furthermore, Hodgman (2014) wrote, “In short, colleges and universities are being asked to do more with less thus creating a new normal state of existence for higher education” (p. 119). This new state of existence should encourage higher education leaders to work toward a multifaceted and engaged approach to resolve the public concerns about student retention and graduation (Baum, 2013). This public and open approach offers an opportunity for higher education leaders to rebuild trust among community stakeholders and improve the perception on the value of a postsecondary degree.

In an effort to address the concern about building trust, Serdar (2010) and Burke (2011) suggested leaders within higher education institutions must move away from steeped and traditional values to meet the new external challenge and expectation of transparency, accountability, and business performance. Burke (2011) characterized the traditional higher education business process as rigid, rote, slow to change, and involving multiple layers of bureaucracy. Additionally, Burke (2011) suggested the current higher education business model limits sustainability, viability, and innovation. Serdar (2010) advised higher education leadership must operate like an engaged business entity in order to sustain operations. According to Serdar (2010), engaged and sustained businesses shape their policy and practice based on external (e.g., government and marketplace) and internal (e.g., employees and production) influences, thus they should learn to quickly adapt as changes from these factors drive operations. These influences

and other shifting demands appear to present substantial problems for higher education leaders in resolving the issues of transparency and accountability.

Accountability and shared community governance have become more difficult to accomplish due to the changing demographic of higher education in Tennessee and throughout the United States (Brock, 2010; Hodgman, 2014). All demographic statistics from the United States Department of Education (DOE) point to an increasing population of adult and nontraditional aged students enrolling within higher education institutions, in addition to the traditional high school graduate (Statistics, 2014). Hodgman (2014) wrote, “the high school graduate who enrolls full-time immediately after finishing high school, relies on parents for financial support, and either does not work during the school year or works only part-time—is now the exception rather than the rule” (pp. 112-113). One of the stated goals for lottery scholarship programs is to encourage a more prepared, trained, and educated workforce within the state (Bruce & Carruthers, 2014; Carruthers & Özek, 2016). Sjoquist and Winters (2014) found merit programs increase the likelihood young adults (i.e., 24-30 year olds) will remain in the state after college graduation. Moreover, post college retention within this age group demonstrated a positive correlation with the strength of the merit program. Additionally, higher education institutions face a challenging and quickly changing external environment including larger numbers of ethnic minority students, increased tuition costs, decreased federal and state funds under need based student financial aid programs, and an aggressive for-profit higher education sector (Hodgman, 2014).

Higher education officials should find innovative ways to increase student success outcomes and retention measures in order to remain viable. Tinto (2013) compared student success to Newton’s first law of motion. According to Tinto (2013), the comparison suggested

momentum or progression toward earning credit hours drives student retention – the more hours completed translates into increased momentum toward retention then graduation. “It does so most frequently when students are presented with coherent course pathways to degree completion, are able to gain degree credit momentum in the first year, and are provided support along those pathways” (Tinto, 2013, p. 5). Other researchers suggest retention success has much more significance when students are satisfied with the educational experience (Alarcon & Edwards, 2013; Schreiner & Nelson, 2013; Tinto, 2006). Schreiner and Nelson (2013) found “scale scores on the Student Satisfaction Inventory, significantly added to the explanation of variation in students’ intent to reenroll, above and beyond that explained by students’ demographic characteristics and features of the institutions they attend” (p. 107). Tinto (2006) identified three major reasons why students are not retained (a) academic difficulties, (b) an inability to resolve academic and educational goals, and (c) a failure to become or remain engaged in the intellectual or social life of the institution. Alarcon and Edwards (2013) suggested, “A low retention rate means a college must work to replace students that leave, which requires more resources that could be used elsewhere” (p. 129). These authors in their research demonstrate the multilayered and complex process for understanding retention and academic success principles.

A number of different studies have been conducted to examine the merits of how demographic factors impact student retention (Alarcon & Edwards, 2013; DeNicco, Harrington, & Fogg, 2015; Mattson, 2007). Retention and persistence data indicate the high school cumulative GPA has a higher correlation with college GPA than any other measurement factor including standardized test scores for first-time freshman students (Mattson, 2007). In an attempt to understand the predictive nature of various college admission variables, Mattson (2007)

studied factors like gender, engagement levels in extracurricular activities, and overall high school GPA. Furthermore, Mattson (2007) found gender, high school GPA, and participation in extracurricular activities were the most predictive variables for first year success. DeNicco et al. (2015) examined the “predictive power of gender, race, high school characteristics, placement test scores, freshman year performance and remedial course work on freshman retention” (p. 8). Additionally, DeNicco et al. (2015) found the college GPA and number of earned hours were the most significant predictors of first year college retention. In agreement with Tinto (2013) about the relevance of momentum in cumulative credit hour completion, DeNicco, Harrington, and Fogg (2015) discovered the number of earned hours in the first year was the stronger of the two predictors. Furthermore, Laskey and Hetzel (2011) reviewed high school and college GPA, standardized test scores, personality scores, gender, ethnicity, and the number of class sessions attended in an attempt to understand retention factors for first year students. Laskey and Hetzel (2011) found personality as a measure of motivation and the number of visits to tutoring influenced retention and college GPA. According to Laskey and Hetzel (2011), all other factors, including school profile, did not demonstrate a positive correlation with student success.

Alarcon and Edwards (2013) explored parents’ education level, gender, ACT scores, conscientiousness, and trait affectivity as predictors of retention. These researchers found “gender, ACT scores, and conscientiousness are significant predictors of retention, but parents’ education level was not a significant predictor” (Alarcon & Edwards, 2013, p. 129). Additionally, this research found parent education level was only significant for college students whose parents had very little or no college education. Lastly, this study suggested ability and motivation are primary elements in defining retention for a student. Alarcon and Edwards (2013) argued, “motivation is also a key aspect in that students with ability but lacking motivation to

perform at school may leave the university” (p. 134). The emphasis on the positive relationships between ability, motivation, and retention in this study establishes a clear line of responsibility on the student to ensure academic success.

Several researchers have begun to study non-cognitive factors for student success including motivation, growth mindset, and grit. One of the first researchers to study factors impacting learning and motivation was Albert Bandura (1988). Bandura’s social cognitive learning theory (as cited in Schunk, 2012) uses modeling to focus on goals and values to organize and facilitate learning. Bandura believed personal, behavioral, and environmental influences drove human behavior, and he proposed observation, imitation, and modeling played a significant role in an individual’s ability to learn (as cited in Schunk, 2012). These external influences matched with positive self-efficacy, the extent to which the individual believes s/he can achieve a goal, drive individual motivation and grit factors.

Dweck (2006) advanced Bandura’s work about human behavior in her studies about the fixed and growth mindsets. “The growth mindset is based on the belief that your basic qualities are things that you can cultivate through your efforts” (Dweck, 2006, p. 7). According to Dweck (2006), the psychology of success is determined by an individual’s positive cognitive beliefs combined with effort. In other words, if an individual believes s/he can accomplish a certain task, despite the difficulty, then the goal becomes achievable under the growth mindset. The fixed mindset, juxtaposed to growth, signifies stifled movement toward completion of any task. Individuals under the fixed mindset can sometimes lack motivation, effort, or the ability to identify a foreseeable option to reach a specific goal (Dweck, 2006). Hochanadel and Finamore (2015) recommended faculty should combat the fixed mindset by removing the focus from achieving good grades toward challenging and teaching the student to create workable solutions.

This new approach to utilize teaching as a conduit to encourage the growth mindset in students advances the discussion about the impact of motivation and perseverance.

Finally, there is research developing to understand how grit impacts student success. Grit is defined as perseverance and passion for long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). According to Wolters and Hussain (2015), “Grittier students, it is argued, are more likely to persevere in the face of adversity and maintain their pursuit of challenging long-term goals such as earning a college degree” (p. 305). The introduction of motivation and grit as non-cognitive factors impacting student success advances the overall field of study about retention. These factors place a portion of the burden for success on the student as a partner with the institution. Students play a major role in their own academic success, and their effort can dictate how institutions move forward with offering services to ensure retention, progression, and graduation (Alarcon & Edwards, 2013; Wolters & Hussain, 2015).

Although the findings from Alarcon and Edwards (2013) insinuated students should partner with higher education institutions to ensure their academic success, many campus leaders continue to use services to resolve the issues. Angrist et al. (2014) wrote “to boost grades and on-time graduation rates, most universities deploy an array of support services. These efforts reflect a practical response to an important problem, but evidence that academic support services improve outcomes is mixed at best” (p. 2). Moreover, J. S. Alexander and Gardner (2009) wrote,

Investigating an institution’s achievement of excellence in the first year requires institutions to go beyond a focus on programs (such as a first-year seminar or learning community) to consider all components of the first year and the way those components interact, for better or worse, to affect the learning and retention of beginning college students. While programs are valuable and necessary, they are rarely sufficient to transform the first year. (p. 20)

Despite the warning from these researchers about over-reliance on academic support programs, many higher education institutions use these targeted activities in an effort to advance student

retention in the first year. The merit and utility of targeted retention programs such as summer bridge, learning communities, tutoring, supplemental instruction, mentoring and coaching have been topics of conversation among leaders within higher education for the last 30 years (J. S. Alexander & Gardner, 2009; Douglas & Attewell, 2014; Enstrom & Tinto, 2008). The results about the value of these targeted programs intended to improve student retention and success have been mixed and limited. Higher education leaders should continue to assess the effectiveness of each program in meeting their institutional goals.

