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ABSTRACT

This study investigated the situations of at-risk students considered for becoming principals, examining whether it was worth the risk of admitting them into principal preparation programs. Students had undergraduate grade point averages (UGPAs) of at least 2.85 over the last 2 years of the undergraduate program. If they did not meet GPA standards, they could be admitted on probation. Students had to take the Graduate Record Examination (GRE) and have acceptable letters of recommendation in order to be admitted to the Masters Degree program. Researchers classified students into categories by UGPA and examined their records to determine who completed the program and who did not. When students completed the probationary program with at least a B average, took the GRE, and completed the Masters Degree, their academic records were examined to discern predictors of graduate school success. Of the 42 students for whom data were complete, 28 completed the degree and 14 did not. The most significant predictor of graduate student success was the variable in which the UGPA was multiplied by the scaled GRE verbal score. This predictive model was significant for both probationary and nonprobationary students. The undergraduate major emerged as a predictor of success. (Contains 43 references.) (SM)

Admitting At-Risk Students into Principal Preparation Programs: Is It Worth the Risk?

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Abstract

Admitting At-Risk Students into Principal Preparation Programs: Is It worth the Risk?

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Applicants for principal positions are small in number and the quality of applicants in the existing pool is questionable (Anderson, 1991, ERS, 1998). Where will the new generation of school leaders come from? University preparation programs provide the avenue through which a person gains credentials for becoming a principal. The status of these preparation programs in terms of numbers points to an impending crisis. The number being trained will not meet the demand, yet there is a potential pool of candidates who might be targeted to expand the pool.

The focus of this study was to investigate the situations of students who, by past academic records, were at-risk for pursuing careers as principals. Preparation programs usually have several hurdles to be negotiated. A "B" undergraduate grade point average is commonly used along with Graduate Record Examination scores and letters of recommendation. In this study the admission requirements for a Masters Degree program in educational administration include a 2.75 UGPA or a 3.0 average (4.0 scale) over the last two years of the undergraduate program, GRE scores, and letters of recommendation. If a student did not meet the GPA standard, he/she could be admitted on probation, usually nine semester hours of specific coursework in which the student must achieve a 3.0 average. The student was also required to take the GRE, and have acceptable letters of recommendation to be admitted to the Masters Degree program. The Masters Degree is a prerequisite for the principal's license and is a prerequisite for a career as a school principal.

The evidence for admitting students who are marginal academic performers is scanty, but there are numerous examples of individuals who do not achieve academically who later change their behavior and take their academic studies seriously. By using the last two years of a student's undergraduate record rather than the full four years of work, it is possible to offer students a second chance. The student may have "sown wild oats" early and experienced a significant change that he/she deserves the opportunity for pursuit of a Masters degree and the principal's license. Is such a risk worth the time, expenditures, and resources that a graduate program requires?

The methodology used in this study was to identify students who met the criteria described above, classify the students into categories by UGPA and examine the records as to which ones completed the program and which did not. Completing the program meant the Masters Degree; however, only the first nine hours of graduate study were used. When a student completed the probationary program with at least a "B" average, took the GRE, and completed the Masters Degree, his/her academic record was examined to discern predictors that could be used to predict graduate school success for future students considered at-risk. If such students have a high success rate, the pool of certified principal applicants might be expanded. Educational opportunity would be extended to students in the manner of a second chance. The successful experience of a student who might lead a school as principal could provide a sound base for counseling future students who might be prone to view their academic record in a flippant manner.

Admitting At-Risk Students into Principal Preparation Programs: Is it Worth the Risk?

Introduction

Supply and demand studies of principal candidates provide two salient facts: there are small numbers of candidates in the applicant pool, and there is reason to question the quality of the candidates in the applicant pool (Anderson, 1991). The Educational Research Service (ERS) study of the principalship in 1998 confirmed the same findings (Educational Research Service, 1998). The shortage is even more acute with large numbers of principals qualifying for retirement. Candidates who are currently in principal preparation programs will not meet the demand; additional candidates need to be recruited. Should individuals be admitted into principal preparation programs by lowering the standards? Absolutely not! However, some students do not take their academic pursuits seriously during their college years. These students accumulate grades that place them at a disadvantage of being admitted to graduate study. The fact is, some of these students go through a maturation process at different points in their lives -- they grow up. After being out of school for a period of time, perhaps getting married, or other such life-changing events sometimes motivates a person to succeed in graduate school as well as leadership positions. Such maturation would seem to give credence for such students to have an opportunity to attempt graduate study. Individuals involved in the admissions process need to screen carefully, but such screening should allow for the distinct possibility that personal factors can create a strong motivational need in changing patterns of past behavior. The problem is determining which students warrant such opportunities. What are the criteria an admissions officer or committee might use to make such decisions?

