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Predicting Success in a Counselor Education Graduate Program

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Predicting Success in a Counselor Education Graduate Program

By

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Predicting Success in a Counselor Education Graduate Program

By

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ABSTRACT

This dissertation examines the predictive value of Graduate Record Examinations (GRE) scores and undergraduate grade point average (UGPA) upon students' success in a counselor education graduate program. Graduate programs must weigh the benefits of various entrance criteria to predict successful completion. Data for the study consisted of 233 students who had been admitted to a graduate program, and had either successfully completed the program through graduation or had been unable to graduate through personal attrition or removal by the faculty. The relationships between the independent variables and the dependent variable of program graduation were analyzed using correlations and models of logistic regression. There were no statistically significant correlations or predictive relationships between GRE scores and UGPA upon a student in this specific population graduating from the graduate program.

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CHAPTER 1

Introduction

University graduate programs have experienced an increase in admission applications in recent years. With limited positions to fill within graduate programs, it has become increasingly important to offer these positions to students with the greatest potential for success. As graduate programs are costly and require significant time and commitment, it is important to select students who can succeed in order to not waste individual funds and various forms of governmental funding, as well as the years spent working toward the graduate degree. An unsuccessful student may find themselves without employment, in significant debt, and suffer undue personal hardship without attaining an advanced degree. The university and the graduate program may spend time and money on a student who is unsuccessful versus investing the resources in an individual who will attain a degree and represent the university and the graduate program in the chosen profession.

Graduate counselor education programs require a variety of application materials to evaluate prospective students' ability to be successful in a graduate program. These materials include letters of recommendation, personal letters of interest in the profession, under graduate grade point average (UGPA), and Graduate Record Examination (GRE) scores. Other factors that have been

shown by past research to impact success in graduate programs are the length of time since the student graduated from an undergraduate program and the type of work experience the applicant may have obtained after graduation. With the increase in applicants to enter graduate programs, it is important for admissions review committees to select admission packet materials that are most predictive of the student being successful in the program. In recent years, the predictive validity of GRE scores in counselor education programs has been questioned.

The GRE is intended to assess the accumulated knowledge of students who have completed an undergraduate degree (Dorolia, Potochnick, & Menifield, 2014). The scores from this assessment are purported to have predictive value related to projecting which students will be successful in a graduate program of study. As applications to graduate schools have reached an all-time high, it is important for graduate programs to offer admission to students who are most likely to be successful (Allum & Okahona, 2015). GRE scores have historically been used to aid application committees in the student admission process (Schmidt, Homeyer, & Walker, 2009). However, research regarding the predictive value of the GRE related to student success in graduate programs has been mixed (Dorolia et al., 2014).

A graduate counselor education program was the subject of research to determine if GRE scores were predictive of successfully completing the program (Schmidt et al., 2009). The results indicated that GRE scores were strong

predictors for students successfully completing the requirements to graduate from the program.

The current study is intended to provide an analysis of the predictive value of undergraduate grade point average (UGPA), and GRE scores on student success in the graduate counselor education program. The results of this study are intended to provide information to add to the existing literature that may be useful to those at other universities to determine if GRE scores should be required or if UGPA is an adequate predictor of success. The information will provide a basis on which to build an admissions process that admits students with the greatest likelihood of being successful. The study will also add to the current literature regarding the predictive value of GRE scores for success in graduate programs, and more specifically, will add to the literature that pertains to the admissions process for counselor education graduate programs.

CHAPTER 2

Literature Review

Rationale for Literature Review

A literature review was completed to determine which factors researchers have indicated to be most predictive of student success in graduate programs. The literature review included articles that examined the predictive value of the Graduate Record Examination (GRE) for students in graduate programs that were related to helping professions and professions that require significant interaction with people. Articles that were published between 2007 and 2017 were selected versus older articles to more closely reflect characteristics of current students and graduate programs admissions criteria. Limiting the time-frame of articles to ten years in age provides information that is likely more up-to-date than older articles and therefore more relevant to the current research (Cronin, Ryan, & Couphlan, 2008). Another factor considered in the selection of research articles was to only include studies that were completed in regions located in the Southeastern and Midwestern regions of the United States. This limitation in article selection was intended to reflect a more homogeneous student population in respect to personal values, income and employment opportunities, diversity, and culture. Articles that examined and compared characteristics and academic performance of traditional and non-traditional

students were also included. The GRE Technical Manual contained pertinent information regarding predictive validity and the psychometrics used in the GRE and thus was included in the literature review. Articles included graduate programs that were related to helping professions or professions that require significant interaction with people. These professions included in the review were counselors, nurses, public administration, and social work. Articles that pertained to graduate programs unrelated to helping professions or professions that require significant interaction with people were not included in the literature review. The literature review includes a general explanation of standardized testing and the background of the GRE, factors that have been shown to be predictive of success in graduate programs, and special considerations to make when evaluating traditional and nontraditional graduate program applicants.

Standardized Testing

A standardized test is any test that is administered and scored using predetermined, uniform processes (Drummond & Jones, 2006). All examinees answer the same questions or those from a common set of questions. Standardized test scores are either norm-referenced or criterion-referenced to derive some meaning from the results. Norm-referenced refers to an individual score being compared to the scores of a larger group. This is to determine how the individual score varies from the larger group scores. Statistical methods are used to determine average performance for the group, with further statistical

methods used to determine if the individual score is in the range of average, or if the individual score deviates significantly from the average. Criterion-referenced refers to measuring the mastery of a specific set of skills or learning objectives that have been taught. The individual score is not compared to a larger group. The individual score is compared to the possible total score that can be obtained, as in a percentage of correct answers out of 100%.

