Work in Progress: The Relationship Between Objective and/or Subjective Admissions Criteria and Success Outcomes in Undergraduate Engineering

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Abstract - University admissions policies throughout the country are undergoing review and revision, and universities are considering options which range from basing admissions most heavily upon objective criteria, such as SAT/ACT scores and/or High School rank, to favoring more holistic approaches, including individualized subjective reviews of accomplishments and characteristics reported in applications, and application essays. Variations of these approaches have been in practice at Texas A&M University for quite some time, yet little was known about how these admission practices were actually predicting the retention, academic performance, and graduation of students throughout the institution. Moreover, less was known about how accurately university-wide objective and/or subjective admission criteria predicted success for the students of very different colleges. This study identifies the admission criteria, which have best predicted academic success among engineering students from freshman cohorts 1997 through 2001. It specifically examines the predictive effectiveness of using “objective” merit-based criteria, in combination with subjective criteria, vs. using only “objective” admission criteria. Success outcomes of the sub-population of students exempt from admission review due to high school rank or high SAT/ACT, are examined in relation to objective criteria only. The outcomes of the students who did not meet exemption criteria and were admitted due to favorable review of both objective and subjective admission criteria are examined in relation to objective criteria alone, and also in relation to objective and subjective criteria together. Results are observed and reported for Male & female, White, Hispanic & African American subpopulations.

Index Terms - Admissions, Logistic Regression, Objective admissions criteria, Predicting outcomes, Subjective admissions criteria.

INTRODUCTION

Admissions policies and criteria have been topics of longstanding concern and discussion in higher education. [1] They have been regularly scrutinized by universities during internal reviews and “reality checks” required to achieve and maintain academic excellence, as well as to adjust for legal and political reinterpretations of what constitutes justifiable admissions practices, e.g., considering race/ethnicity or diversity in admission selection, in the light of Hopwood v. Texas (1996)[2], then two almost contradictory supreme court findings in the University of Michigan admissions cases, Gratz v. Bollinger and Grutter v. Bollinger.[3] which stirred controversy, and generated confusion over university admissions policies and criteria throughout the country. [4]-[5] The latter implied that considerations of diversity required individual review and deliberation on numerous factors, which could contribute to diversity, including race. On the other hand, in Gratz v. Bollinger, diversity was not upheld as a justifiable criteria in an admission process, if it was not narrowly tailored, and failed to review a large body of non-minority as well as minorities, for the purpose of evaluating them on criteria aimed a producing student body diversity.

Also exerting pressure upon admissions practices and policies was the enactment of mandates in several states (including Texas) to guarantee admission of graduates in the top percentages (10% in Texas and 20% in Florida) of every high school’s graduating class to the state’s public universities. Instituted in time to impact the admission of the 1998 freshman cohort, this measure was intended, in Texas, to help mitigate the dampening effects, which the 1996 Hopwood Decision had wrought on minority enrollment in the state’s universities – particularly at Texas A&M University and the University of Texas. The success of the Texas Ten Percent Plan has been debated [8]-[9] and its unintended consequences have raised some concerns in a number of areas (i.e.using up entrance slots which might otherwise have been given to students of greater merit based on criteria other than high school rank: promoting multiple acceptance scenarios and tying up admission slots which students did not intend to use; providing disincentives for taking difficult courses in high school which might put a high class ranking at risk.) In view of these circumstances searches have been underway to identify the most effective, cost efficient, fairest, yet legally defensible ways to conduct admission selections.

ACKNOWLEDGMENT: This project was funded in part by NSF HRD-9624602

0-7803-8552-7/04/$20.00 © 2004 IEEE  
October 20 – 23, 2004, Savannah, GA

34th ASEE/IEEE Frontiers in Education Conference

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STUDY QUESTIONS

Against this backdrop, questions were raised about how well the university’s existing selection criteria have been performing their intended function of “screening in” students who are likely to succeed at Texas A&M University (TAMU) while not unduly eliminating members of underrepresented minorities and other under-served groups who demonstrated reasonable qualifications for success at TAMU. The latter question was raised because members of underrepresented groups have been known not to demonstrate their full potential for success on some university admission criteria which have work well to predict the college success of majority group members. [10] The Engineering Admission Study in this paper is an extension of a larger study, originally spearheaded, in August of 2002, by the leadership of the Texas A&M System NSF Louis Stokes Alliance for Minority Participation (TAMUS LSAMP) and the Educational Assessment Resources (EAR) Office in the Texas Engineering Experiment Station (TEES) Division of Educational Achievement. The study was also endorsed by the office of the Associate Provost (who is also the TAMUS LSAMP P. I.), and the offices of the TAMU Directors for Enrollment and for Admissions.

The original Admissions Study inquired specifically into the predictive effectiveness of objective and subjective admission criteria used to review applicants who were not automatically admitted based on elevated high school rank or SAT/ACT scores, because they were neither in the top high school decile, nor among the students in the top 50% of their classes who also had SAT/ACT scores of 1300/30 or higher. It also inquired into the individual predictive effectiveness of objective and subjective review criteria. Objective criteria were based on widely used measures of merit -SAT/ACT & high school rank- (whose validity has been challenged, nonetheless [6]-[7]), while the nine subjective selection criteria attempted to capture students’ extra-academic achievements and distinguishing characteristics from information provided in their admission applications. The original study also examined the relative predictive effectiveness of criteria with different groups of underrepresented students who had been admitted. Relative predictive effectiveness of these criteria was measured in relation to several key student success outcomes, and all questions were posed for the TAMU population at large, regardless of specific college.

The current study focuses specifically upon the 1997-2001 freshman cohorts of engineering students. It compares the predictive effectiveness of admission criteria studied earlier, between engineering students and TAMU students. It also compares the predictive effectiveness of objective admission criteria alone, with the predictive effectiveness of objective and subjective admission criteria, considered together. This study also examines differences in the effectiveness with which various admission criteria predict success in different ethnic and racial subpopulations, which is a matter of critical interest to the NSF TAMUS LSAMP program [11], and to the Texas State mandated plan for “Closing the Gaps” [12] which are both committed to increasing the enrollment, retention and graduation of underrepresented minority science, technology, engineering and math students at TAMU. The study also explores the longitudinal student outcomes of students with weaker objective criteria, but stronger subjective criteria.

The TAMU Admission Criteria under study include:

1. “objective” admission criteria --Predicted GPA (a linear combination of HS Rank and SAT/ACT score automatically generated for each TAMU applicant) and
2. nine subjective admissions criteria, as independent (predictor) variables. These nine subjective criteria included Parental Education Level (edlv), Extracurricular Participation (part), Leadership (lead), Service, Talents/Awards (awad), Work (work), Legacy (lega), Association with Texas A&M (assoc), and Extenuating Circumstances (extn).

REFERENCES


07803-8552-7/04/$20.00 © 2004 IEEE