Admission practices and the success rate of students who enrolled in courses leading to a Masters degree in educational leadership were examined in this study. Included in the study were students who were considered at-risk (students who did not meet minimum admission standards, at least a 2.75 undergraduate grade point average on a 4.0 scale, were allowed to register for a specified number [three in this case] of designated courses, called a "probationary plan"). All students were required to maintain a 3.0 average (4.0 scale), and those determined to be at-risk were required to submit Graduate Record Examination (GRE) scores. Upon completion of the three courses, the admissions' committee then decided if formal admission to the program was warranted for the latter group. The problem was focused on evaluating the student's

graduate grade point average (GGPA) in the first nine semester hours and GRE scores to determine the likelihood of graduate school success.

Considering applicants for admission into a graduate program can be viewed from two perspectives. For students, admission is an important step toward attainment of career goals. But, because institutional quality and reputation are determined, in part, by the academic characteristics of each student, universities must adopt appropriate admission criteria which allow for accurate selection of those students who are likely to be successful (Hagedorn & Nora, 1996). With many colleges facing declining enrollments, the admissions process takes on an added ethical and fiscal dimension. Should students with weak academic credentials who may have little chance of developing the required professional competencies be enrolled to meet the financial goals of the institution? While it was beyond the scope of this study, this is a problem that is faced by academic programs in need of students. And, professions, such as those in educational leadership that are dependent upon the academy to supply competent administrators, need to fill the projected vacancies.

The Problem

The problem investigated by researchers in this study had three parts: 1) What constitutes graduate program success? 2) What are the variables or criteria and in what combinations should they be used to predict program success? And, using information from these two, 3) Which at-risk students should be admitted into graduate programs in educational administration.

Success in graduate school is usually defined as attainment of a degree (Hartnett & Willingham, 1980). But, predicting success in graduate school is not a very precise procedure. Hirschberg and Itkin (1978) asserted, "...there has been practically no attempt whatsoever at a thorough theoretical criterion of graduate school success" (p. 1085). More recently, Enright and Gitomer (1989) noted that ". . . the very nature of 'good performance' in graduate school is ill-defined" (p. 3). What constitutes successful graduate student performance and how it should be measured varies widely across institutions, academic disciplines, and types of programs. And, there is ambiguity in the meaning of the word, "success." Previous studies have used first-year GGPA, overall GGPA, and graduated versus not graduated criteria in defining success (Morrison & Morrison, 1995). Hagedorn and Nora (1996) emphasized the need for alternative definitions

of success—ones based on the premise that the purpose of graduate education is to ". . . develop both professional and attitudinal competency" (p. 35).

Descriptive data for this study serve to highlight the problem. Table 1 reveals 321 students were admitted into the Master's program in educational administration between 1987 and 1999. Sixty-five of these students were admitted on probation. Table 1 shows the percentages of the 321 students by their undergraduate majors. These data were obtained from the students' official transcripts.

Table 1

Undergraduate Majors of Masters Students in Educational Administration

	Undergraduate Major (In Percentages)	
Area	Regularly Admitted N = 256	Probationary N = 65
Education	44.2	27.7
Applied Sciences	12.8	23.1
Humanities/Arts	13.2	15.3
Social Sciences	11.2	7.6
Physical Sciences	7.6	9.2
Business	3.6	10.7
Life Sciences	5.2	4.6
Communication Sciences	2.0	1.5

Table 2 details the percentages of students in the Masters program between 1987 and 1999 who completed the program and graduated. The table also reveals the percentages of the students who were admitted through the regular admission process and those who were admitted through the probationary process. A higher percentage of the students who were admitted on probation graduated from the program than those who were regularly admitted. Those who completed nine semester hours of the program on probation graduated 76.2% of the time.