Three types of standardized tests are intelligence, achievement, and aptitude. Intelligence tests measure an individual's cognitive ability to think in abstract terms and to use symbols which consist of numerical, verbal, and abstract representations (Drummond & Jones, 2006). The scores are norm-referenced, and provide some indication of how the individual performs on a cognitive basis in comparison to a larger group. Comparisons are typically made between the individual and others in a similar age group or grade, if school aged. These tests indicate if the individual is able to perform on average with others who are similar, below average, or above average. Test scores and interpretation are typically predictive in projecting the individual's future performance on similar tasks. Achievement tests measure the knowledge and skills the individual has acquired. Achievement tests may be norm-referenced or criterion-referenced dependent on the use of the scores and what is being measured. The tests are administered to determine how the individual compares to other similar individuals from a larger group, such as same age or grade, or to

assess specific skills or learning objectives that have been taught. These tests are typically used to assess growth and change. Aptitude tests are administered to determine how the individual performs on specific tasks to provide a prediction of how the individual will perform in a similar or different situation in the future. Aptitude tests may test general ability, such as accrued educational knowledge, or special abilities, such as mechanical, clerical, or skills found helpful in specific occupations. Aptitude tests provide a basis upon which to determine which individuals may be accepted into training for specific occupations, or admitted into educational programs, such as higher education, at various levels.

The GRE is a standardized test that is used to predict an individual's likelihood to be successful in a university graduate program and is referred to as a Test of Aptitude in the Graduate Record Examinations Technical Manual (Conrad, Trisman, & Miller, 1977). In current discussion of the test on the Educational Testing Service (ETS) website, there is reference to the GRE providing a measure of achievement in knowledge accumulated during a student's undergraduate career (ETS, 2016). It is a norm-referenced test that assesses knowledge and skills that have previously been taught to the individual, and it is intended to be used to provide a prediction of whether the individual will be successful in a university graduate program (Conrad et al, 1977).

Background of the GRE

Graduate programs have historically used GRE scores to aid in the admission process of students (Schmidt, Homeyer, & Walker, 2009). The test is developed and administered by the Educational Testing Service (ETS). The test is intended to measure verbal reasoning, quantitative reasoning, and analytical writing to indicate the level of development of critical thinking skills in the test-taker (Dorolia, Potochnick, & Menifield, 2014). The authors cite that ETS indicated the results obtained by the GRE tests are intended to measure skills that develop over a long period of time, and have no specific relation to any course of study. The scores are to be used in conjunction with other admissions criteria to add an extra layer of information about the applicant. This additional information may be beneficial when other admission criteria do not provide a clear indication of an individual's likelihood of succeeding.

Predictive Validity and Psychometrics of the GRE. When examining the various characteristics of a test, test validity is an important component to analyze and often receives the most attention from test developers, test administrators, and those who will use the results (Conrad, Trisman, & Miller, 1977). Test validity represents to what extent the test measures what it is purported to measure. Predictive test validity is of concern when results obtained from a test are used to inform or significantly influence a decision related to future performance. In the case of the GRE, predictive validity identifies

measures of student knowledge and performance that should correlate with successful completion of a graduate program. Forty-three studies conducted between the years of 1952 and 1972 that were completed to evaluate the predictive validity of the GRE were aggregated to provide a larger data sample. The aggregated sample involved data from 21,214 students, and was obtained from various institutions and agencies throughout the U.S. Predictors that were included were GRE verbal score, GRE quantitative score, GRE Advanced Test score, GRE composite, Undergraduate GPA (UGPA), Letters of Recommendations, and a weighted GRE-UGPA composite. Measures of successful graduate program completion were Graduate GPA (GGPA), overall faculty rating, department examinations (competency exams), successful attainment of degree, and time required to obtain the degree. Results from this aggregate analysis indicate a weighted GRE-UGPA composite to be the best overall predictor of GGPA ($r=.45$), attainment of a graduate degree ($r=.40$), and the time to acquire a graduate degree ($r=.40$). Statistically, the data represents “moderate” positive correlations between the weighted GRE-UGPA and predictive value of success in graduate programs. The statistical analysis regarding the predictive value of GRE verbal score, GRE quantitative score, GRE Advanced Test score, GRE composite, UGPA, and Recommendations letters related to GGPA and successful program completion yielded “low” positive correlations. The results are provided in Table 1.

Table 1

Correlations of Factors Related to Student Success in Graduate Programs

Predictors	GGPA	Attained Degree	Time to Attain Degree
GRE-GPA Composite (weighted)	.45	.40	.40
GRE Verbal Score	.24	.18	.16
GRE Quantitative score	.23	.26	.25
GRE Advanced Test score	.30	.35	.34
GRE Composite	.33	.31	.35
UPGA	.31	.14	.23
Recommendations		.18	.23

Note: Adapted from "Validity of the Graduate Record Examinations" by L. Conrad, D. Trisman, and R. Miller, 1977, *GRE Graduate Records Examination Technical Manual*, p. 56. Copyright 1977 by Educational Testing Services.

Table 2 lists values and the ranges that are considered to be statistically significant at a "low", "moderate", or "high" level of correlation (Hopkins, Hopkins, & Glass, 1996):

Table 2

Statistical Significance

Low	+/- .10 to +/- .39
Moderate	+/- .40 to +/- .69
High	+/- .70 to +/- 1.0

Past Research Regarding Predictive Factors for Student Success in Graduate Programs

GRE scores have generally been reported to be predictive of students successfully completing graduate school programs (Schmidt et al., 2009). Successful completion includes GGPA's that meet program criteria, passing professional competencies required for graduation, and graduation if no professional competencies were required for graduation. However, there is also research that indicates the predictive value of the GRE on student success to be mixed. It has previously been shown that GRE scores were only precise in the prediction of first year graduate school grades in a Masters of Public Administration program for 11.9% of the students (Dorolia et al., 2014). It was also noted in this study that while higher GRE scores were typically predictive of students achieving higher GGPA's and experiencing a higher rate of success in graduate programs, GRE scores were not always predictive of student success. When examining other criteria, such as undergraduate GPA (UGPA), letters of recommendation, entrance exams, writing samples, gender, type of degree pursued, and ethnicity, these factors were often associated with more accurate prediction of graduate program success (Schmidt et al., 2009; Johnson-Motoyama, Petr, & Mitchell, 2014).