Douglas and Attewell (2014) studied the value added by summer bridge enrichment programs at both highly selective and open admission institutions. Douglas and Attewell (2014) found degree completion increased by almost 10% for summer bridge participants versus non-bridge program participants. Douglas and Attewell (2014) explained summer bridge programs improve retention by offering participants an opportunity to engage in high intensity academic refresher activities prior to the start of their fall term. For instance, "If a student fails one of the initial placement or skills tests, that student has the option of attending a summer bridge program that offers intensive or accelerated instruction in that skill area" (Douglas & Attewell, 2014, p. 105). Based on the findings from these studies, the academic refresher activities contained within summer bridge programs potentially demonstrate a positive relationship with improved retention. Furthermore, Enstrom and Tinto (2008) studied learning communities and described program benefits in bolstering retention by writing, "the values of caring and support that infused them, and the connections they provided to other support services all fostered participants' sense of themselves as learners while giving them the knowledge and skills to succeed in college" (p. 50). Intensive summer bridge programs and learning communities utilize a similar principle of

offering campus connections and focusing on academic deficiencies to support student success for targeted undergraduate populations.

McArthur (2005) believed faculty members play a central role in the advancement of institutional retention goals. According to McArthur (2005), many institutions have missed a significant opportunity due to the lack of faculty engagement in retention activities. McCormick and Lucas (2014) suggested faculty have the greatest opportunity to impact retention via the classroom experience. Middle Tennessee State University (MTSU) established a campus-wide climate of retention by providing data to faculty about the importance of attendance records, reporting mid-term grades, utilizing the learning management system (LMS), and undergraduate research. McCormick and Lucas (2014) shared,

At Middle Tennessee State University, there is a heightened awareness across the campus of the mission to promote student success and to prepare students to thrive in professional careers in a changing global society. The current atmosphere makes it clear that no university constituent escapes responsibility in contributing to the achievement of this goal. (p. 6)

Menifield (2012) recommended a multifaceted approach on advancing retention by writing “Campuses need to use support groups, learning communities, and innovative faculty/student relationships to increase retention of the scholarship and the student” (p. 14). Finally, McArthur (2005) suggested student advisement appears as an effective tool for impacting student retention. McArthur (2005) wrote, “The success of this program should inspire the administration to give greater support for faculty training and to recognize the significance of developmental academic advising for consideration in promotion and tenure decisions” (p. 16). McArthur (2005) suggested the lack of emphasis from higher education administrators on using advisement as a component of the tenure review process creates a participation disparity for faculty stakeholders. Additionally, McArthur (2005) and McCormick (2014) believed

developing opportunities and building these critical relationships between faculty and students should become an institutional imperative to influence participation. Furthermore, McArthur (2005) and Tinto (2006) stressed the importance of faculty participation in building student success centered relationships and campus interpersonal connections with participants.

Enstrom and Tinto (2008) suggested institutions have a primary responsibility to invest in strategic and focused programs to ensure student success. If institutional resources are limited and higher education leaders are expected to produce a more innovative product and maintain quality standards with fewer funds, then these programs should demonstrate value upon assessment (Baum, 2013; Brock, 2010; Cabrera, 2013; Hodgman, 2014). Additionally, Cabrera et al. (2013) wrote, “the inability to demonstrate impact is often viewed as ineffectiveness. Thus, the challenge to scholars is to conduct robust, empirical analyses of these programs to justify their existence and to inform and improve practice” (p. 494). Furthermore, Garcia and Paz (2009) found the lack of comprehensive assessment strategies revealed a gap in ongoing support for these initiatives. They write “we believe that the wide range of stakeholders touched by the success or failure of these efforts, particularly vulnerable college students, deserve clear evidence of the impact of programs intended to improve academic success and degree completion rates” (Garcia & Paz, 2009, p. 31). In other words, program sponsors should demonstrate effectiveness by measuring the impact of these college success interventions. Without this assessment, the strategies lose credibility and support from university administrators.

Program sponsors have a responsibility to inform and engage campus stakeholders about the value of these retention centric initiatives to ensure student success in the first year. J. S. Alexander and Gardner (2009) advised, “building campus-wide appreciation for the far-reaching implications of a solid first college year is the initial step in creating advocates for change” (p.

26). Students have a responsibility to advocate and engage in opportunities to advance their academic and developmental success. Tinto (2006) proposed students should establish a connection with the campus through student organizations, clubs, and faculty connections to cultivate academic success. Furthermore, Tinto's (2006) research has been centrally focused on the importance of this connection at the institution to student success. The ability for higher education to sustain itself is wholly dependent on its ability to navigate the new standards of performance, accountability, and transparency (Baum, 2013; Jenkins & Rodriguez, 2013; Laskey & Hetzel, 2011).

Furthermore, Hossler, Ziskin, Gross, Kim, and Cekic (2009) examined the correlation between persistence in higher education and different types of financial aid programs (i.e., student loans, need based grants, college work-study). The central research question explored whether the type of aid program demonstrated any relationship with student retention and persistence. According to Hossler et al. (2009), "Both grants and college work-study have a greater impact on persistence than loans" (p. 417). Furthermore, Hossler et al. (2009) discovered higher amounts of financial aid increased student persistence rates versus smaller sums of funds. Although the researchers suggested additional research would be required to determine causation, the findings from this study suggested college work-study potentially has a greater impact on persistence than need based grants. Carruthers and Özek (2016) reviewed whether losing the Tennessee HOPE scholarship impacted enrollment, acceleration, and degree attainment of participants. These researchers found "losing financial aid shifts the line between college and work in such a way that students become less engaged with college and modestly more engaged with work" (Carruthers & Özek, 2016, p. 12). In other words, students who lost

the award were more likely to decrease their number of attempted hours, increase work hours, and drop out of college completely.

Tennessee Higher Education Institutions

Tennessee public higher education institutions operate under three different governance structures. The University of Tennessee (2014) institutions located in Chattanooga, Martin, and Knoxville, are governed by the Board of Trustees. The community colleges are governed by the Tennessee Board of Regents (TBR), and independently appointed boards preside over the remaining six senior level institutions. The undergraduate institutions governed under independent boards include:

- Austin Peay State University
- East Tennessee State University
- Middle Tennessee State University
- Tennessee Technological University
- Tennessee State University
- University of Memphis

Finally, TBR houses 13 community college locations named:

- Chattanooga State
- Cleveland State
- Columbia State
- Dyersburg State
- Jackson State
- Motlow State

- Nashville State
- Northeast State
- Pellissippi State
- Roane State
- Southwest Tennessee
- Volunteer State
- Walters State

The Tennessee Higher Education Commission (THEC) works with all higher education institutions as a coordinating and reporting agency to the legislative body within the state of Tennessee (Commission, 2015). The Tennessee Student Assistance Corporation (TSAC) serves as an additional conduit to connect Tennessee students with Tennessee higher education institutions by managing state sponsored scholarship and need based financial aid grant programs. TSAC coordinates implementation of the Tennessee HOPE Lottery Scholarship Program in conjunction with Tennessee higher education institutions to execute legislative action regarding the award. Tennessee houses nine public senior level universities (i.e., awarding bachelor degrees and higher) as well as 13 community colleges (Commission, 2015).

Tennessee higher education institutions receive state funds based on a 100% performance and outcomes model that awards on improved metrics in student retention, persistence, and graduation (Jenkins & Rodriguez, 2013). Burke (2011) alluded to the challenges American colleges and universities experience with changing deeply embedded educational traditions. Furthermore, Serdar (2010) wrote, "Higher education institutions that want to succeed in these changed circumstances must begin to behave more like profit-oriented organizations – they have to understand their business processes and, more importantly, know how to enhance and manage

their business performance" (p. 120). The delivery model for higher education is changing faster than most institutions can sustain. Serdar (2010) and Burke (2011) confirmed the market place (i.e., students) will determine whether or how educational entities survive. The resistance to change within the higher education construct, despite the risk of sustained survival, provides some perspective about the challenges college and university stakeholders face on a continuous basis.

Performance funding models do not come without some level of controversy and malcontent. Jenkins and Rodriguez (2013) wrote,

Because the prevailing enrollment-based approach to funding offers little incentive for public postsecondary institutions to make major changes in practice and culture, policy makers in many states have enacted policies that tie funding to performance. Studies suggest that such policies have had little impact on college practice to date, perhaps in part because, until recently, they have been meagerly funded. By 2014, four states will tie at least 20 percent of their state appropriations for undergraduate education to outcomes. If sustained, these efforts will make it possible to learn whether and how much performance can change college practices. (p. 203)

Lahr et al. (2014) reported the decision to pursue performance related funding metrics has been met with some opposition from leadership and faculty within higher education institutions.

According to Lahr et al. (2014), a number of these higher education stakeholders believe these new performance based metrics perpetuate unintended outcomes including a fear of weakening academic standards, compliance costs, a decrease in faculty voice, a narrowing of institutional mission, and the need for more restricted student admission criteria. The debate about how the performance funding model disrupts learning and intrudes into the mission of higher education forces deliberate conversations between legislators and institutional leaders. Tennessee legislators have identified a goal to increase student progression metrics, and they have strategically connected funding to higher education institutions as a mechanism to reach the desired targets (Jenkins & Rodriguez, 2013). The resulting outcome of these changes to the

funding model and the discussions between key stakeholders will forge a new path for educating the citizenry.

State Lottery Scholarship Programs

The creation of lottery programs across the United States and the decision about which groups should benefit from the proceeds has been primarily based on community, political, and timing contexts (E. C. Ness & Mistretta, 2009). A review of North Carolina and Tennessee's journey through creating a lottery program illustrates the contextual nature of how timing, politics, and community concerns impact decisions about how funds should be used. According to E. C. Ness and Mistretta (2009), North Carolina's decision to distribute funds across several different stakeholders was based on issues regarding insufficiently funded secondary schools in five low-income districts. North Carolina distributed funds to hire secondary teachers to reduce class sizes, pre-kindergarten programs, school construction, and lottery scholarships for higher education students. Tennessee, in contrast, decided to invest a substantial amount of funds into lottery scholarships for students seeking higher education degrees. Originally, Tennessee's lottery scholarship requirement included both a minimum standardized test score and cumulative GPA. E. C. Ness and Mistretta (2009) noted a last minute bi-partisan compromise shifted the criteria to accept minimum requirements in either category.