Table 2

Graduation Rates by Undergraduate Major

Area	Percentage Who Graduated Regularly Admitted	 Probationary
Education	49.2	46.1
Applied Sciences	66.6	30.7
Humanities/Arts	61.9	87.5
Social Sciences	52.3	-0-
Physical Sciences	57.1	50.0
Business	57.1	83.3
Life Sciences	57.1	50.0
Communication Sciences	50.0	-0-
Overall	54.5	56.0
Those who completed 9 hrs	63.6	76.2*

*Includes those who took the GRE

Typical indices that have been used for admission to graduate school include undergraduate grade point average (UGPA) and standardized test scores such as the GRE, Miller Analogies Test (MAT), or specified tests in academic areas, e.g., the Graduate Management Admissions Test (GMAT) in business, or Law School Admissions Test (LSAT) in law. Measures of professional accomplishments such as publications or awards and work samples and ratings are used also, but much less often. The American College Testing Program attempted to design criteria batteries that included evidence of leadership ability, latent motivation and learning capabilities, and most importantly, the opinions of knowledgeable instructors and advisers (Gunne & Leslie, 1972). But, traditional admissions criteria are no longer the only factors considered by admissions committees. Customary predictor variables need to be modified or new ones need to be identified that relate to different and evolving definitions of what constitutes success (Hagedorn & Nora, 1996).

Entrance requirement variables effectively predict success in graduate school about 15% of the time, leaving 85% open to speculation. If prediction of success is indeed possible at all, other criteria, such as references, a portfolio of professional accomplishments, work record, or instructor recommendations may be more productive (Fleury and Cappolluzzo, 1969). Enright and Gitomer (1989) introduced five exercises that can be utilized to identify an applicant's suitability for graduate school: structured background interviews, writing a report, critiquing a paper or report, planning a research project, and

participating in peer-group discussions. In some schools, graduate admissions procedures have been changed to include some of the non-traditional criteria listed above. Such changes have occurred because of the poor predictive powers of traditional criteria that have been used. Changes have been made, in part, out of a recognition that traditional criteria have an element of cultural bias and by using them a kind of social injustice has been perpetrated upon different social groups, especially minorities and women (Case & Richardson, 1990; Hagedorn & Nora, 1996; House, Gupta & Xiao, 1997). Even though the bases that are used for making admission decisions may include the above qualitative measures, they rarely exclude the traditional criteria discussed below.

Grades and Graduate Record Examination Scores

Graduate student grades or Graduate Record Examination scores have been used more than any other criteria in studies of graduate school success (Willingham, 1974; Harvancik & Golsan, 1986; Hagedorn & Nora, 1996). Grades are very convenient to use as a criterion because they are readily available for virtually every student. Convenient or not, there are shortcomings of using grades as the major criterion in projecting graduate school success. One, there is a narrow range in grades assigned, and this restricted range means that grade differences do not fully represent the range of differences in student accomplishment. Two, there is a lack of standard practices that are used in assigning them. Grades vary dramatically across disciplines and within disciplines even within the same institution (Bowers, 1967; Goldman & Slaughter, 1976; Juola, 1968; Morrison & Morrison, 1995). Third, it is not always clear what grades mean. Is the grade an indicator of the student's performance in the course? Is it an indicator of the progress the student has made from the beginning of the course? Or, do grades reflect a student's performance in the class compared to other students? Fourth, grade assignments are sometimes influenced by student characteristics that have no relationship to academic performance (Singer, 1964). Does the student participate in class? Is the student argumentative or obnoxious in his/her behavior, or, is the student well liked by other students in class? There is also an element of consistency in grades, i.e., a student who earns high grades early in the term tends to earn high grades later in the term. Or, a student who earns a high grade in a course from an instructor tends to earn high grades in subsequent courses taken under the same instructor. Finally, in doctoral programs, grades may be quite different before and after a student has been accepted to candidacy (Hartnett & Willingham, 1980).