Predictors of success in graduate programs. In the study completed by Johnson-Motoyama et al. (2014), the researchers conducted a pilot study to

examine the relationships between admission criteria and program success. The study was completed using archival data of the 68 students admitted to the doctoral social work program at a Midwestern university from 2001 to 2011. Of the 68 students, 32 were currently enrolled in the program (47%), 22 had completed the program (32%), and 14 had withdrawn from the program (21%). The independent variables used in the analysis were student demographics, that included age at the time of program entry, gender, race or ethnicity, and status as an international student; undergraduate GPA (UGPA); GRE scores, Quantitative, Verbal, and Analytic; and the students' first year doctoral GPA (DGPA). The dependent variable and measure of success was the completion of the program.

Results indicated the age students entered the program, Quantitative GRE scores, and first year DGPA to be associated with program completion or withdrawal. UGPA approached statistical significance in being correlated with program completion or withdrawal. The average age at entry into the program was significantly younger for those who completed it versus those who withdrew from the program. The average age of entry into the program for completers was 36.7 years with the average age of entry into the program for those who withdrew being 43.9 years. Average Quantitative GRE scores for the sample of program completers were significantly higher with raw scores averaging 592. The average score for students who withdrew from the program was 462. Students in

the sample who completed the program also had significantly higher average for the first year DGPA at 3.5 with those who withdrew having an average DGPA of 3.1. Program completers had an overall higher average for UGPA than those who withdrew, but this difference was in the range of borderline statistical significance ($p = 0.059$).

Graduate programs are increasingly taxed to provide evidence of program effectiveness (Schmidt et al., 2009). Program effectiveness is evaluated by providing outcome measures related to the process involved in preparing competent professionals and the graduate's preparedness to pursue steps toward licensure and certifications when required to practice in a field of specialty. In the case of counseling graduate programs, successful outcomes include, not only successfully completing program courses and required clinical experiences, but also passing the Counselor Education Comprehensive Examination (CPCE). GRE scores and UPGAs have typically been required components of admission packets for graduate programs, including graduate counseling programs. With a significant focus of successful outcomes in counselor education programs being on students passing comprehensive examinations, researchers completed a study with the purpose of determining the relationship between three criteria required in the admission packet and the students' scores on and successful completion of the CPCE (Schmidt et al.,

2009). The three admission criteria of interest were UGPA, GRE Verbal scores, and GRE Quantitative scores.

The sample population was comprised of 403 students who attended a master's level counseling program at a large university located in central Texas (Schmidt et al., 2009). The program was accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The participants were enrolled between 1998 and 2005, and most attended the university on a part-time basis taking six to nine hours of course work per semester. Students were completing degrees in one of three areas of specialization: school counseling; marital, couple, and family counseling; or community counseling. All students had completed the CPCE in the final year of their programs.

The independent variables were UGPA, GRE Verbal scores, and GRE Quantitative scores. The dependent variables were successful completion of the CPCE which was defined as having obtained a passing score on the first attempt, and the eight subscale scores on the CPCE that comprise the CPCE total score. Three hundred thirty-four students successfully completed the CPCE with 69 students not meeting the criteria for success. All three predictors (UGPA, GRE Verbal, and GRE Quantitative) were associated with the CPCE total scores. However, the GRE Verbal scores were the strongest predictors of CPCE total scores and the scores of six of the eight subscales. The strongest predictors for

passing the CPCE on the first attempt were the GRE Verbal and Quantitative scores with the Verbal portion of the GRE being the strongest predictor of the two. UGPAs were not associated with any predictive value of passing the exam on the initial attempt. The study indicates that UGPAs and GRE scores may not only be predictive of student academic success, but also predictive of students successfully passing comprehensive examinations that are key steps to professional licensure in the professional field of Counseling.

Predictors of success for traditional and mid-career students. In another study, researchers examined differences in predictive value of admission criteria as related to early versus mid-career students who applied for admission to graduate programs (Dorolia et al., 2014). Applications for admission to graduate programs have reached an all-time high (Allum & Okahona, 2015). Programs are attempting to strengthen admission criteria to ensure accurate determinations about which applicants possess the necessary pre-requisite skills to be successful in graduate programs (Dorolia et al., 2014). As graduate program applicants are comprised of a wide range of ages, the researchers were interested in determining which factors were viable predictors for both early and mid-career applicants. Each group offers differing skill sets, have been out of school for differing amounts of time, and have differing challenges in completing a graduate program. Older students had been out of school for a longer period of time than their early-career counterparts, and may face different work and

family challenges in returning to school as well. Graduate students over 40 increased five percent per year from 1999-2009 with one out of four graduate students enrolled in 2007 being over 40. The number of graduate students over 40 doubled since 1987 (Dorolia et al., 2014). These factors all highlight the importance of accurately screening both traditional and non-traditional applicants for admission, and admitting those with the greatest chance of being successful regardless of age. The wide range of age and experience of applicants creates significant challenges in the admission screening process to accurately evaluate the abilities and skills of varying applicants. The study had the intent of creating a level evaluation system for applicants of all ages, and to remove biases and factors that may unjustly favor or discriminate against any age group.

Data for this study was obtained from student files provided by the Department of Public and Nonprofit Administration at a Network of Schools of Public Policy, Affairs, and Administration (NASPAA) (Dorolia et al, 2014). The research pool consisted of 223 students who successfully graduated from a U.S. NASPAA accredited Masters of Public Administration (MPA) program located in the southeast region of the United States. Early-career was defined as an individual with less than five years professional experience related to the field of public affairs with mid-career defined as having at least five years experience related to the field. The student data sample was divided into three subgroups: those who were categorized to be early-career and who had taken the GRE,

those who were mid-career and had taken the GRE, and those who received a waiver from taking the GRE. The third group was primarily comprised of mid-career students. Waivers were obtained for relevant job experience or other accomplishments, being an undergraduate from the university at which the student was currently applying and having completed designated course work with a specific UGPA, having passed a waiver course, previous military service, or possessing another graduate degree from any area of study. The group that obtained waivers consisted of 23% of the total sample population. The independent variables that were examined were the students' composite GRE scores, UGPA, the students' undergraduate institution admissions selectivity, and the students' undergraduate major. The dependent variable was the students' overall GPA obtained in the MPA program.