Several states have opted to offer lottery based scholarship programs for resident students interested in enrolling at higher education institutions (Kramer, 2016; Pallais, 2009). "One strategy, popular among many states, is to create merit-based scholarship programs that reward students who have demonstrated their ability to earn good grades in high school and college" (Brock, 2010, p. 24). States that have implemented scholarship programs have chosen varying

eligibility criteria for participants to receive the award. For example, Tennessee, Georgia, and South Carolina require state high school graduates to have a cumulative 3.0 GPA while Oklahoma requires a 2.75. According to Kramer (2016), several states have permitted students to use a weighted cumulative high school GPA to qualify for lottery scholarship consideration. Furthermore, courses could qualify for additional weighting within the postsecondary GPA calculation based on the level of technical difficulty associated with a class or after completion of a standardized competency exam (e.g., Advanced Placement, International Baccalaureate, College Level Exam Program). Tennessee, West Virginia, Nevada, Kentucky, South Carolina, Louisiana, Florida, Mississippi, and Georgia permit weighted scores while Missouri, New Mexico, Michigan, and Massachusetts do not (Kramer, 2016). Additionally, base scholarship award amounts vary across the country from \$2,500 to \$4,700 with additional amounts in Tennessee and South Carolina for students with demonstrated financial need (Rubenstein, 2002).

Since the creation of state functioning lottery scholarship programs, researchers have examined the impact of these awards on higher education institutions and the recipients (French, 2005; Pallais, 2009; Rubenstein, 2002). The strength of merit scholarship programs was examined, and nine were ranked as strong based on the average award amount and participation rates compared to other states. States with higher award amounts but lower participation rates were classified as weak programs (Sjoquist & Winters, 2014). According to Sjoquist and Winters (2014), Florida, Georgia, Tennessee and West Virginia demonstrated the strongest merit programs while Alaska, Michigan, and Washington were classified as weak. Dyanarski (2008) wrote, "A simple cost-benefit analysis concludes that the private benefits of the scholarship programs substantially outweigh their costs, with an internal rate of return of five to ten percent" (p. 36). Opponents of the scholarship award argue too many funds are awarded to students or

families who could afford to pay out of pocket for college expenses, or the program is having an unintended and disparate impact on ethnic minority recipients (Menifield, 2012; Erik C. Ness & Tucker, 2008). Other researchers believe lottery scholarship programs have driven enrollment at higher education institutions to unprecedented levels (Bruce & Carruthers, 2014). Lottery scholarship program coordinators face these questions about the benefits and disadvantages of an award that began as a tool to provide access to a postsecondary education for low income families (Erik C. Ness & Tucker, 2008).

In a study to research whether state scholarship programs were driving university enrollment to unprecedented levels, French and Stanley (2005) found “the driving factor for increasing enrollment in institutions of higher education is simply the population of the state” (p. 23). They suggest the increase in university enrollment has been more indicative of the heightened emphasis on higher education as a career path and the suffering economy instead of the creation of any single scholarship program. Furthermore, a study by Kramer (2016) sought to examine the impact of the lottery scholarship on a potential recipient’s decision to participate in a more difficult high school curriculum, specifically Advanced Placement. Kramer (2016) found students within states permitting incentives (i.e., weighted GPA) toward gaining access to the lottery funds were more likely to participate in more rigorous courses. This research suggested a student’s decision to opt into the more rigorous curriculum was based on the desire to reduce the cost of higher education via access to lottery scholarship funds. The research is incongruent regarding the overall impact of the lottery scholarship on educational outcomes.

In direct contrast to the findings from French and Stanley (2005), Menifield and Lawhead (2009) found the lottery had an impact on educational outcomes at the primary, secondary, and higher education levels. Menifield et al. (2009) researched whether the presence of a lottery

impacted educational outcomes represented by high school graduation rates, bachelor degrees awarded, and standardized college entrance scores. Although Menifield et al. (2009) found the presence of a lottery scholarship to be statistically significant in explaining successful educational outcomes, the researchers were careful to limit their findings to emphasize impact, but not causation. The study pointed to poverty and unemployment rates as contributing factors in impacting educational outcomes (Menifield & Lawhead, 2009).

Pallais (2009) studied the Tennessee Lottery Scholarship Program to determine whether the program is meeting its original goal to encourage more students to remain in Tennessee for postsecondary studies. The study found “the program did not achieve one of its stated goals, inducing more students to prefer to stay in Tennessee for college, but it did induce large increases in performance on the ACT” (Pallais, 2009, p. 1). Brock (2010) studied merit based scholarship programs in seven states and found “the HOPE scholarship and other programs like it increased the probability of college attendance among college-age youth by 5 to 7 percentage points and that they encouraged students to attend four-year institutions rather than two-year schools” (p. 127). Menifield (2012) suggested lottery scholarship programs have increased access to higher education, but the award has performed poorly to address student success concerns. Additionally, Brock (2010) discovered these state lottery programs decreased the ethnic enrollment gaps in higher education, however institutions experienced an increase in the number of course withdrawals due to fear of not maintaining the renewal scholarship criteria.

Welch (2014) sought to examine whether HOPE scholarship eligibility impacted progression through Tennessee community colleges to 4-year senior level institutions within the state. Additionally, Welch (2014) found HOPE eligibility did not negatively impact participants at the community college after matriculation because of the number of students who lose the

award for not meeting the renewal eligibility requirements. Furthermore, Welch (2014) discovered eligibility for the HOPE award for marginally eligible students was not significant in understanding progression metrics (i.e., persistence through community college, performance in school measured by GPA, obtaining an associate's or bachelor's degree, or the likelihood of transferring to a 4-year college) for community college students.

Dynarski (2008) examined whether lottery scholarships improved persistence among recipients in postsecondary study and found “merit aid programs appear to increase by five to eleven percent the probability of persistence to degree of those who would have gone to college in the absence of a merit aid program – that is, of infra-marginal college entrants” (p. 36).

Angrist et al. (2014) made a clear distinction between the different types of scholarship programs (a) merit, (b) need based, and (c) performance based awards. Furthermore, Angrist et al. (2014) outlined how each scholarship category might potentially impact achievement and retention at the institution. Angrist et al. (2014) contended,

Traditional need-based grant aid – which makes up the bulk of North American aid – flows to recipients in a manner that is mostly independent of academic performance, while embedding little incentive for timely degree completion. Merit-based aid, on the other hand, depends on academic achievement. Most merit awards go to top performing students, who can be expected to do reasonably well with or without support. Performance based awards for students not already on top are a new but rapidly expanding policy development. If successful, such awards may improve academic outcomes, increase the rate of degree completion, and ultimately save both taxpayers and recipients money. (p. 3)

McKinney (2009) addresses the issue after an examination of Florida's Bright Futures program. McKinney (2009) recommended Florida establish a hybrid scholarship program with advantages for merit based as well as financial need based applicants. In a review of regressive spending patterns within Georgia's state lottery programs, Rubenstein (2002) found “higher income households tend to receive a higher level of benefits from lottery funded programs than do lower income households, though these benefits represent a higher proportion of income to

lower income households” (p. 236). Rubenstein (2002) emphasized the study compared current Georgia college enrollment with lottery scholarship participation levels to determine the extent of regression in spending for Georgia families. The researcher warned the findings could potentially change if college enrollment levels increased among lower income families. The researcher suggested that a direct relationship with college enrollment and participation in the lottery program lowers the regressive nature of the lottery program. Specifically, participation in the lottery scholarship program from lower income families decreases the regressive nature of the program.

Trant et al. (2014) found class attendance, critical thinking ability, and high school GPA held the strongest predictive values for retaining the HOPE lottery scholarship award after studying participants in a large southeastern institution’s Teacher Education Program. Additionally, Trant’s et al. (2014) study also found the father’s education level had a significant impact on the student’s ability to retain the lottery scholarship while total household income was less predictive. Enstrom and Tinto (2008) suggested academic preparation for low-income families at the high school or secondary level is the most important factor in determining academic success in college. “Low-income students are more likely to begin higher education academically under-prepared than those from more-affluent backgrounds. Beginning higher education with fewer academic resources than their peers, they are less likely to complete their degree programs” (Enstrom & Tinto, 2008, p. 47). Menifield (2012) studied whether a relationship existed between scholarship retention with race, ethnicity, gender, federal Pell grant eligibility, standardized admission test scores (i.e., ACT), high school GPA, undergraduate GPA, and adjusted gross family income at every level. Results of this study demonstrated “students

who have lower high school GPA's and lower ACT scores are most likely to lose their scholarships at some point during their college career" (Menifield, 2012, p. 14).

Lottery scholarship advocates argue the program increases the total and percentage of students who choose to remain in their home state (Brock, 2010; Bruce & Carruthers, 2014). Sjoquist and Winters (2013) found "Georgia's HOPE Scholarship Program did not increase the percentage of the state's college-bound high school students who remain in the state after college" (p. 34). The study discovered the Georgia lottery scholarship program increased the number of students who stayed in-state for college, but found these same graduates felt less attached or connected to the state after graduation and were more apt to leave. The results of this study suggest that receiving the lottery scholarship demonstrated an inverse relationship with increasing the college-educated workforce in Georgia. States use legislative measures (e.g., performance funding) to encourage higher education institutions to increase the number of residents with college credentials (Groen, 2011). According to Groen (2011), states fight to prevent students from leaving home to attend out of state colleges by providing financial incentives like merit scholarship programs. States benefit by stimulating economic development with the increased number of college educated graduates in the state while students gain access and affordability to higher education.