Graduate Record Examination scores have some validity in predicting success in graduate school for at-risk students. Nelson and Nelson (1995) found that *Verbal* and *Analytical* GRE scores were somewhat predictive of Masters degree completion. When combined with other criteria, however, the best predictor of degree attainment was the product of the GRE score and UGPA. Interestingly, the *Quantitative* GRE score did not emerge as a significant predictor -- a finding that is not surprising because very little quantification is required in most of the graduate programs studied. While these results were based upon analysis of the performance of graduate students in all academic disciplines, other factors, e.g., type of institution from which the undergraduate degree was obtained, became significant when individual areas of study were investigated (Nelson & Nelson, 1995). Those findings supported those of Braun and Jones (1985), Thornell and McCoy (1985), and Morrison and Morrison (1995) that variability exists between disciplines. Thus, factors for success in individual academic areas should be taken into account when making admission decisions for probationary students.

Degree Attainment

As stated previously, completing the degree is generally regarded as the single most important criterion of success in graduate school (Hartnett & Willingham, 1980). As with grades, degree attainment has its drawbacks. Students drop out of school for a variety of reasons and often, the reasons are totally unrelated to academic accomplishment. Graduate students frequently drop out due to emotional problems (Halleck, 1976), or poor relations with their faculty advisor (Heiss, 1970). The reasons for dropping out may be related to financial, health or family problems (Tucker, Gottlieb & Pease, 1964). Berelson (1960) concluded the causes for students dropping out may not be discovered, and the actual reasons may be different from the reasons that are reported. Degree attainment is also hampered by the fact that few graduate schools keep adequate records regarding attrition in their programs (Clark, Hartnett & Baird, 1976).

Defining a graduate school dropout is a complex problem. The task is further complicated when one considers the factor of time-to-degree (the time-span from the beginning of the program to attainment of the degree). In most degree programs there is a time element attached, and the question of currency of credit becomes a problem for students who extend their programs over a period of years. A common time-to-degree requirement might be six years. But, students who have time lapses in progress towards

completing the program, may be considered *de facto* withdrawals, when, in fact, they come back later and graduate. The reasons for taking longer to complete their programs are often ones over which students have little or no control. Also, the same factors that may constitute valid reasons for a student to drop out of graduate school may be the very factors that motivate another student to persevere and complete the program.

Attempts to Deal With the Problem

Several institutions have used admissions criteria other than traditional grades and standardized test scores. The University of California at Los Angles established a set of admissions criteria quite different from those normally employed and deliberately sought to identify high-risk applicants who clearly did not meet traditional admission requirements. Harvard, Yale, and Columbia developed a summer studies program for similarly disadvantaged students and selected them on the basis of formal application, transcript of college work, statement of educational aims, writing samples, an interview and faculty recommendations. Motivation and desire were also used as prominent factors (Stahmer, 1968). Wisconsin used an approach where a faculty member would agree to counsel each student. The department offered a reduced course load, pass-fail grading in some subjects, tutoring and other special procedures to insure that the deficiencies in undergraduate preparation did not prevent the student from progressing towards the degree (Carlisle, 1968). The University of Cincinnati used the latter half of a student's undergraduate experience to look for evidence of problem solving ability. Students attended a summer institute in which services similar to those in the Wisconsin program were offered. Students who asked for the most help were the most successful in the program regardless of their low GPA (Howard, 1968).

Penn State University attempted to deal with the problem by decentralizing admissions procedures from the Graduate School to individual departments. The departments asked the Graduate School office to forward selected applications in spite of obvious deficiencies in the traditional admissions criteria. Subsequently, the Graduate School formulated policy whereby all applications would be forwarded to the departments without graduate school screening. Departments were openly encouraged to admit some disadvantaged students who ordinarily would have been rejected.

In the Penn State study six null hypotheses were tested for three groups of newly admitted students. Three dealt with junior/senior undergraduate grade point average; one dealt with admissions

based of special exceptions to departmental standards; one that sought information regarding differentiating admission standards within departments, and one that dealt with differentiating admission standards within colleges. Conclusions from the study revealed no real differences between the groups; however, decentralization of the admissions process to give departments more leeway in admitting students has proven to be a sound policy (Penn State University, Graduate School Bulletin, 1969, cited in Gunn & Leslie, 1972).