Results from the study indicate that composite GRE scores, UGPA, and the type of institution based on the level of selectivity of applicants correlate with academic performance. The value of the criteria varies when comparing early career and mid-career students. The strongest and most consistent factor that predicted success for both groups was UGPA. While GRE scores were shown to be somewhat indicative of student success, this study finds GRE scores to be less predictive of success than UGPA. Based on the evidence that showed some degree of correlation with success in the MPA program related to more selective undergraduate institutions, there is evidence to suggest that institution

type may be a variable to consider in graduate program admissions. Results showed no correlation with years of professional experience or the student's undergraduate major with success in the MPA program for early or mid-career students. This lack of significance in professional experience being a predictor of GGPA provides some guidance for graduate programs to be cautious when exchanging years of work experience for other criteria. The consideration of professional experience may need to focus on the type and quality of experiences versus number of years.

Differences in predictive value in factors for early career versus mid-career program applicants indicates that graduate programs may benefit from developing different application packets for each group. While the GRE scores may add value to admission criteria that include UGPA for early career students, that was not the case for mid-career students. UGPA was the most predictive factor for GGPA for mid-career students. If professional experience is a consideration in admission criteria, the focus should be on the skills and experiences gained versus the amount of time worked.

Establishing UGPA threshold to waive admission GRE score. As with many graduate programs, nursing graduate programs have seen an increased number of admission applications (Newton & Moore, 2007). The increase in applicants has typically been greater than the number of available placements. This has created an environment in need of effective admission criteria that

accurately predicts success in a graduate nursing program. The desire of nursing programs when selecting future graduate students is to select individuals who will not only complete the program, but who will achieve high academic success and nursing role performance. Newton and Moore (2007) investigated the relationship between UGPA and GRE scores to determine if there was a UGPA benchmark that could be established that when reached or surpassed the GRE offered no further predictive value for the specific applicant's success in the graduate program. This would allow the graduate program to not require GRE scores for UGPA at or above the benchmark. A second purpose of the study was to determine if a second benchmark using UGPA could be established to indicate which students had "low potential" for being successful in the program that could be used to aid admissions decisions as well.

The researchers used a retrospective correlational design to examine the relationship between UGPA and GRE scores to determine if the UGPA was predictive of GRE scores within the data sample. The sample population consisted of 120 students who were enrolled in a graduate nursing program in January of 2003. UGPA data was obtained from official transcripts and GRE scores were obtained from the official reports that had been sent to the school of nursing (SON) by the Educational Testing Service (ETS). The researchers found UGPA to be predictive of both Quantitative ($p=.046$) and Verbal ($p=.008$) GRE scores. However, no predictive value was established between UGPA and the

Analytical scores. The statistical analysis indicates that a correlation between UGPAs and GRE Quantitative and Verbal scores did not occur merely by chance. Regression analysis indicated a cut-off score for UGPAs between 3.2 and 3.3 with a UGPA of 3.28 or higher to be an adequate predictor of success in the graduate nursing program. This indicated that there was no need to require both UGPA and GRE scores in the admission screening process for applicants who had a UGPA of 3.28 or higher. This provides a threshold criterion required to waive GRE scores in the admission process. Programs may choose to increase this benchmark to account for grade inflation that many believe is currently inherent to undergraduate nursing programs.

Current Study

The purpose of this study is to evaluate the predictive value of the GRE on student success as defined as meeting the program criteria within a graduate counselor education program leading to graduation. This would add to the literature that currently exists supporting the use of UGPA and GRE scores in determining which applicants may be most successful in similar counselor education programs. It is also intended to inform those involved in evaluating students' admission packets for admission to graduate programs of alternate criteria unrelated to GRE that may be predictive of student success. In reviewing existing literature, the expectation is that the results of the study will support those that Schmidt et al. reported in their article published in 2009. It is expected

that the current study will demonstrate that UGPA and GRE scores are predictive of students successfully completing the university's counselor education program. The current study will test the following hypotheses:

1. GRE-V scores will be predictive of students graduating from the counselor education program.
2. GRE-Q scores will be predictive of students graduating from the counselor education program.
3. GRE-T scores will be predictive of students graduating from the counselor education program.
4. UGPA will be predictive of students graduating from the counselor education program.

It should be disclosed that the author of this dissertation is a graduate from the program that provided the data set for this study. The author's data is included in the data set used for the current study. However, the data was de-identified prior to being provided to the author.

CHAPTER 3

Methods

Participants

The participants in this study were students who were admitted into the counselor education program at a mid-sized public university in a rural area of a southern state. The counselor education program is accredited by the Council for Accreditation and Related Educational Programs (CACREP), the Council on Rehabilitation Education (CORE), and National Council for Accreditation of Teacher Education (NCATE). These organizations establish specific standards and criteria as guidelines for counselor education programs to enhance standardized counselor training across institutions (CACREP, 2014; CORE, 2016; NCATE, 2014).

The data set was de-identified prior to being provided for this study. The period of data collection was for students admitted between August 2003 and August 2016. There were 369 students within the original data set which included students planning to pursue a graduate degree in Student Affairs. However, students who applied for the Student Affairs program were removed from the data set as it is a distinctly different program from the counselor education program. This totaled a removal of 39 students from the data set. Also removed from the data were counselor education applicants who were

accepted to the program, but whom never enrolled. This reduced the data by 25 students. Another 64 students were enrolled in the program at the time of this study, and thus removed from the data. One student transferred to another institute of higher learning, and seven students lacked GRE scores, UGPA, or both. The remaining data set consisted of 233 students. The data included the date of admission to the program, the date of graduation if the student successfully completed the program, if the student did not successfully complete the program, GRE-Verbal scores, GRE-Quantitative scores, UGPA, gender, and ethnicity.