Summary

Lottery or HOPE scholarship programs offer access to higher education for eligible students. The Tennessee HOPE scholarship has increased the number of students remaining in the state to attend higher education institutions (Menifield, 2012). However, access to higher education and the lottery scholarship funds do not automatically translate into retention,

progression, and graduation for students. Higher education institutions should take responsibility and demonstrate accountability for the progression, retention, and graduation success of its students (F. Alexander, 2011). Brock (2010) wrote, “To increase college persistence and completion, policy makers and educators must take a harder look at the needs and circumstances of the students they are serving and must ask what might be done to help them navigate more effectively” (p. 127). This study was designed to assist institutions with understanding the factors that assist lottery scholarship recipients to maintain the award after the first 24 attempted hour checkpoint at the end of the freshman year.

CHAPTER III

METHODOLOGY

Description of the Sample and Population

All of the participants in this study were Tennessee HOPE lottery scholarship recipients attending a moderately selective, master's level Carnegie institution in the southern United States. The average number of first-time freshman lottery scholarship recipients at this institution is approximately 2,000 full and part time enrolled students per fall term. On average, the freshman student profile includes (a) 97% registered for 12 or more semester hours, (b) 44% male and 56% female, and (c) 33% represent racial and ethnic minority categories (e.g., African American, Latino-Hispanic, and Pacific Islander). Eligibility for the scholarship requires recipients to enroll for a minimum of six credit hours per term. All scholarship recipients are domiciled in the awarding state as a requirement for initial eligibility. Recipients originate from 94 different counties within the awarding state (Institutional Research, 2015).

This study used institutional enrollment census data for the 2015 academic year. Admission eligibility for applicants requires minimum criteria in cumulative high school GPA, standardized composite test score, and high school core curriculum courses. General demographic information about this student population is outlined in Table 1.

Table 1 Freshman Academic Profile 2014

Credential	Total	Male	Female
Freshman Retention Rate	71.4%	67.5%	74.1%
High School Cumulative GPA (Overall)	3.42		
Standardized College Entrance Test Score Average (Institution)	23.4		
Standardized College Entrance Test Score Average (State)	19.7		
First-Time Freshman Residing in Campus Affiliated Housing	74%		

Note. Information collected from the UTC Institutional Research Office Fact Book (2015)

Research Design

This study followed an ex post facto quantitative research design. In addition to the dependent variable of lottery scholarship retention and a number of independent variables (e.g., ethnicity, high school GPA, gender), other attribute variables have been included in the examination of this study. These variables were Pell Grant eligible, domicile, and academic major. These variables may not have any relationship with retention of the lottery scholarship. Several research studies have been conducted on factors impacting student retention within higher education and the merits and disadvantages of lottery scholarship programs. This study expands the body of literature by reviewing how certain demographic and theoretical success variables may relate to retention of the lottery scholarship award for eligible recipients.

Data Collection and Procedures

The researcher requested approval through the Institutional Review Board (IRB) using an expedited approval process (Appendix C). The participating institution uses Banner by Ellucian as a student information system (Ellucian, Version 8.13). Additionally, data for this study were requested from the Office of Planning, Evaluation, and Institutional Research (OPEIR). The institution extracts data using a report-writing tool named Argos. The staff within OPEIR requested a meeting with the researcher to inquire about specific needs regarding the data for the study. During the meeting, the researcher provided an overview of the variables analysis sheet and a preferred file layout. The researcher confirmed with the OPEIR team that all identifying elements, study participant's names and student ID numbers, were to be removed in accordance with IRB approval. A Microsoft Excel spreadsheet containing the requested data elements was sent through a secure email message to the researcher within 30 days of the meeting. Analyses of the data elements were conducted using International Business Machines Statistical Package for Social Science (IBM-SPSS) software, (Machines, 2015).

The purpose of this study was to evaluate whether a specified student success characteristic, or a combination of characteristics, demonstrated a relationship with retention of the Tennessee lottery scholarship at a regional university. Student engagement (i.e., social and academic integration, extracurricular activities, motivation, and ability) is a key to driving academic success and retention for undergraduates (Mattson, 2007; McCollum & Kajs, 2007; Tinto, 2006). The decision supporting which data elements to collect closely followed the premise of how student engagement fosters academic success. The process of finding and collecting relevant data to measure student engagement was critical to this study.

Data Analysis

According to Menifield (2012), lottery scholarship funds are awarded to eligible Tennessee students based on a verified 3.0 high school cumulative GPA or a minimum 21 ACT or 980 SAT composite test score. Recipients must enroll at an eligible postsecondary institution during the semester immediately following high school graduation to secure lottery scholarship funds. Furthermore, students are reviewed for continued eligibility after reaching targeted attempted hour accumulation checkpoints. For the purposes of this study, lottery scholarship retainers were students who meet the minimum eligibility standards to continue receiving the award after the initial 24 attempted hour checkpoint (Menifield, 2012). Continuous enrollment at the initial awarding postsecondary institution was germane and indicated retention.

After collection of the data elements, the researcher used SPSS to conduct a correlation analysis between the dependent variable and each independent variable to determine if a relationship existed with retention of the lottery scholarship. Additional examination reviewed whether lottery scholarship retention was related to re-enrollment at the initial institution by categorizing recipients into four separate groups. The four categories were: Group A for Lottery scholarship retainer and re-enrolled at initial awarding institution, Group B for Non-scholarship retainer and re-enrolled at initial awarding institution, Group C for Lottery scholarship retainers and did not re-enroll at initial awarding institution, and Group D for Non-scholarship retainers and did not re-enroll at initial awarding institution.

OPEIR provided the requested data points for the entire 2015 freshman cohort. The researcher began the data reconciliation process by examining missing values, categorizing data points for transition into SPSS, and eliminating participants who were not relevant to the study population. First, the researcher removed any participant who did not initially qualify for the

award because the purpose of the study was to examine the effect of specific student success variables on retention of the lottery scholarship after the first 24-hour checkpoint. These participants were clearly labeled under the fall 2016 lottery retention category.

Second, classroom absences were originally included as a potential independent variable for this study. However, further examination of descriptive statistics regarding this variable revealed 926, or 79.6%, of the cases had missing values. It was not clear to the researcher whether the missing variables under this category represented no absences or inconsistent reporting of participant data. Classroom attendance was eliminated from consideration as an independent test variable due to the large number of missing values and the lack of reliability regarding reporting in this category (Field, 2009).

Finally, the researcher created an additional category to aggregate data under the cumulative attempted hours variable. OPEIR provided total attempted hours by semester (i.e., fall 2015, spring 2016, and summer 2016) for each participant. Participants who did not attempt 24 semester hours were eliminated from consideration within the study. These changes reduced the fall 2015 entering cohort from 1852 to 1163 participants.

Research Questions

Two research questions were examined in the study regarding the relationship between specific success variables and retention of the state sponsored lottery scholarship program.

- Research Question 1 (RQ1): Does a relationship exist between lottery scholarship retention (LSR) and any single or combination of student progression variables for first-time, full-time enrolled freshmen after 24 attempted semester hours?

- Hypothesis 1: There will be a relationship between class attendance, college GPA, and gender with LSR. Ethnicity, high school GPA, ACT scores, and credit hours attempted will not relate to LSR.

For RQ1, retention for lottery scholarship was the dependent variable. Students' high school GPA, standardized test score (i.e., ACT), gender, ethnicity, attempted college semester hours, overall college GPA, classroom attendance, domicile, academic major, and Pell Grant eligibility were the independent variables. The dependent variable is nominal and dichotomous. High school GPA, attempted credit hours, classroom attendance, and overall college GPA are interval/ratio data, so the non-parametric statistical test, Pearson's chi-square with Cramer's V, was conducted. Field (2009) recommends Pearson's chi-square with Cramer's V when the dependent variable is categorical and the independent variables are continuous. Since gender, ethnicity, test score, academic major, domicile, and Pell Grant eligibility are nominal measurements, a Pearson's chi-square with Phi coefficient analysis was used. Next, a logistic regression analysis was conducted on each independent variable within the study to examine predictive value.

- Research Question 2 (RQ2): Does LSR after the first 24 attempted semester hour checkpoint relate to retention or continuous enrollment at the initial institution in the second year?
- Hypothesis 2: Retention of the Tennessee lottery scholarship will demonstrate a relationship with retention at the initial institution in the second year.

For RQ2, the lottery scholarship recipients were arranged into four distinct categories, Groups A-D as outlined above, based on retention of the award and continuous college enrollment. Since both the independent and dependent variables are categorical, Field (2009)

recommends using the Pearson's chi-square with Cramer's V test to understand the relationship. Since the dependent variable, LSR, is nominal and dichotomous, and the independent variables (i.e., Groups A-D) are nominal and multi-categorical, a chi-square analysis was conducted.

Summary

Higher education leaders are facing unprecedented levels of doubt regarding the value postsecondary education provides in today's market (Baum, 2013; Hodgman, 2014). The growing distrust and call for accountability from the legislative sector and general public require a concentrated focus by postsecondary leaders on key student performance metrics including retention, persistence, and graduation rates (Baum, 2013; Hodgman, 2014; Jenkins & Rodriguez, 2013). The desire to improve student retention rates has become a focal point for leaders within higher education institutions as a result of this new climate of accountability (Baum, 2013; Jenkins & Rodriguez, 2013). A consistent challenge to student retention for institutions has centered around affordability concerns (Finney & Kelly, 2004). The lottery scholarship program improves access to postsecondary students by offering merit awarded funds that decrease the total expenses of attending a university or college (Angrist et al., 2014). The successful use of those funds means students must meet the continuation requirements (i.e., overall college GPA and accumulation of semester credit hours) to maintain eligibility in the program (Brock, 2010; Menifield, 2012). The foundation of this study explored which student success characteristics relate to retention of the lottery scholarship program. Additionally, the research examined whether retention of the lottery scholarship increases the probability a recipient will return in the second year.