Admitting academically disadvantaged students can be rewarding. At the University of California at Los Angeles, only 25% of the disadvantaged students who were admitted failed to complete their work. Similar results have emerged from programs at Harvard, Yale and Columbia with large percentages of the at-risk students going on for additional graduate study (Stahmer, 1968). At Oberlin College an experiment with three groups of students who were admitted under different criteria that included competitiveness, high motivation, and self-reliance revealed no appreciable difference in the grade point average among the three groups. (Davis & Welty, 1970). At Western Michigan University a study of predicting the success of public administration master's students who had poor undergraduate academic records recommended a two-stage admission process. One of the stages called for admitting the weaker students on a conditional basis pending the outcome of academic work in three courses. Investigators found that the academic average of the first three courses had approximately double the predictive power of all the other variables combined (Thompson & Kobrak, 1983). Nelson and Nelson (1995) found similar results in that the GGPA in the first nine semester hours of graduate work was predictive of final GGPA.

Other studies of graduate student success in education have shown conflicting results. Kaiser (1982) and de Felix and Houston (1986) found that the GRE verbal score was the most effective predictor and the GRE quantitative score was the least effective predictor. Undergraduate grade point average did not significantly increase predictability either. But, Wesch (1984) studied graduate students in education and concluded that neither the GRE nor the UPGA were significant predictors of overall graduate grade point average. In addition, Michael's findings (1983) showed that combinations of predictor variables yielded higher validity than single predictors. This was verified in the Nelson and Nelson study (1995).

Graduate student success in academic disciplines other than education has been investigated by Michelson and Hoy, 1984; Goldberg and Alliger, 1992; Rhodes, 1994; Carlson, 1995; Wilson and

Hardgrave, 1995; and Holmes and Beishline, 1996. The most significant conclusion from these research studies is that departmental level studies are reliable and useful (Braun & Jones, 1985; Thornell & McCoy, 1985). Another conclusion that emerged supports Michael's (1983) study in that no single criterion is a good predictor of graduate school success. Where combinations of variables are used, prediction tends to be more precise. It should also be noted that all the predictor variables that might be used are not quantifiable, e.g. instructor recommendation, measures of motivation or self-reliance. In this study, another variable that is somewhat of a hybrid between the quantitative and qualitative has been used -- the graduate grade point average after the first nine semester hours of graduate study.

Research Design and Methodology

This study was conducted at a university with an average graduate enrollment of 2,600. The subjects in the study were master's level students in educational administration for the years 1987-1999. The total subject pool consisted of 321 students, 65 of which met the criteria for being at-risk. Two dependent variables were analyzed. The first dependent variable was completion or non-completion of the master's degree. Since the range of grades awarded in graduate school is small with the vast majority being "As" and "Bs", grades do not constitute good criteria for judging differential performance of graduate students. Because of the variation in the quality of degree recipients, a much more meaningful criterion is whether or not a student completes the program. The second dependent variable was the graduate grade point average (GGPA) calculated after the student had completed the first nine hours of graduate study. Because the variance of graduate grades is very narrow, the GGPA was dichotomized as follows: grade-point averages of 3.49 and below were coded as one; grade-point averages of 3.5 and above were coded as a two. The rationale for the dichotomized grades is that a grade-point average above 3.5 indicates that a student earned more "A's" than "B's", while a grade-point average below 3.5 that the student earned more grades lower than "A". The choice for nine hours was based on research studies that have indicated no significant difference in the GGPA in the student's first nine hours or first year of graduate study and the student's GGPA at the completion of the graduate course of study (Kingston, 1985; Nelson & Nelson, 1995; Rhodes, 1994; Thompson & Kobrak, 1983; Vaseleck, 1994).

Logistic regression analysis was used to determine the effect of the predictor variables on each of the dependent variables. The predictor, i.e., independent, variables were GRE verbal, quantitative, and

analytical scores, undergraduate grade point average (UGPA), the age of the student, the number of years from the time the student graduated from the undergraduate program until enrolling in the first graduate course, the type of institution from which the student graduated (research, doctoral, master's, baccalaureate, or other), admission status (whether or not the student was admitted on a probationary basis), and the area in which the student majored as an undergraduate (business, communication, education, humanities and arts, life sciences, physical sciences and social sciences). Essentially, each of the independent variables was used to predict whether the student completed the degree or not.