The students represented in the data set consisted of 197 females (84%), 35 males (15%), and one student's gender was not identified (<1%). The students were comprised of 185 Caucasians (79%), 25 African Americans (11%), 13 Hispanics (6%), eight Asians (3%), and the ethnicity of two students was not identified (<1%). Three courses of study were offered during the period of data collection: School Counseling, Community Mental Health Counseling, and Rehabilitation Counseling. There were 105 students (45%) enrolled in the School Counseling track of study, 94 (40%) were enrolled in Community Mental Health Counseling, and 34 (15%) were enrolled in Rehabilitation Counseling. Of the 23 students in the sample, 166 graduated from the program (71%), and 67 (29%) did not successfully complete the program.

GRE

The GRE is a test that is intended to measure verbal reasoning, quantitative reasoning, and analytical writing to indicate the level of development of critical thinking skills in the test-taker (Dorolia, Potochnick, & Menifield, 2014). The authors cite that ETS indicated the measures obtained by the GRE tests are intended to measure skills that develop over a long period of time, and have no specific relation to any course of study. Revisions were made to the scoring system for the Verbal and Quantitative tests on August 1, 2011 to provide admission review boards for graduate programs with a more accurate comparison of student performance on the GRE (Peterson's, 2013). The prior version of the GRE had a range of possible scores from 200 to 800 for the Verbal and Quantitative tests with a total combined possible score of 1600. Scores are based on the number of questions answered correctly by the test-taker. Ten points represented each increment between scores (i.e. 200, 210, 220, etc.). In this system, two students with scores that were one increment apart would appear to have a 10-point difference in scores which could be interpreted as a larger disparity between students than what actually existed. The current scoring system uses a range of possible scores from 130 to 170 with one point increments between scores (i.e. 130, 131, 132, etc.). This provides a more accurate comparison of scores between students when reviewing scores for admission to graduate programs. One increment is equal to one point versus 10

points. Scores that were obtained from the GRE before August 1, 2011 will be converted to scores that align with the new scoring system using a concordance table provided by ETS (ETS, 2016). It was decided to convert the prior scores to the new scoring format as the crosswalk between the two systems provided a more accurate translation from old scores to new scores. An example of this is that to convert a new score of 131 to the previous format, the concordance table offers a crosswalk to two scores, 200 and 210. Converting a score of either 200 or 210 provides a clear crosswalk to a single score of 131 in the new scoring system. The concordance tables can be found on the Educational Testing Services website (https://www.ets.org/s/gre/pdf/concordance_information.pdf). The converted scores will account for some uncontrolled variance due to these factors.

There are specific standards that have been used to develop and implement all GRE tests (Conrad, Trisman, & Miller, 1977). As the GRE is a high-stakes measure that may significantly impact a student's options related to pursuing specific graduate programs and graduate programs in general, the tests should achieve reliabilities not lower than the upper .80s or lower .90s. The GRE demonstrates a reliability of .93 for the Verbal portion and .91 for the Quantitative portion. A second standard for high-stakes, standardized testing such as the GRE is that not only should statistical data regarding the reliability of the test be provided, but also data that describes the intercorrelations and characteristics of

the test components. The intercorrelation reliability between the Verbal and Quantitative sections is .56. This indicates that each section of the GRE contributes independently to a composite of the test-takers achievement in their undergraduate career. Intercorrelations between various test components of both the Verbal and Quantitative tests affirm that each smaller component contributes to the overall picture of the test-taker somewhat independently. Additionally, the distribution of the scores obtained from the test measures should provide an approximation of the normal curve. Also, the tests should not require excessive speed of test-taking to be successfully completed as the tests are intended to measure achievement. Data indicates that 96% of GRE test-takers complete three-quarters of the test. The desired threshold for test-takers to complete three-quarters of a standardized test is 80%. A fifth standard is that the tests should consist of content that measures what the test is purported to measure and should correlate with performance required to be successful in graduate programs. Validity measures for question content and relevancy for the GRE is held at .90 or higher. A final standard is that the tests should provide an adequate amount of information to accurately interpret the scores and provide appropriate meaning to the scores. GRE scores are used in conjunction with other information to make decisions related to admitting students to graduate programs. The total scores have a reliability near .90 indicating that the scores are adequate in serving this purpose.

Requirements for Graduation

For this study, successful completion of the counselor education program is defined as meeting all the requirements to graduate with a Master's Degree in Counseling. These requirements include that all students complete a core curriculum, complete additional classes that are specific to unique issues within each of the three tracks of study and practice, complete a 100 hour practicum in the counseling clinic that is administered by the Counseling Department, complete a 600 hour internship at an external site that aligns with the student's specific course of study, and pass the CPCE which is a standardized, national examination that is provided by the Center for Credentialing and Education (SFASU, 2016).

Dependent Variable

The dependent variable is the successful completion of the counselor education program. Success is defined as graduation from the program. The date of graduation for each student who was successful is provided in the data set. Those who did not graduate are identified as being "inactive".

Independent Variables

The independent variables in this study are Undergraduate Grade Point Average (UGPA), and scores for the Graduate Record Examinations (GRE). The test scores are for the Verbal (V) and Quantitative (Q) portions of the GRE. An additional variable will be an aggregate of these two scores. UGPA is a four-

point cumulative average that is acquired over the course of time taken to complete an undergraduate degree (SFASU, 2016). It is calculated by dividing the total number of grade points earned in all courses taken by the student at a university and dividing that number by the total number of semester hours taken by the student. The GRE-V scores have a possible range of 130 to 170 points, and the GRE-Q scores have a possible range of 131 to 166 points (ETS, 2016). The aggregate scores for these two tests, GRE-T, have a possible range of 261 to 336 points.

