Prediction of Academic Achievement in an NATA-Approved Graduate Athletic Training Education Program

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Abstract:

The purpose of this investigation was to determine which information used in the applicant selection process would best predict the final grade point average of students in a National Athletic Trainers Association (NATA) graduate athletic training education program. The criterion variable used was the graduate grade-point average (GPAg) calculated at the completion of the program of study. The predictor variables included: 1) Graduate Record Examination-Quantitative (GRE-Q) scores; and 2) Graduate Record Examination- Verbal (GRE-V) scores, 3) preadmission grade point average (GPAp), 4) total athletic training hours (hours), and 5) curriculum or internship undergraduate athletic training education (program). Data from 55 graduate athletic training students during a 5-year period were evaluated. Stepwise multiple regression analysis indicated that GPAp was a significant predictor of GPAg, accounting for 34% of the variance. GRE-Q, GRE-V, hours, and program did not significantly contribute individually or in combination to the prediction of GPAg. The results of this investigation suggest that, of the variables examined, GPAp is the best predictor of academic success in an NATA-approved graduate athletic training education program.

Article:

Graduate education, once considered an exception in athletic training, now is becoming the rule for
success for the entry-level athletic trainer. Although there are many avenues through which an athletic trainer may pursue graduate education, only 13 NATA-approved graduate athletic training education programs currently exist. There are also non- approved graduate athletic training-related programs that provide excellent graduate education for athletic trainers.

For each seat available in these graduate programs, program directors often receive five or more times the number of applicants. To select from those qualified candidates, program

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directors must determine how to predict the potential success of applicants. Although most universities and colleges have specific criteria for admission, a program director often is faced with the final determination of qualified individuals with very similar credentials and abilities from an applicant pool.

The selection of admission criteria that best predict academic success is an important precursor to the applicant se lection process. Several investigators have examined the effectiveness of admission criteria to predict the academic performance of allied health students. [1,2,4,8,9] Some of the predictors studied were: preprofessional grade point average (GPA), science GPA, standardized test scores, written composition scores, recommendations, and interview scores.

The basic goal of athletic training education is to produce competent, entry- level practitioners. To attain this goal, students must first successfully complete academic requirements. Previous academic achievement has been shown to be a good predictor of academic success in graduate business students,[10] allied health students,[9] and physical therapy students.[1,2,8] However, there are no published reports of prediction of academic success in athletic training education.

Our investigation attempted to determine which specific criteria used in the applicant selection processes would best predict the final grade point average of students in an NATA-approved graduate athletic training education program.

METHODS
Subjects were 55 students (32 men and 23 women) enrolled in the graduate athletic training program at the University of Virginia during a 5-year period between 1986 and 1990. Ninety-one percent of all students included in this group were NATA-certified or eligible for cer-tification at the time of admission. The remaining students were deficient in the number of clock hours of clinical experience. Complete data on each of the 55 students were collected from application files and final academic transcripts.

We examined five predictor variables representing criteria used in the applicant selection process: students' scores on the quantitative portion of the Graduate Record Examination (GRE-Q), scores on the verbal portion of the Graduate Record Examination (GRE-V), the preadmission grade point average (GPAp) based on course work completed before admission into the graduate program, total hours of preadmission clinical experience (hours), and the students' method of undergraduate athletic training education (curriculum or internship). The categorical program variable was coded to represent group membership (0 for internship and 1 for curriculum).

The dependent or criterion measure was the final graduate grade point average (GPAg) calculated for 36 to 38 semester credit hours of graduate study. We analyzed the data using a stepwise multiple regression analysis. The SPSS[7] stepwise multiple regression program was used to determine significant predictors of GPAg. Criterion for entry of a variable into the equation was PIN .05 and tolerance of .0001.

RESULTS

All students in the study had (mean ± SD) GPAg of 3.4 ± .31, GPAp of 3.3 ± .3, GRE-V of 452 ± 69, GRE-Q of 525 ± 90, and 1332 ± 804 clinical hours. Twenty-eight students were graduates of an undergraduate athletic training curriculum program, and 27 students graduated from an undergraduate internship program.

The GPAp was a significant ($p < .001$) predictor of GPAg, accounting for 34% of the variance. GRE-Q, GRE-V, clinical experience hours, and the type of undergraduate athletic training education did not significantly ($p > .05$) contribute individually or in combination to the prediction of GPAg. A summary of regression coefficients are presented in the Table.

DISCUSSION

Of the variables examined, GPAp is the best predictor of academic success in an NATA-approved graduate athletic training education program. This is consistent with the results of investigations in other allied health professions assessing prediction of academic achievement.[1,2,8,9]

GRE-Q and GRE-V did not contribute significantly to prediction of GPAg in our study. Day[4] reported that GRE-Q and GRE-V were not significant predictors individually or in combination with other variables in predicting final grade point averages of physical therapy students. Millimet and Flume[6] discovered that there existed a linear relationship between GPA and GRE scores in the acceptance rates of students into graduate programs in psychology. They indicated that as GPA and GRE scores increased, so did the rate of acceptance into graduate programs.

Stepwise Multiple Regression Analysis Summary of Predictors of Final GPA in Athletic Training Students

Predictor Variables	n	R^2	R^2 Change	
GREp	55	.34	.34	.001
GRE-Q	55	.38	.04	.06
Hours	55	.38	.00	.62
Program	55	.38	.00	.83
GRE-V	55	.38	.00	.92

GRE-Analytical (GRE-A) scores were not included in our study. Day[4] suggested that the GRE-A provides a measure of analytical ability to highlight the problem-solving ability of a student. Day used GRE scores as predictors of academic success in graduate physical therapy programs. She reported that the GRE-A component and the preadmission GPA contributed significantly to the variance in predicting final GPAs in physical therapy programs. Goldberg and Alliger[5] noted that there was a positive correlation between GRE-A scores and the success of psychology students in graduate education measured with multiple criteria. They also discovered that the GRE-Q scores had some predictive abilities of future quantitative grades (positive correlations of .2 to .6).

The total number of clinical experience hours and the type of undergraduate athletic training education (curriculum vs internship) was found not to contribute to the prediction of academic success (as determined by GPAg). From this finding, however, it should not be assumed that these criteria may or may not impact the qualitative assessments of a student's

clinical abilities and success in the clinical components of a student's education. Further studies, both quantitative and qualitative, are necessary to determine the success of graduate athletic training students in the clinical components of their graduate education.

The results of this investigation support the use of GPAp as an indicator of potential academic success. There are several limitations inherent in the use of GPA to predict academic success. Chaisson[3] noted that "each format for selecting out the most suitable candidates, even though designed by people with intelligence and well-intentioned motives, carries with it inevitable margins of error." She noted that, in medical schools, GPA was used as a threshold rather than an absolute determinant of selection, because GPAs were different from school to school and may have been influenced by variables, such as with whom specific courses were taken, where, and when.[3]

A second limitation is the confined variability in the range of GPAs of the applicant pool. In our investigation, the range of GPAp was 2.5 to 3.8. The narrow range may not allow adequate discrimination between applicants.[4,5] Although the use of GPAp may have some limitations, we believe that this measure provides useful information and serves an integral component of the applicant selection process.

The primary outcome of the applicant selection process is to determine those applicants who will successfully complete the academic requirements of the program. However, the long-term goal is successful clinical performance. A selection committee should attempt to select candidates who have the potential to attain both academic and clinical success. Further research is necessary to evaluate the impact of additional predictor variables on both academic and clinical performance. Data obtained from interviews, recommendations, and other sources may be included in subsequent endeavors. Continued research is required to develop and evaluate criterion variables related to clinical proficiency.

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