Nelson & Nelson's (1995) study of probationary students indicated GGPA in the probationary plan of study was a significant predictor of final GGPA, and the GRE verbal and analytical scores were moderate predictors of degree completion. That study, however, included at-risk students from all disciplines. The present investigation differed from the Nelson & Nelson study in the three different questions that were asked: 1) Did the prediction of success of probationary students in educational administration agree or disagree with the Nelsons' study? 2) Did the same prediction of success that held true for probationary students hold true for those students who were admitted to the Masters program but were not on probation? 3) Did the undergraduate major emerge as a predictor of success for probationary students in educational administration?

Analysis of Data and Discussion

The number of students for whom data were complete was 42. Of these 42 students, 28 completed the degree and 14 did not. Information available for these students included the independent variables noted above. These variables were used in a logistic regression analysis to predict whether or not the student would complete the degree.

In order to use the predictor variables that are categorical, e.g., the variables representing the type of institution from which the student earned the degree, the area in which the student majored as an undergraduate, and the type of admission to graduate school (probationary or regular) contrasts must be utilized. The type of contrast utilized for this study was a deviation contrast where one category is selected and each of the other categories is compared with the selected category. For the type of institution, a contrast matrix was established so that each institution was compared with the doctoral granting institution. For the area in which the student received the undergraduate degree, the matrix was constructed to compare

each area with education. For the variable of admission status, the contrast is automatic. The variables representing the GRE scores, the age of the student, the years since graduation with the bachelor's degree, and UGPA are continuous variables for which there is no need to set up contrast matrices. Table 3 provides a graphic view of the data.

Table 3

Factors Describing Probationary Students Who Did and Did Not Graduate from the Masters Program in Educational Administration

	Graduated	All Probationary Students Who Did not Graduate	Inactive Students Who Did Not Graduate
9-hr GGPA	3.79	3.79	3.76
Verbal GRE	431	403	330
Quant GRE	451	431	410
Analy GRE	463	471	458
Age	31.5	34.4	35.0
Final GGPA	3.79	3.80	3.78
Yrs. from BS to Grad School	7	8	8
Yrs. to Complete Degree	3		
Average UGPA	2.56	2.50	2.49

Table 4 shows the factors relating to the regularly admitted students who were admitted to the Masters program in educational administration.

Table 4

Factors Describing Regularly Admitted Students Who Did and Did Not Graduate from the Masters Program in Educational Administration

	Graduated	All Students Who Did not Graduate	Inactive Students Who Did not Graduate
9-hr GGPA	3.82	3.80	3.74
Verbal GRE	418	451	430
Quant GRE	464	539	535
Analy GRE	422	538	529
Age	30.9	31.0	29.7
Final GGPA	3.85	3.82	3.74
Yrs from BS to Grad School	6	7	5
Yrs to Complete Degree	3		
Average UGPA	3.21	3.24	3.16

In order to examine the effects of the variables on completion or non-completion of the degree, a non-compensatory procedure, conjunctive, was used. The model, as suggested by Einhorn (1971), has as a basic premise that students may have factors or characteristics in their credentials that represent hurdles or barriers that the student cannot compensate for and overcome, e.g., poor writing ability as measured by the GRE verbal score with a high undergraduate grade point average. On the other hand, a compensatory model would suggest that a high UGPA could compensate for a low GRE verbal score. If a student is required to write papers in graduate work, but was not required to do much writing as an undergraduate and the student has poor verbal ability, the high UGPA does not compensate for verbal ability. The student may drop the graduate program. In order to use Einhorn's model, UGPA and the GRE scores should be on the same scale. The GRE scores were transformed and scaled to values between 2.0 and 4.0. The averages for the GRE scores and UGPA for each group are presented in Table 5.

Table 5

Graduate Record Examination Scores and Undergraduate Grade Point Average for the Completion and Non-Completion Groups

	Completion group	Non-Completion group
GRE verbal	422.9	431.4
GRE Quantitative	452.5	487.9
GRE Analytical	446.4	517.9
UGPA	2.83	3.01
N	28	14

The fact that the scores for the non-completion group were higher than the average scores for the completion group indicates that the conjunctive model should be used. For this study, it was assumed that GRE scores are accurate measures of a student's ability.

The logistic regression data for predicting completion or non-completion of the degree with the most accuracy are presented in Table 6.