Data Analysis

Data analysis was completed using IBM SPSS software. IBM SPSS is a software package that allows for prediction of relationships between independent variables and the dependent variable (IBM, 2016). Logistic regression analysis was completed to determine the predictive value of the independent variables of UGPA, scores for the GRE-V, scores for the GRE-Q, and an aggregate score for both GRE scores. Logistic regression analysis measures the relationship between a categorical dependent variable which provides only two possible outcomes, and one or more independent variables (Pampel, 2000). As the independent variable “GRE total score” was an aggregate score for the GRE-V and GRE-Q portions of the test, the IBM SPSS program recognized redundancy and removed the GRE-T score from the initial analysis. An additional analysis was completed using only the GRE-T scores. In this study, the dependent

variable, or outcome, was whether the student successfully completed or did not successfully complete the counselor education program. The analysis allowed for an estimation of probability that a student would be successful or not successful dependent on the values of the independent variables of UGPA, GRE-V score, GRE-Q score, and an aggregate GRE score. Criteria that are predictive within a research sample may also be predictive of a larger population sample that is not part of the research sample. However, this predictive relationship does not imply that a causal relationship exists. Just because an independent variable is shown to have a relationship with the dependent variable does not mean that the independent variable “caused” the dependent variable. It is merely a variable that is present at the same time as the dependent variable. In this study, analysis determined if the independent variables of UGPA and GRE scores were predictive of the students within the data set successfully graduating from the counselor education graduate program. This information can provide the program’s application review committee information that may aid in the selection process of applicants to the program. While specific UGPA and GRE scores may not “cause” students to be successful, it may be that students with higher UGPA and GRE scores are more likely to be successful in a graduate program.

Data Analysis Procedures

The relationships between the dependent variable, and the independent variables of GRE-V, GRE-Q, GRE-Total, and UGPA were analyzed with tests of correlation and models of logistic regression. The dependent variable was binary with the outcome that the student graduated from the counselor education program or the student did not graduate from the program. To examine the strength of the relationship between each of the variables, Pearson product-moment correlation coefficients were completed. Binary Logistic Regression models were used to examine the predictive value of each independent variable upon a student successfully graduating from the graduate program.

CHAPTER 4

Results

Demographics

The data sample consisted of 233 de-identified students. A total of 166 students in the sample graduated from the program, and 67 students did not graduate. There were 197 Females and 35 Males represented in the data sample with one student's gender unreported. Ethnicities included in the data sample were 185 Caucasians, 25 African Americans, 13 Hispanics, eight Asians, with two students' ethnicity not reported. There were 105 students represented from the School Counseling program track, 94 from the Community Mental Health track, and 34 from the Rehabilitation track. A summary of demographic information is provided in Table 3.

The means were calculated for the independent variables of GRE-V scores, GRE-Q scores, GRE-T scores, and UGPA to complete a comparison of scores between students who graduated and who did not graduate, between genders, and between ethnic groups. The data is summarized in Table 4.

Table 3

Demographic Information for the Counselor Education Graduate Program Data Sample

Variable	Number (N)
Graduated	N = 233
Yes	166
No	67
Gender	N = 233
Female	197
Male	35
Unknown	1
Ethnicity	N = 233
Caucasian	185
African Am	25
Hispanic	13
Asian	8
Unknown	2
Program Track	N = 233
School	105
Community	94
Rehab	34

Table 4

GRE Scores and UGPA Means for Students Who Graduated and Did Not Graduate, Gender, and Ethnicity

Variable	Number (N)	GRE-V	GRE-Q	GRE-T	UGPA
Graduated	N = 233				
Yes	166	M = 148.83	M = 142.10	M = 290.93	M = 3.32
No	67	M = 148.27	M = 143.07	M = 291.34	M = 3.24
Gender	N = 233				
Female	198	M = 148.24	M = 142.06	M = 290.30	M = 3.32
Male	34	M = 151.15	M = 144.29	M = 295.44	M = 3.15
Unk	1	M = 149.00	M = 141.00	M = 290.00	M = 4.00
Ethnicity	N = 233				
Caucasian	185	M = 149.34	M = 142.60	M = 291.94	M = 3.31
African Am	25	M = 144.52	M = 140.44	M = 284.96	M = 3.17
Hispanic	13	M = 146.54	M = 142.92	M = 289.46	M = 3.45
Asian	8	M = 148.62	M = 142.0	M = 290.62	M = 3.16
Unk	2	M = 152.50	M = 144.00	M = 296.50	M = 3.76

Data Analysis

Pearson product-moment correlation coefficients were calculated to examine the strength of the relationship between each of the predictors that were available in the data sample. This included the independent variables of GRE-V, GRE-Q, GRE-T, UGPA, as well as the program track of study, and the students' gender and ethnicity. The analysis indicates very weak positive correlations between successful program completion and the program track of study, GRE-V

scores, and UGPA, however none of these correlations are statistically significant nor approach statistical significance. The results of the Pearson product-moment correlation coefficients are summarized in Table 5.

Table 5

Pearson Product-Moment Correlation Coefficients Between Variables Within Sample Data from the SFASU Counselor Education Graduate Program (N=233)

	1	2	3	4	5	6	7	8
1. Graduated	-							
2. Program	.010	-						
3. Gender	-.093	.038	-					
4. Ethnicity	-.084	.095	.045	-				
5. GRE-V	.043	-.137*	.164*	.116	-			
6. GRE-Q	-.094	.170**	.153*	.035	.304**	-		
7. GRE-T	-.021	.187**	.196**	.099	.856**	.752**	-	
8. UGPA	.096	-.059	-.112	.011	.094	.127	.134*	-

**Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 5 provides a summary of the strength of the relationships between the dependent variable of graduating from the Counselor education graduate program and each of the independent variables that are GRE-V scores, GRE-Q scores, the total of the two GRE scores (GRE-T), and UGPA. As previously discussed, the correlations between the independent variables and graduating from the program were not statistically significant.

Results for the Pearson Product-Moment correlation coefficients between each of the independent variables of GRE-V, GRE-Q, GRE-T, and UGPA and successful graduation from the counselor education program are summarized in Table 6.

Table 6

Pearson Product-Moment Correlation Coefficients Between Independent Variables and Successful Graduation from the Counselor Education Graduate Program (N=233)

Variable	Pearson Correlation	Significance
GRE-V	.043	.517
GRE-Q	-.094	.153
GRE-T	-.021	.744
UGPA	.096	.143

The logistic regression analysis indicated that the four variables combined account for only 3% (Nagelkerke $R^2 = .036$) of the variability in graduating from the counselor education graduate program presented in the data sample. There was no statistical significance noted for the calculated odds ratios. Statistical significance for the GRE-Q scores approached significance ($p = .06$), however, the relationship was a negative relationship indicating that a single increment increase in GRE-Q scores decreased the odds of graduating. These results are summarized in Table 7.