Many researchers have conducted extensive studies to understand how traditional retention variables relate to college continuation and progression (Alarcon & Edwards, 2013; J. S. Alexander & Gardner, 2009). Alarcon and Edwards (2013) studied the impact of student motivation on student success, while McCormick (2014) suggested the institution, particularly faculty, should play a major role in retention. Furthermore, Tinto (2013) advised the velocity with which students accumulate credit hours dictates retention, persistence, and graduation figures. This study examined which variables demonstrated a relationship and potentially predict retention of the Tennessee HOPE lottery scholarship after the first 24 attempted semester hours. These variables were gender, classroom attendance, race, ethnicity, high school GPA, standardized admission test scores such as the ACT or SAT, Pell Grant eligibility, selected major or discipline, and domicile (i.e., residential or commuter).

The research was intended to inform higher education leaders about how to predict student retention of the Tennessee HOPE lottery scholarship program. Baum (2013) wrote,

The prevalent view seems to be that colleges and universities, especially those in the public sector, should simply find ways to do more with less. If nothing else, sheer political prudence requires colleges to redouble their efforts to accomplish just that, and to undertake those efforts in the most visible possible way. (p. 36)

As higher education institutions seek opportunities to improve student progression, the results of this study could potentially improve public trust. As students are retained and graduate with degrees, public trust may be restored. Future research in this field might focus on why these statistically significant values improve student progression.

CHAPTER IV

DATA ANALYSIS/RESULTS

Introduction

This study explored the relationship between retention of the state funded lottery scholarship program and several student success variables (Appendix A) after 24 attempted semester hours. In order to understand the strength of the relationship between the selected variables, the researcher employed a correlation and regression analysis using SPSS (Machines, 2015). The first research question (RQ1) examined the statistical relationship between variables while the second research question (RQ2) assessed whether retention or loss of the lottery scholarship award after the first 24-hour check point had a correlation with returning to the initial awarding institution. The study population included lottery scholarship recipients from a moderately selective higher education institution located in the southeastern region of the United States. Although this type of program was not considered for the purposes of this study, it is important to note the institution is located in a state with an academic merit and demonstrated financial need lottery scholarship award. The dual eligibility program does not exist within all states, so results may vary depending on this additional facet. Eligible participants within the study enrolled as a fulltime student at the institution and utilized funds as a product of enrollment at the participating campus.

The participating institution provided relevant information about study participants including high school cumulative GPA, standardized entrance test scores, gender, race/ethnicity,

overall college GPA, classroom attendance, academic major or college, resident status or domicile, Federal Pell Grant eligibility status, and parent's adjusted gross income. Specific identifying demographics about participants were not supplied to the researcher by the institution. Removing specific identifiers from the data reduces the opportunity for bias against or discrimination against any participant.

Analysis

Descriptive statistics were administered to examine frequency intervals for the study population. A review of descriptive statistics revealed a total population of 1163 cases. Of these cases, 765 or 65.8% are female while 398 or 34.2% are male. The College of Arts and Sciences enrolled the most lottery recipients with 404 or 34.7% of the population, followed by Colleges of Health, Education, and Professional Studies with 339 or 29.1%, Business with 175 or 15.0%, Undecided with 142 or 12.2%, and Engineering and Computer Science with 103 or 8.9%. The majority of the study participants, 989 or 85%, resided in on-campus housing facilities while 174 or 15% had other living accommodations (e.g., living with parents). Finally, the average adjusted parent gross income for all study participants was \$114,881.39. The median income for the population was \$62,843.43.

The researcher performed three tests to explore statistical relationships and predictive value within this study. Each scale independent variable including high school GPA, cumulative attempted credit hours, parent adjusted gross income, standardized entrance test scores, and overall GPA failed either the test of homogeneity or normality indicating significance at the $p < .05$ level. As a result, the researcher used non-parametric tests called Pearson's chi-square with Cramer's V and chi-square with Phi coefficient. Finally, logistic regression was used to

examine the predictive value of each independent variable with retention of the lottery scholarship program.

Since the dependent variable, retention of the lottery scholarship award, is nominal, Pearson's chi-square with Cramer's V or Phi coefficient analysis were used for RQ1 to compare against each independent variable. According to Field (2009), Pearson's chi-square with Cramer's V may be used for analyzing correlation between variables when there is a minimum of one continuous and one dichotomous variable. The continuous variables in this study were high school GPA, cumulative attempted credit hours, academic major or college, parent adjusted gross income, standardized entrance test scores, and overall GPA.

According to (Field, 2009), Pearson's chi-square with Phi coefficient may be used to explore the relationship between a nominal dependent and nominal independent variable. Pearson's chi-square with Phi coefficient was administered for the nominal measured dependent variable, retention of the lottery scholarship reward, and the nominal measured independent variables including gender, ethnicity, domicile, and Pell grant eligibility status. Once relationships were measured, logistic regression statistical analysis was administered to examine how well each independent variable predicted retention of the lottery scholarship award.

Research Questions and Results

This study utilized 2 primary research questions. The results of the statistical tests run to explore these questions are outlined in this section.

RQ1: Does a relationship exist between lottery scholarship retention (LSR) and any single or combination of student progression variables for first-time, full-time enrolled freshmen after 24 attempted semester hours? The independent variables are gender, race/ethnicity,

domicile or residency, Pell Grant eligibility status, overall college GPA, high school GPA, standardized admission test scores, cumulative attempted credit hours, major or college, and parent's adjusted gross income. The dependent variable is retention of the lottery scholarship award.

High school GPA indicates a participant's cumulative academic record for all courses completed at the secondary level. For purposes of the study, the minimum and maximum average under this category ranges from 0.0 to 4.0. The dependent variable is nominal and the independent variable is scale, so Pearson's chi-square with Cramer's V was used to analyze the relationship. Table 2 indicates high school GPA had a statistically significant relationship with retention of the lottery scholarship award. Students with higher GPA were more likely to retain the scholarship award. The value of the chi-square statistic is 707.274 (df=591) ($p < .001$).

Table 2 High School Grade Point Average

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	707.274	591	.001
Likelihood Ratio	888.516	591	.001
N of Valid Cases	1162		

a. 1182 cells (99.8%) have expected count less than 5. The minimum expected count is .35

Cramer's V is designed to measure the size of the effect calculated by Pearson's Chi-Square. Table 3 indicates a value for Cramer's V of .780. This measure indicates a strong effect size. The value also indicated a significant relationship with ($p < .001$).

Table 3 High School Grade Point Average Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.780	.001
	Cramer's V	.780	.001
N of Valid Cases		1162	

Standardized admission entrance exam represents the highest composite test score submitted to the participating institution as a condition of undergraduate enrollment. For purposes of this study, composite test scores range from a minimum of 17 to a maximum of 34. The dependent variable is nominal and the independent variable is scale, so Pearson's chi-square with Cramer's V was used to analyze the relationship. Table 4 indicates highest ACT Composite had a statistically significant relationship with retention of the lottery scholarship award. Students with higher grade point average were more likely to retain the scholarship award. The value of the chi-square statistic is 71.767 (df=17) ($p < .001$).

Table 4 Highest ACT Composite

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	71.767	17	.001
Likelihood Ratio	77.897	17	.001
N of Valid Cases		1146	

a. 7 cells (19.4%) have expected count less than 5. The minimum expected count is 1.40.

Table 5 indicates a value for Cramer's V of .250. This measure indicates a moderate effect size. The value also indicated a significant relationship with ($p < .001$).

Table 5 Highest ACT Composite Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.250	.001
	Cramer's V	.250	.001
N of Valid Cases		1146	

Cumulative attempted hours indicates all credit hours completed after high school graduation. This total includes semester hours completed at the initial awarding institution as well as hours transferred from other higher education campuses. The range of attempted cumulative hours begins at 24 and ends at 50. The dependent variable is nominal and the independent variable is scale, so Pearson's chi-square with Cramer's V was used to analyze the relationship. Table 6 indicates cumulative attempted hours had a statistically significant relationship with retention of the lottery scholarship award. Students who had attempted more hours were more likely to retain the scholarship award. The value of the chi-square statistic is 158.502 (df=20) (p<.001).

Table 6 Cumulative Attempted Hours

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	158.502	20	.001
Likelihood Ratio	167.516	20	.001
N of Valid Cases		1163	

a. 17 cells (40.5%) have expected count less than 5. The minimum expected count is .35.

Table 7 indicates a value for Cramer's V of .369. This measure indicates a strong effect size. The value also indicated a significant relationship with (p<.001).

Table 7 Cumulative Attempted Hours Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.369	.001
	Cramer's V	.369	.001
N of Valid Cases		1163	

Overall college GPA indicates a participant's cumulative academic record for all courses completed at the post-secondary level after high school graduation. For purposes of the study, the minimum and maximum average under this category ranges from 0.0 to 4.0. The dependent variable is nominal and the independent variable is scale, so Pearson's chi-square with Cramer's V was used to analyze the relationship. Table 8 indicates overall college GPA had a statistically significant relationship with retention of the lottery scholarship award. Students with higher grade point averages were more likely to retain the scholarship award. The value of the chi-square statistic is 939.028 (df=570) ($p < .001$).

Table 8 Overall College Grade Point Average

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	939.028	570	.001
Likelihood Ratio	1201.561	570	.001
N of Valid Cases	1163		

a. 1133 cells (99.2%) have expected count less than 5. The minimum expected count is .35.

Table 9 indicates a value for Cramer's V of .899. This measure indicates a very strong effect size. The value also indicated a significant relationship with ($p < .001$).

Table 9 Overall College Grade Point Average Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.899	.001
	Cramer's V	.899	.001
N of Valid Cases		1163	

Parent's adjusted gross income (AGI) represents the parent's total gross income minus specific tax deductions. Parent AGI was aggregated into five separate categories ranging from:

- 0-50,000
- 50,001-100,000
- 100,001-150,000
- 150,001-200,000
- 200,001 or more.

Aggregating the AGI into categories permitted use of SPSS to conduct the statistical analysis of this variable. The dependent variable is nominal and the independent variable is scale, so Pearson's chi-square with Cramer's V was used to analyze the relationship. Table 10 indicates parent adjusted gross income did not have a statistically significant relationship with retention of the lottery scholarship award. The value of the chi-square statistic is 5.963 (df=4) (p=.202).