Table 6

Logistic Regression Equation for Degree Completion

Variable	B	Standard Error	Wald Statistic	Df	Significance
Institution Type			5.31	4	.26
Research v Doctoral	1.2770	1.8566	.4731	1	.49
Masters v Doctoral	2.2793	1.9936	1.3071	1	.25
Bacc. v Doctoral	3.5544	1.7058	4.3417	1	.04
Other v Doctoral	1.6214	3.4551	.2202	1	.64
Area			8.3119	5	.14
Bus.v Education	-.7406	6.8875	.0116	1	.91
Comm. v Education	-4.6493	6.9279	.0378	1	.51
Hum. & Arts v Education	1.3464	6.9279	.0378	1	.85
Psych v education	11.4237	34.0325	.1127	1	.74
Soc. Studies v Education	-3.2214	7.5436	.1822	1	.67
UGPA * GREV	2.0707	1.0583	3.8285	1	.05
UGPA * GREQ	-1.0233	.7561	1.8319	1	.18
UGPA * GREA	-1.4316	.9723	2.1678	1	.14
Constant	8.2158	.5454	1.1856	1	.28

The independent variables that remained in the equation and thus served as the best predictors were the type of institution from which the student earned the undergraduate degree, the academic area in which the student majored as an undergraduate, and the product of the UGPA with each of the GRE scores. In examining the type of institution from which the student received the undergraduate degree, the contrast of the institution with the Carnegie classification of baccalaureate with the classification of doctorate was most significant. The area in which the student majored was significant, but none of the contrasts was able to pinpoint which area was significant. The most significant of the variables constructed using the Einhorn model was the UGPA multiplied by the scaled GRE verbal score.

The highest prediction rate when the stepwise logistic regression analysis was used is shown below in Table 7.

Table 7

Accuracy of the Logistic Regression Results for Predicting Program Completion or Non-Completion

		Predicted	
Observed	Completed	Did not completed	Percentage Correct
Completed	26	2	92.9
Did not complete	2	12	85.7
		Overall percentage	90.5

As depicted in Table 7, the logistic regression analysis allowed the researchers to predict with 90.5% accuracy whether or not students would complete the degree. For the 14 students who did not complete the degree, 12 were predicted correctly while two were misclassified as completing the degree. As shown in Table 7, the prediction was 85.7% accurate for those who did not complete. Of the 28 students who completed the degree, the researchers successfully predicted 26 of these students, but misclassified two who, from the information of their background, were not able to complete the program. The prediction for those completing the degree was 92.9% accurate.

Some variables that were considered in the prediction equation were not statistically significant predictors. However, by considering multiple variables simultaneously the prediction was more precise. Even though some of the variables did not reach the level of significance, they did play a part in the overall calculation. The fact that a high UGPA could not compensate for a low GRE verbal score serves to verify Einhorn's major premise that there are some indices that a person cannot overcome. Such deficiencies must be considered when making decisions such as admitting students to a graduate program. The GRE verbal score is obviously an important factor to consider in light of the written and verbal requirements of a graduate program.

When an attempt was made to predict the dichotomized probationary grade point average with the predictor variables listed above, it was found that only two students had a grade point average lower than a 3.5. This gives further credence to determining success in a graduate program by completion of the degree rather than the grade point average.

Summary

The questions that differentiated this study from those of Nelson and Nelson (1995) were answered affirmatively. First, the most significant predictor of graduate student success in both studies was the variable in which the UGPA was multiplied by the scaled GRE verbal score. Second, this predictive model was shown to be significant for both probationary and non-probationary students majoring in educational administration. Finally, the undergraduate major did emerge as a predictor of success in the present study even though the model could not pinpoint the specific area.

Should at-risk students be admitted into a graduate preparation program? Yes and No! However, this research supports a process that might be used in systematically predicting those students who have the greatest chance of success. It has also demonstrated those students who are at greater risk of not completing the program. As previously stated, there are some issues that are not viable alternatives, e.g., lowering standards

It seems harsh for a student to be denied admission to graduate study on the basis of a low UGPA. In some cases the student has the ability to achieve but for some reason simply did not accomplish the feat. On the other hand, the low UGPA is an accurate indicator of some students' achievement ability and denial of admission into graduate school is warranted. As Einhorn's model suggests, there are some barriers that cannot be overcome. The main contribution of this research is the established model for predicting degree attainment. Additional cases added to the database should help in advancing the model.

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