An additional logistic regression analysis was completed to examine the relationship between GRE-T and graduating from the program. As GRE-T is an aggregate of GRE-V and GRE-Q, SPSS removed the variable for redundancy from the initial analysis. The logistic regression analysis indicated that the two variables combined account for only 1.5% (Nagelkerke $R^2 = .015$) of the

variability in graduating from the SFASU Counselor education graduate program presented in the data sample. The odds ratios demonstrated no statistical significance for either variable. This analysis aligns with the initial analysis. The results of this analysis are summarized in Table 8.

Table 7

Summary of Logistic Regression Analysis for Predicting Student Graduation from the Counselor Education Program for the Variables GRE-V, GRE-Q, and UGPA

Predictor	β	SE β	Sig.	e^{β}
GRE-V	.027	.026	.296	1.027
GRE-Q	-.061	.033	.062	.940
UGPA	.635	.397	.110	1.887
Constant	3.559	5.079	.483	35.138
X^2		6.624	.578	
<i>df</i>		1		

Table 8

Summary of Logistic Regression Analysis for Predicting Student Graduation from the Counselor Education Program for the Variables GRE-T and UGPA

Predictor	β	SE β	Sig.	e^{β}
GRE-T	-.009	.017	.598	.991
UGPA	.595	.392	.129	1.814
Constant	1.568	4.957	.752	4.795
X^2		7.041	.532	
<i>df</i>		1		

CHAPTER 5

Discussion

The current study was completed to provide an analysis of the predictive value of undergraduate grade point average (UGPA), and GRE scores on student success in the graduate counselor education program at a mid-sized public university located in a rural area of a southern state. As applications to graduate schools have increased and positions within the programs have remained limited, it is increasingly important for graduate programs to admit students with the greatest probability of successfully completing programs. It is likely that other counselor education graduate programs may benefit from new information that can strengthen rationale for developing admissions criteria. Graduate school is also costly and requires significant student commitment. Therefore, it is also in the best interest of students to be admitted on the basis of being most likely to succeed in the program.

The results of the analysis indicate that GRE scores and UGPA were not predictive of a student graduating from the counselor education graduate program. This finding supports the program's admission committee's decision to suspend the requirement for an applicant to provide GRE scores. The results do not support those reported by Schmidt, et al, 2009. In that study, GRE-V scores and GRE-Q scores were predictive of students successfully completing a

graduate counseling education program in central Texas. GRE-V scores were found to be the most significant predictor for success. Despite the programs being similar, there are likely variables that impact the programs and students in different ways not accounted for in this study.

While this study supports the decision for graduate programs to discontinue the use of GRE scores, it also indicated that UGPA was not a statistically significant predictor of success in graduate program. The study provides no elaboration upon which, if any, of the remaining required items that were reviewed were indicative of graduating from the program. This information may lead admission committees to reconsider the weight that each required item that is submitted by applicants has upon being accepted to graduate programs. This may include the addition of questions in the interview process that discuss personal commitments that impact time required to study and attend class, the financial ability to complete the program, and other factors the committee members identify as being pertinent to success in the program. The admissions committee may also consider ways to quantify additional admissions factors to enable data collection and expand their ability to determine which of these are statistically predictive of graduating from a graduate counselor education program.

While all the differences that may exist between this program and others and the students in the program and students at other universities are unclear,

the university targeted in the current study is located in a rural region that is a largely politically and socially conservative area of the state and the nation (Goldsberry, 2014). University demographics indicate that 90% of students who attend the university in the study are residents of the state and this residency is within a 200-mile radius from the school (SFASU Office of Institutional Research, 2017). These students may possess factors, such as values and work ethic, that vary from other regions of the state and nation that may affect their ability to complete programs regardless of performance on standardized testing. The female to male student ratio at the university is above the national average (College Factual, 2017). This aligns with the counselor education program demographics with females comprising 84% of the students within the data sample that was used for this study. This was also the percentage of females represented in the study completed by Schmidt et al, 2009. Ethnic diversity at the university in this study is also reported to be above the national average (College Factual, 2017). As African American and Hispanic communities are seeing increasing numbers of first generation college graduates, there may be an increased commitment to completing programs when admission is granted due to hurdles that minorities face in achieving higher education. The local employment options and economic resources in the area may also impact an individual's decision to pursue a college degree. This may provide significant motivation to students to succeed and to achieve higher education to escape poverty and

lower middle class socioeconomic status that has resulted from limited employment opportunities in the area.

It should be noted that the author of this dissertation is a graduate of the counselor education graduate program that provided the data for this study. She is also a participant within the data set as she was a student during the years of data collection. The data was de-identified prior to being provided to the author. The proximity of the author to the program provides her with a unique perspective that other researchers may lack. The author is also a native of the local area which provides an understanding of culture and issues specific to the area.

The implications for other graduate programs, specifically counselor education programs, based on the results of this study include the question of whether GRE scores and UGPA should be considered in the admissions process. Another factor for programs to consider is the role that faculty play in student success. It is likely that faculty attitudes, their amount of interaction with students in and out of the classroom, availability, and personal interactional styles play significant roles in motivating students to continue programs despite difficulties that may be encountered. Faculty may serve as an extension of family and be an undervalued support system affecting success. Past research indicates that college students who were at high-risk of not graduating, but who developed a “connection” with a faculty member or staff member, were able to be

successful and graduate (Schreiner, Noel, Anderson, & Cantwell, 2011). Faculty and staff who were identified by students as being influential in their success were interviewed by the researchers. Common factors found in influential faculty and staff included that they wanted to connect with students, they were unaware of how influential they were to the student, they had a desire to make a difference for students, and they were perceived as being authentic and genuine by students despite varying interactional styles. It is likely that similar factors are present within the counselor education graduate program in this study. Another factor that is likely to be significant for students is the support that is received from their families as family plays an integral role in many people's lives. This may be especially true in rural areas where other support systems are less accessible. This family support may be provided in many forms that include financial support and child care for parents who are students. These can be critical factors in completing any college program. This is information that may be pertinent to explore in student admission interviews to determine if students have sufficient social supports to be successful in school, or if greater faculty and staff support may be required for specific students.