Table 10 Parent Adjusted Gross Income

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.963	4	.202
Likelihood Ratio	6.007	4	.199
N of Valid Cases	1163		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 45.16.

Table 11 indicates a value for Cramer's V of .072. This measure indicates a weak effect size. The value did not indicate a statistically significant relationship with (p=.202).

Table 11 Parent's Adjusted Gross Income Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.072	.202
	Cramer's V	.072	.202
N of Valid Cases		1163	

Race and ethnicity data are collected from the admission application on new applicants and represents categories outlined within IPEDS (i.e., American Indian, Asian, Black or African American, Hispanic/Latino, Two or more races, Unknown, and White). The dependent variable is nominal and the independent variable is scale, so Pearson's chi-square with Cramer's V was used to analyze the relationship. Table 12 indicates race and ethnicity had a statistically significant relationship with retention of the lottery scholarship award. The value of the chi-square statistic is 34.130 (df=6) (p<.001).

Table 12 Race and Ethnicity

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	34.130	6	.001
Likelihood Ratio	34.067	6	.001
N of Valid Cases		1163	

a. 4 cells (28.6%) have expected count less than 5. The minimum expected count is .35.

Table 13 indicates a value for Cramer’s V of .171. This measure indicates a weak effect size. The value also indicated a significant relationship with ($p < .001$).

Table 13 Race and Ethnicity Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.171	.001
	Cramer’s V	.171	.001
N of Valid Cases		1163	

Gender is categorized as male or female for the purposes of this study. The dependent variable is nominal and the independent variable is nominal, so Pearson’s chi-square with Phi coefficient was used to analyze the relationship. Table 14 indicates gender had a statistically significant relationship with retention of the lottery scholarship award. The value of the chi-square statistic is 13.921 ($df=1$) ($p < .001$).

Table 14 Gender

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	13.921	1	.001		
Continuity Correction	13.441	1	.001		
Likelihood Ratio	13.757	1	.001		
Fisher’s Exact Test				.001	.001
N of Valid Cases	1163				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 138.26.

Table 15 indicates a value for Phi coefficient of -.109. This measure indicates little or no association with the dependent variable. The value was statistically significant with ($p < .001$).

Table 15 Gender Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.109	.001
	Cramer's V	.109	.001
N of Valid Cases		1163	

College represents a compilation of disciplines grouped based on the preferences of the participating institutions. All lottery scholarship participants must select one of five college options under which all academic programs are grouped. The dependent variable is nominal and the independent variable is scale, so Pearson's chi-square with Cramer's V was used to analyze the relationship. Table 16 indicates college did not have a statistically significant relationship with retention of the lottery scholarship award. The value of the chi-square statistic is 7.172 (df=4) (p=.127).

Table 16 College

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.172	4	.127
Likelihood Ratio	7.155	4	.128
N of Valid Cases	1163		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 35.78.

Table 17 indicates a value for Cramer's V of .079. This measure indicates a weak effect size. The value was not statistically significant with (p=.127).

Table 17 College Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.079	.127
	Cramer's V	.079	.127
N of Valid Cases		1163	

Campus residency indicates the participant's living arrangements. The two choices were on-campus within campus sponsored facilities or off-campus with parents or within the regional community. The dependent variable is nominal and the independent variable is nominal, so Pearson's chi-square with Phi coefficient was used to analyze the relationship. Table 18 indicates campus residency had a statistically significant relationship with retention of the lottery scholarship award. The value of the chi-square statistic is 9.071 (df=1) ($p < .01$).

Table 18 Campus Residency

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.071	1	.003		
Continuity Correction	8.558	1	.003		
Likelihood Ratio	9.502	1	.002		
Fisher's Exact Test				.002	.001
N of Valid Cases	1163				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 60.44.

Table 19 indicates a value for Phi coefficient of $-.088$. This measure indicates little or no association with the dependent variable. The value was statistically significant with ($p < .01$).

Table 19 Campus Residency Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.088	.003
	Cramer's V	.088	.003
N of Valid Cases		1163	

Pell Grant indicates eligibility for a federally funded financial aid subsidy for students enrolled in post-secondary study. Lottery scholarship recipients were categorized within two groups, received or did not receive, for the purposes of this study. The dependent variable is nominal and the independent variable is nominal, so Pearson's chi-square with Phi coefficient was used to analyze the relationship. Table 20 indicates Pell Grant did not have a statistically significant relationship with retention of the lottery scholarship award. The value of the chi-square statistic is 2.261 (df=1) (p=.133).

Table 20 Pell Grant Eligibility

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.261	1	.133		
Continuity Correction	2.061	1	.151		
Likelihood Ratio	2.243	1	.134		
Fisher's Exact Test				.134	.076
N of Valid Cases	1163				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 114.98.

Table 21 indicates a value for Phi coefficient of -.044. This measure indicates little or no association with the dependent variable. The value was not statistically significant with (p=.133).

Table 21 Pell Grant Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.044	.133
	Cramer's V	.044	.133
N of Valid Cases		1163	

A binomial logistic regression was performed to ascertain the relationships of gender, ethnicity/race, high school GPA, college entrance standardized test scores, academic major, campus residency, parent adjusted gross income, cumulative college hours attempted, and federal Pell Grant eligibility status with the likelihood that participants were retained for the Tennessee lottery scholarship after the first 24-hour checkpoint. Linearity of the continuous variables with respect to the logit of the dependent variable was assessed via the Box-Tidwell (1962) procedure. A Bonferroni correction was applied using all nine terms in the model resulting in statistical significance being accepted when $p < .00625$ (Tabachnick, 2014).

Two data checks were performed on the data to ensure that the appropriate statistical analysis could be used. One data check examined the relationship of all continuous independent variables, and these were found to be linearly related to the logit of the dependent variables. This is a necessary criterion for logistic regression.

The binomial logistic regression analysis identified 40 outliers within the dataset. The researcher reviewed each outlier and decided to include them in the analysis. After some review and analysis, the researcher discovered these outliers were due to the lower high school GPA among all lottery scholarship recipients. These recipients qualified for the lottery scholarship using the standardized admission test score. Each of these cases fell within acceptable limits, so the researcher decided to leave them within the analysis.

Table 22 displays the best fit logistic regression model. This test indicates a statistically significant model with chi-square=668.654 (df=18), $p < .001$. All independent variables within the study were included in the initial regression analysis. In an additional effort to ensure a best fit model was utilized, the researcher ran a second logistic regression analysis using the significantly correlated independent variables. These variables were high school GPA, cumulative attempted hours, overall college GPA, standardized admission test score, gender, residency status, and race/ethnicity. The second analysis indicated no change in the predictive value of the model.

Table 22 Omnibus Tests of Model Coefficients

		Chi-Square	df	Sig.
Step 1	Step	668.654	18	.001
	Block	668.654	18	.001
	Model	668.654	18	.001

The model explained 60.9% (Nagelkerke R^2) of the variance in lottery scholarship retention and correctly classified 86.6% of cases. Table 23 shows the results of the logistic regression model. Table 23 indicates two predictor variables were statistically significant. Overall college GPA (B=4.078; Exp B=59.999; $p < .001$) had the strongest predictive value, and cumulative attempted hours (B=.076; Exp B=1.079; $p < .05$) followed. Overall college GPA and cumulative attempted hours were statistically significant.

Table 23 Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp (B)
Step 1 Gender	-.230	.208	1.219	1	.270	.797
Race			3.119	6	.794	
Race (1)	-.280	.923	.092	1	.762	.756
Race (2)	.903	1.111	.660	1	.417	2.466
Race (3)	-.155	.887	.031	1	.861	.856
Race (4)	.403	1.214	.110	1	.740	1.496
Race (5)	-19.885	40192.970	.000	1	1.000	.000
Race (6)	-.214	1.026	.043	1	.835	.808
HS GPA	.135	.302	.201	1	.654	1.145
Highest ACT	-.045	.032	1.899	1	.168	.956
College			3.156	4	.532	
College (1)	-.212	.296	.513	1	.474	.809
College (2)	-.076	.306	.062	1	.803	.927
College (3)	-.362	.412	.771	1	.380	.697
College (4)	-.511	.340	2.266	1	.132	.600
Residency	-.136	.271	.252	1	.616	.873
Pell Grant	.418	.276	2.300	1	.129	1.519
Parent AGI	.077	.095	.659	1	.417	1.080
Cum Hours	.076	.033	5.196	1	.023	1.079
College GPA	4.078	.281	211.099	1	.001	59.999
Constant	-13.128	1.611	66.385	1	.001	.001

a. Variables entered on step 1: Gender, Race, HS GPA, Highest ACT, College, Residency, Pell Grant, Parent AGI, Cum Hours, Overall College GPA.

RQ2: Does LSR after the first 24 attempted semester hour checkpoint relate to retention or continuous enrollment at the initial institution in the second year? The dependent variable was retention of the lottery scholarship award. The independent variables were listed in four categories:

- Group A for lottery scholarship retainer and re-enrolled at initial awarding institution (n=759),
- Group B for non-scholarship retainer and re-enrolled at initial awarding institution (n=279),

- Group C for lottery scholarship retainers and did not re-enroll at initial awarding institution (n=0), and
- Group D for non-scholarship retainers and did not re-enroll at initial awarding institution (n=125).

Returned fall 2016 represents whether the lottery participant returned to the initial awarding institution after the first 24 attempted hour checkpoint. The dependent variable is nominal and the independent variable is nominal, so Pearson’s chi-square with Phi coefficient was used to analyze the relationship. Table 24 indicates student retention at the initial awarding institution had a statistically significant relationship with retention of the lottery scholarship award. The value of the chi-square statistic is 263.119; (df=1) (p<.001).

Table 24 Returned Fall 2016 (Retained)

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	263.119	1	.001		
Continuity Correction	259.904	1	.001		
Likelihood Ratio	293.818	1	.001		
Fisher’s Exact Test				.001	.001
Linear-by-Linear Association	262.893	1	.001		
N of Valid Cases	1163				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 43.42.