Limitations

This study consisted of 233 participants and was limited to data collected at a single university and counselor education graduate program located in a rural area of a southern state. There is no evidence that this is representative of

all counselor education graduate programs, and different results were found in a similar study that was conducted in a similar geographic region. A larger data sample with representation from other similar programs in a sample more representative of the United States may yield different results. This would include representation from suburban regions of the country, urban areas, states with varying degrees of political and social beliefs, varying rates of unemployment, and varying commitment to higher education in families. The programs should also be selected from all sizes of universities and from universities that represent all tiers of student admission selectivity. A broader and random data sample should also yield more diversity in faculty who may also be a significant factor in student success.

The data that was available was somewhat limited in demographic information. One variable that was not collected was if the participant was a traditional or non-traditional student. Past research has indicated differences in students being successful in graduate programs that are dependent on the age of the student and length of time after completion of an undergraduate degree (Dorolia et al., 2014). The counselor education graduate program in this study is comprised of a mix of traditional and non-traditional students. The variables of age, length of time post baccalaureate, and the impact of these factors on success may be an important consideration in future research for this program. Data regarding the reason a student did not graduate from the program was not

collected. This information could help graduate programs evaluate the supports that can be provided to increase the likelihood of student success. Data collection should be expanded to include these variables and further analysis completed to determine if any of the variables have predictive value in successfully completing the program.

Implications for Future Research

There may be other factors that are unique to the student population of a university that may impact success as well. One of these is family support and could be quantified using a Likert scale with a range of descriptors for levels of family support. Students could also be queried about being first generation graduates of high school and college to determine the impact of this factor upon completing the graduate program. These students may be highly motivated to be successful to change the status of the family, and to aid the family financially over time with the increased resources typically gained with a higher education degree. Another factor to explore related to student characteristics that may impact student success is the students' perceptions of job availability and likelihood of financial success without a graduate degree.

As previously discussed, Schreiner et al (2011) found that high-risk college students and the "connections" they made with faculty and staff were positive factors in their eventual success in college. The replication or expansion of this study within counselor education graduate programs may yield results that

could be beneficial in identifying the impact on student success that faculty characteristics play. The characteristics that could be expanded to include faculty attitudes toward students, their amount of interaction with students in and out of the classroom, and availability to students.

As similar research at a different university produced results that GRE scores were predictive of success for students who completed their counselor education program, further research to examine counselor education programs to determine if the scores are relevant for their population of students is needed. This can help to identify if the student population at the university in the study is truly different from the population at other universities and similar graduate programs. Further research could be completed to determine how GRE scores and UGPA should be weighted by admission review committees when these continue to be required as research is mixed regarding their predictive value in student success. GRE scores and UGPA may be layers of information that should be reserved for making admission determinations between individual students when other factors appear to be equitable instead of carrying a high weight in the program admissions process.

Further research to identify factors that affect or are predictive of student success in graduate programs is necessary to provide more information to graduate program admissions committees to increase the likelihood that students who can be successful will be selected. This is important as applications to

graduate programs have increased while positions in the programs have typically remained static. These programs are costly and require significant student commitment which impacts not only the student but their families as well. It is wasteful to admit students who will invest significant financial resources and time, and be unable to complete the program and deny admission to another student who would be successful.

Past research indicates that many factors are indicative of student success in graduate programs. This makes developing appropriate admissions criteria challenging for graduate programs of all disciplines. The lack of replication of results related to counselor education graduate programs indicates a complexity within disciplines as well. It will be important to include a variety of variables in future research that include academic, personal, and social factors. It is likely some combination of variables is predictive of success in graduate school versus a single variable, such as a GRE score.

Conclusion

This study was completed to evaluate the predictive value of GRE-V scores, GRE-Q scores, GRE-T scores, and UGPA upon successful completion of a counselor education graduate program. The participants in this study were students who were admitted into the counselor education program. The period of data collection was for students admitted between August 2003 and August 2016 with a total of 233 participants. Participants were removed from the data set who

had missing data or if currently enrolled in the program. The relationships between the dependent variable of graduating from the program, and the independent variables of GRE-V, GRE-Q, GRE-Total, and UGPA were analyzed with tests of correlation and models of logistic regression.

The data analysis indicated that none of the independent variables were predictive for a student being successful and graduating from this specific program of study. These results do not support those from a previous similar study that was completed with data from a counselor education program in a similar geographic region that shared many characteristics with the program at the university in this study (Schmidt, et al, 2009). These incongruent results indicate that further research is needed to explore which factors are predictive of student graduation from a counselor education graduate program. These results have limited generalization to the general population of graduate counselor education students. Previous research has indicated other factors that impact student success in graduate programs include age, and time post-baccalaureate (Doralia et al, 2014). Additional factors to explore that may impact success include family support, faculty characteristics, perceived employment opportunities without a graduate degree, and if the student is a first generation graduate of high school and college.

It is important to continue this research as applications to graduate programs have increased without an increase in available positions in the

programs. Graduate school is costly and requires a significant commitment of time and dedication. Identifying predictive variables to aid in the selection of students who will be most likely to succeed will be beneficial to both students and institutions of higher education.

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VITA

After graduating from Lufkin High School, Lufkin, Texas, in 1982, Ranleigh McAdams earned an Associates of Arts degree from Angelina College, Lufkin Texas, in 1989. She worked in various capacities in hospitals in East Texas returning to college in 2003. She completed her Bachelor of Science degree from Stephen F. Austin State University in 2005. Ranleigh continued employment within the hospital industry until she returned to college to complete her Master of Arts degree. This degree was earned from Stephen F. Austin State University in 2008. She was then employed at the Lufkin State Supported Living Center as an Associate Psychologist from 2008 until 2011 at which time she began a private counseling practice in Lufkin, Texas, and began the pursuit of a Doctoral degree in Philosophy. She received the Doctor of Philosophy degree in May of 2017.

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