Table 25 indicates a value for Phi coefficient of .476. This measure indicates a strong relationship or association with the dependent variable. The value was statistically significant with (p<.001).

Table 25 Returned Fall 2016 (Retained) Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.476	.001
	Cramer's V	.476	.001
N of Valid Cases		1163	

Summary

Correlation analysis was used to determine if a relationship existed between the dependent variable, retention of the lottery scholarship, and independent variables: gender, race/ethnicity, residency status, Pell Grant eligibility, high school GPA, overall college GPA, college, parent adjusted gross income, cumulative attempted hours, and standardized admission test scores. Logistic regression was used to understand the predictive value of the independent variables on retention of the lottery scholarship.

High school GPA, cumulative attempted hours, and overall college GPA indicated a strong relationship with retention of the lottery scholarship. Standardized admission test score indicated a moderate relationship with retention of the lottery scholarship. Gender, residency status, and race/ethnicity demonstrated a weak relationship with retention of the lottery scholarship. Pell grant eligibility, college, and parent adjusted gross income did not indicate a relationship with retention of the lottery scholarship GPA. Additionally, college GPA and cumulative attempted hours had a significant value in predicting retention of the lottery scholarship. These results are based on the logistic regression analysis.

Finally, the results from the correlation analysis for RQ2 demonstrate retention at the initial awarding institution and retaining the lottery scholarship award were strongly related. Students who retain the award were more likely to return to the initial awarding institution.

Additionally, a review of the frequency distribution revealed that every student who retained the lottery award returned to the initial awarding institution.

CHAPTER V

SUMMARY AND DISCUSSION

This study examined the relationship between several student success variables and retention of the lottery scholarship program at a higher education institution. These student success variables were selected based on previous research in the field of retention in higher education. This study may help to advance the literature and discussion about success by examining the relationship with the state sponsored lottery scholarship.

Statement of the Problem

The use of lottery scholarship dollars by Tennessee students to offset higher education costs becomes increasingly important for institutions considering the implementation of a performance funding revenue model (Menifield, 2012; Trant et al., 2014). Rising persistence, retention, and graduation rates for enrolled students in Tennessee translate into increased levels of institutional funding from state coffers (Jenkins & Rodriguez, 2013). Therefore, university administrators should strive to understand academic success quality indicators. If higher education leaders effectively understand these key metrics, the opportunity to improve college completion rates and drive institutional sustainability is possible (Gross, 2014).

This research examined whether traditional student success quality predictors (e.g., gender, class attendance, and active student engagement in campus activities) are related to the retention of the Tennessee HOPE lottery scholarship after completion of 24 attempted semester

hours. Retaining the lottery scholarship award has an impact on the student and the higher education institution. Maintaining these scholarship funds serves to remove financial barriers and increase access to post-secondary education opportunities for students. Additionally, when students retain the lottery scholarship, higher education institutions benefit by increased funding through the performance formula matrix and higher enrollment rates. Therefore, higher education leaders should understand their student population and determine how to help them with reaching their academic goals.

Methodology Review

The purpose of this study was to evaluate whether a specified student success characteristic or a combination of characteristics demonstrated a relationship with retention of the Tennessee lottery scholarship at a regional university. There were two primary research questions.

- Research Question 1 (RQ1): Does a relationship exist between lottery scholarship retention (LSR) and any single or combination of student progression variables for first-time, full-time enrolled freshmen after 24 attempted semester hours?
- Research Question 2 (RQ2): Does LSR after the first 24 attempted semester hour checkpoint relate to retention or continuous enrollment at the initial institution in the second year?

Student engagement (i.e., social and academic integration, extracurricular activities, motivation, and ability) is a key to driving academic success and retention for undergraduates (Mattson, 2007; McCollum & Kajs, 2007; Tinto, 2006). The decision supporting which data elements to collect closely follows the premise of how student engagement fosters academic

success. The process of finding and collecting relevant data to measure student engagement was critical to this study.

After achieving approval from the Institutional Review Board (IRB), the researcher utilized information gathered from several institutional databases. The researcher requested the data from the institution's Office of Planning, Evaluation, and Institutional Research (OPEIR). The student information system served as the primary repository to collect data about institutional lottery recipients. The researcher did not receive any personally identifiable information (i.e., name, student ID, SSN) on study participants. However, the researcher requested a randomized tracking number to permit parsing and aggregating the data for the study.

After collection of the data elements, the researcher used SPSS to conduct a correlation analysis between the dependent variable and each independent variable to determine if a relationship existed with retention of the lottery scholarship. Additional examination reviewed whether lottery scholarship retention was related to re-enrollment at the initial institution by categorizing recipients into four separate groups. The four categories were: Group A for Lottery scholarship retainer and re-enrolled at initial awarding institution, Group B for Non-scholarship retainer and re-enrolled at initial awarding institution, Group C for Lottery scholarship retainers and did not re-enroll at initial awarding institution, and Group D for Non-scholarship retainers and did not re-enroll at initial awarding institution.

Results Summary

RQ1 examined whether a relationship existed between any of the specified student success characteristics and retention of the lottery scholarship. Retention of the lottery

scholarship was the dependent variable in this study. Pearson's chi-square with Cramer's V was used to examine the relationship with all scale measured independent variables. The scale measured variables were high school GPA, overall college GPA, standardized admission test score, attempted college credit hours, and parent's adjusted gross income. Pearson's chi-square with Phi coefficient was used to measure the relationship with all nominal measured independent variables. These variables were gender, race/ethnicity, domicile/residency, Pell Grant eligibility, and academic major/college.

The statistical analyses indicated high school GPA, cumulative attempted hours, and overall college GPA had a strong relationship with retention of the lottery scholarship. Standardized admission test score indicated a moderate relationship with retention of the lottery scholarship. Gender, residency status, and race/ethnicity demonstrated a weak relationship with retention of the lottery scholarship. Pell Grant eligibility, academic college, and parent adjusted gross income did not indicate a relationship with retention of the lottery scholarship. A binomial logistic regression analysis was conducted to determine whether any independent variable demonstrated predictive value with retention of the lottery scholarship. The regression analysis indicated overall college GPA and cumulative attempted hours had a significant value in predicting retention of the lottery scholarship.

Finally, the results from the correlation analysis for RQ2 demonstrate retention at the initial awarding institution and retaining the lottery scholarship award are strongly related. Students who retained the award were more likely to return to the initial awarding institution. Additionally, a review of the frequency distribution revealed that every student who retained the lottery award returned to the initial awarding institution.

Discussion

The results of this study appear to align with the research conducted by Tinto (2013), Mattson (2007), and DeNicco, Harrington, and Fogg (2015). Tinto (2013) compared student success to Newton's first law of motion. According to Tinto (2013), the comparison suggested momentum or progression toward earning credit hours drives student retention – the more hours completed translates into increased momentum toward retention then graduation. The strong relationship with overall attempted hours and retention of the lottery scholarship follows this notion about momentum of accruing credit hours. The results of this study indicated students with more hours were most likely to retain the scholarship award.

Mattson (2007) studied factors like gender, engagement levels in extracurricular activities, and overall high school GPA to determine whether each variable impacted retention in the first year. Mattson (2007) found gender, high school GPA, and participation in extracurricular activities were the most predictive variables for first year success. This study found a strong relationship with high school GPA and a weak relationship with gender related to retention of the lottery scholarship program.

Menifield (2012) found that students with lower test scores and high school grade point averages were most likely to lose the award during their college tenure. This research study aligned with Menifield's (2012) findings by indicating a statistically significant relationship between high school GPA and standardized test scores with retention of the lottery scholarship. These two variables are directly related to facets prior to the higher education enrollment process. Students who engage positive study habits in high school are most likely to implement those same strategies in their post-secondary studies (Mattern, 2012; Mattson, 2007). Secondary schools should assume some responsibility for preparing students to enroll within post-secondary

institutions. High school teachers and administrators should use innovative mechanisms to measure learning outcomes in the classroom.

DeNicco et al. (2015) found the college GPA and number of earned hours were the most significant predictors of first year college retention. In agreement with Tinto (2013) about the relevance of momentum in cumulative credit hour completion, DeNicco, Harrington, and Fogg (2015) discovered the number of earned hours in the first year was the stronger of the two predictors. This study found that overall college GPA was the strongest predictor for retention of the lottery scholarship award followed by cumulative attempted hours.

The findings of this study should encourage higher education institutions to invest resources into course advisement and increased class availability. In order to ensure momentum of credit hour completion, higher education institutions should create a viable pathway to success by using professional guidance through the curriculum and offering the correct mix of courses to improve progression rates. If one of the goals of the lottery scholarship program is to increase access to higher education institutions, then post-secondary leaders need to find innovative ways to support students and improve their chances for success (Bruce & Carruthers, 2014).

Carruthers and Özek (2016) reviewed whether losing the Tennessee HOPE scholarship impacted enrollment, acceleration, and degree attainment of participants. These researchers found “losing financial aid shifts the line between college and work in such a way that students become less engaged with college and modestly more engaged with work” (Carruthers & Özek, 2016, p. 12). In other words, students who lost the award were more likely to decrease their number of attempted hours, increase work hours, and/or drop out of college completely. Losing the scholarship award undermines the goal of access for students and potentially damages the reputation of the higher education institution. Additionally, under a performance based funding

model, students who do not retain, progress, or graduate translate into loss of revenue for a higher education institution. Simply addressing access concerns for prospective students does not meet the goal of progression and graduation for lottery recipients without clearly focused and strategic outcomes.

Genuine results for increasing retention rates require a multifaceted approach including faculty engagement, strategic advising, clear curriculum pathways, and connected students (Douglas & Attewell, 2014; Enstrom & Tinto, 2008; McArthur, 2005; McCormick, 2014). The overall strategy for improving, not ensuring, student success rates begins with a commitment from the state, the institution, the faculty or educator, and most importantly, the student. This study offers more insight into how institutions can retain students using the lottery scholarship award.

Implications for Future Research

There are several opportunities to advance the research around student retention using the lottery scholarship. This study did not find any relationship between retention of the lottery scholarship program and eligibility for the federal Pell Grant program. However, other researchers may choose to review the various types of financial aid programs to determine if other funding sources relate to retention of the lottery award. Hossler et al. (2009) examined the correlation between persistence in higher education and different types of financial aid programs (i.e., student loans, need based grants, college work-study). According to Hossler et al. (2009), “Both grants and college work-study have a greater impact on persistence than loans” (p. 417). Furthermore, Hossler et al. (2009) discovered higher amounts of financial aid increased student persistence rates versus smaller sums of funds.

Researchers are conducting more research regarding non-cognitive student success factors and the impact on retention in higher education. Laskey and Hetzel (2011) reviewed high school and college GPA, standardized test scores, personality scores, gender, ethnicity, and the number of class sessions attended in an attempt to understand retention factors for first year students. Laskey and Hetzel (2011) found personality as a measure of motivation and the number of visits to tutoring influenced retention and college GPA. Furthermore, Alarcon and Edwards (2013) argued, “motivation is also a key aspect in that students with ability but lacking motivation to perform at school may leave the university” (p. 134). The emphasis on the positive relationships between ability, motivation, and retention in this study establishes a clear line of responsibility on the student to ensure academic success.

Furthermore, there is research developing to understand how grit impacts student success. Grit is defined as perseverance and passion for long-term goals (Duckworth et al., 2007). According to Wolters and Hussain (2015), “Grittier students, it is argued, are more likely to persevere in the face of adversity and maintain their pursuit of challenging long-term goals such as earning a college degree” (p. 305). The introduction of motivation and grit as non-cognitive factors impacting student success advances the overall field of study about retention.

Finally, there is an opportunity to examine how higher education institutions can assist low performing students to become more successful. In a study to examine the relationship between retaining the lottery scholarship with lower grade point averages and standardized test scores, Menifield (2012) found that these low performing students were more likely to lose their scholarship during their college tenure. This study found retention of the lottery scholarship indicated a strong relationship with high school grade point average and a moderate correlation with standardized test scores. This study did not delve into a deep examination of students based

on their high school curriculum or other potential factors driving low performance at the secondary education level. Given the finding from this study regarding the relationship between key secondary education indicators with successful retention of the award, future research might explore these pathways to examine how earlier interventions at this level strengthen progression.

Summary and Conclusion

Two of the stated reasons for creating the lottery scholarship award were to recruit the best and brightest students into higher education institutions within their home state and to assist with retaining them toward completion of the degree program (Kramer, 2016; Sjoquist & Winters, 2014). The results of this study confirm the correlation between retention of the lottery scholarship and returning to the initial awarding institution. Furthermore, all lottery scholarship recipients at the study institution returned after retaining the lottery award. The results indicate high school and college grade point averages as well as cumulative attempted semester hours had the strongest relationship with retaining the lottery scholarship award. If higher education officials are interested in retaining their enrolled students, then these results may create a pathway to follow. Higher education officials could potentially meet the goal of retaining more students by increasing support for students to retain this award.

Tinto (2013) advised the velocity with which students accumulate credit hours dictates retention, persistence, and graduation figures. This study indicated a strong relationship with cumulative attempted college hours and overall college grade point average with retention of the lottery scholarship. Additionally, these same independent variables were statistically significant for predicting retention of the award. Support for these students should include offering enough course sections to encourage momentum. In order to successfully retain students, institutional

leadership should understand course demand and remove progression barriers that block students from completing a degree program. If students are unable to enroll in needed courses due to a lack of available sections and no viable remedy, momentum is impacted. Next, support for these students should offer strategic attention in the form of tutoring, supplemental instruction, adequate advisement, purposeful connections with faculty, and a viable peer network via learning communities. These proven best practice, high impact strategies may assist students with improving academic outcomes (DeNicco et al., 2015). Finally, support for these students should include robust opportunities for participants to engage in experiences beyond the classroom that support practical application of newly discovered theoretical knowledge. Examples of beyond the classroom experiences may include internships, externships, leadership and volunteer placements, and community service. These practical application experiences have the potential to connect the classroom learning experience with genuine work expectations for students. The combination of these experiences enriches the learning process.

Finally, high school teachers and students need to accept responsibility for preparation for study at the post-secondary level. The results from this study found high school GPA was strongly related to retention of the lottery scholarship award. High school teachers should challenge students to think critically about course topics and creatively in problem solving. Students need to incorporate a growth mindset in their learning to ensure appropriate exposure to essential subject matter. High school leaders, similar with college, should provide support to ensure secondary students can excel academically by offering appropriate support resources. Support resources at the secondary level might include tutoring, small class sizes, and directed extracurricular activities.

This study was limited to higher education lottery scholarship recipients enrolled at an institution in the southeastern region of the United States. Although lottery scholarship continuation eligibility standards differ from state to state, these findings seem to address a common theme across all higher education institutions. This theme entails a need for institutions to address how to effectively and efficiently maneuver recipients through the curriculum toward completion. This study sought to inform the decisions of higher education leaders regarding the most important factors in retaining a substantial financial incentive.

The research to understand the impact of lottery scholarships on retention continues to develop. Some researchers believe that intervention strategies, such as summer bridge programs and learning communities, increase retention and progression rates. Students enroll at post-secondary institutions with varying competency levels and have different educational experiences. Researchers may never find a single variable that relates to retention in every situation at every institution. Higher education officials are challenged with conducting the research needed to understand their student population, and identify and implement strategies to address the needs of their community. Institutions should engage every viable stakeholder as an essential component to achieving student retention goals.

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APPENDIX A

2010-2011 ACADEMIC YEAR: HOPE SCHOLARSHIP LOSS BY ATTEMPTED HOUR FOR
PARTICIPATING INSTITUTION

	All HOPE Recipients in Category	# Lost HOPE in Category	% Lost HOPE in Category
1-24 attempted hours	1784	625	35%
25-48 attempted hours	962	269	28%
49-72 attempted hours	824	161	20%
73+ attempted hours	804	49	6%

APPENDIX B

IDENTIFICATION AND ANALYSIS OF VARIABLES

Title: A Student Success Prediction Model for Retention of the Tennessee Lottery Scholarship Program

The purpose of this study is to investigate the relationship between traditional student success quality indicators and retention of the Tennessee Lottery Scholarship award. The outcome of the study examines the creation of a prediction model to inform institutions of potential opportunities to support academic student success and retention.

Note: Credit hours attempted range between 24-47 semester hours between checkpoints. A minimum ACT composite test of 15 represents the lowest acceptable score for participating institution.

	Variable Label	Levels of the Variable	Scale of Measurement
Dependent Variable(s)	Retention of Lottery Scholarship Program	1=Yes 2=No	Nominal
Independent (Attribute) Variables	Gender	1 = Female 2 = Male	Nominal
	Ethnicity	1 = African American 2 = Asian 3 = Caucasian 4 = Hispanic 5 = Native American 6 = Other	Nominal
	High School Grade Point Average	(0.0-4.0)	Interval
	College Entrance Standardized Test Score	ACT Score (15 – 36)	Scale
	Credit Hours Attempted	24-47 attempted hours	Ratio
	Overall College Grade Point Average	(0.0-4.0)	Interval
	Classroom Attendance	Number of Days Missed	Ratio
	Adjusted Gross Income	Numerical Value	Interval
	Academic Major (College)	1= Arts and Sciences 2= Health, Education, & Prof Studies 3= Engineering & Computer Science 4= Business	Nominal

		5= Undecided	
Extraneous Variables	Domicile	1 = On campus 2 = Community/Home	Nominal
	Federal Pell Grant Eligibility Status	1 = Yes 2= No	Nominal

APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

Institutional Review Board

Dept. 4915
615 McCallie Avenue
Chattanooga, TN 37403-2598
Phone: (423) 425-5867
Fax: (423) 425-4052
instrb@utc.edu
<http://www.utc.edu/irb>

MEMORANDUM

TO: Yancy Freeman
IRB # 17-169
Dr. David Rausch

FROM: Lindsay Pardue, Director of Research
Integrity Dr. Amy Doolittle, IRB
Committee Chair

DATE: 11/3/2017

SUBJECT: IRB #17-169: The Relationship Between
Traditional Student Success Variables with
Retention of the Tennessee Lottery Scholarship
Program

The IRB Committee Chair has reviewed and approved your application and assigned you the IRB number listed above. You must include the following approval statement on research materials seen by participants and used in research reports:

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project #17-169.

Since your project has been deemed exempt, there is no further action needed on this proposal unless there is a significant

change in the project that would require a new review. Changes that affect risk to human subjects would necessitate a new application to the IRB committee immediately.

Please remember to contact the IRB Committee immediately and submit a new project proposal for review if significant changes occur in your research design or in any instruments used in conducting the study. You should also contact the IRB Committee immediately if you encounter any adverse effects during your project that pose a risk to your subjects.

For any additional information, please consult our web page <http://www.utc.edu/irb> or email instrb@utc.edu

Best wishes for a successful research project.

VITA

Yancy E. Freeman, Sr. is a native of Memphis, Tennessee. Yancy is a graduate of Memphis Central High and the University of Tennessee at Chattanooga (UTC). Yancy completed a Bachelor of Science in Political Science degree in 1992 and a Master of Public Administration degree in 1998. Yancy has spent his professional career in the field of enrollment management and student success at the secondary and higher education levels. Yancy has held several administrative positions at varying levels of responsibility over the past 25 years. He currently serves as the Vice Chancellor for Enrollment Management and Student Success at UTC. In this role, Yancy is responsible for engaging all institutional stakeholders in meeting the student success and enrollment management goals.