

The Use of a GPA Prediction Formula to Better Prepare the Freshman Student-Athlete for College Academic Success - One School's Approach

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The selection of variables that predict college success has long been a focus for researchers in higher education. While many academic prediction models have used the grade point average (GPA) of freshmen college students, much debate continues about which variables best predict the college GPA.

Several researchers have investigated variables that best predict the GPAs of collegiate student-athletes. Brigham (1982) found that the ACT composite score was the best predictor of the GPA of black male student-athletes, while family income was identified as a good predictor for this group. For white male student-athletes, good predictors included ACT scores, high school grade point average and high school rank. When Mayo (1986) used high school class rank and ACT composite score to predict grade point averages, black student-athletes achieved at a lower level than predicted. When Mayo (1986) used high school class rank and ACT composite score to predict grade point averages, black student-athletes achieved at a lower level than predicted. While the black student-athletes' average high school rank was at the 53rd percentile, their average ACT score was under 14. Mayo concluded that the black student-athlete does well in high school but is not prepared for the ACT or to survive in college coursework.

Many times, student-athletes are admitted as special admission students. Gurney and Stuart (1987) found that freshman student-athletes who were enrolled as special admission students had lower GPAs than regularly admitted student-athletes but did remain in good standing at the end of the first academic year. They actually persisted at a higher rate than other freshman student-athletes. Cerra (1984) also found that student-athletes who were specially admitted were more likely to persist than to drop out. However, Cerra did not isolate variables that best predicted actual GPAs.

After reviewing the literature, the staff of the Total Person Program, the academic counseling unit of the Department of Intercollegiate Athletics, concluded that research findings could not be generalized specifically to the student-athlete population at the University of Missouri-Columbia. Therefore, with assistance from the Registrar's Office and Athletic Department records, academic data were gathered on all UMC student-athletes competing from 1980-85. The goal was to develop a prediction formula consisting of variables that best predicted first semester fall GPAs of freshmen student-athletes. The predictions could then be used to help advise appropriate academic coursework for the group, to identify and to assist the incoming high risk freshmen become better prepared academically and to help identify high risk candidates during recruiting. In a recent survey of 82 athletic directors of NCAA Division 1-A schools, the respondents reported that early identification of students who may experience academic difficulties and provision of a remedial course in basic skills could lead to improved academic performance and graduation rates (Julian, 1988). These conclusions verify our concerns for the need for this type of research.

The research project started by gathering data on 1,100 student-athletes competing on squads from 1980-85; 324 football student-athletes were included in this number. Variables included ACT composite score; all ACT subscores; high school percentile; high school size; race; hometown location; freshman or transfer status; scholarship status; fall UMC semester hours attempted and earned; winter UMC hours attempted and earned. The criterion variable was fall GPA. Winter GPA and year GPA were also included as variables in order to look at any significant correlations.

A multiple regression procedure was then used to generate a prediction formula that best predicted the fall GPA of the freshmen student-athletes. Five variables were found to be significant in predicting fall GPA contributing to an R square of .35; the variables were high school percentile, ACT English subscore, ACT natural science subscore, ACT math subscore and scholarship or non-scholarship status. ($F = 12.441$ p.0001.) The prediction formula is: $719.5 + 208.3 \times (0 \text{ if nonscholarship; } 1 \text{ if scholarship}) + 15.5 \times (\text{high school percentile}) + 15.8 \times (\text{Natural Science ACT subscore}) + 22.3 \times (\text{English ACT subscore}) - 11.82 \times (\text{Math ACT subscore}) \times .001 - .26$.

The five significant variable scores for the 23 freshmen football players entering in the fall of 1987 were then inserted into the prediction formula. The formula was computed for each player resulting in a predicted fall GPA for each one. The mean of the group's predicted fall GPA was 2.133. The mean of the football student-athletes actual fall GPA was 2.057. The mean of the difference of GPAs (predicted GPA minus actual GPA) was .079 and the difference between the means was not statistically significant.

Thirteen players were within a .50 difference between predicted and actual fall GPAs. Five of the GPA differences were within .25. Seven players had actual GPAs that exceeded their predicted GPAs and 16 players had actual GPAs that were under the predicted value. The formula was also computed for 17 freshmen football players entering in the fall of 1986 with similar positive results.

Although the prediction formula was accurate a few players had extreme differences between actual and predicted scores. The reasons for these differences were varied. Once the student-athletes' personality, family background, high school background and motivation level were known, a variety of factors were found that may have entered into an individual doing much better or much worse than predicted. Information gathered during recruiting and when the student-athlete first arrives on campus could eventually help refine the formula. Thus, a profile sheet was developed indicating distinctive features about the incoming student-athletes that might make an impact on their predicted fall GPA. For instance, attending a high school known for its high academic standards might result in a lower high school percentile thus lowering the predicted GPA.

Once an instrument had been developed to help determine the academic potential of student-athletes, programs were developed to address individual needs. Using the prediction formula, student-athletes are grouped into four categories: no or minimal risk; little risk; moderate risk and high risk. These categories are now used for five distinctively different purposes.

First, the categories are used for academic advising. Using the campus Freshmen Advising Guide as well as course grades for the last group of freshmen student-athletes, anyone predicted to fall into the moderate or high risk range are programmed into courses where they have a greater opportunity for success.

The second way the GPA prediction formula is utilized is to individualize the Study Skills Improvement Program. All freshmen student-athletes must take a study skills class. Typically, the students are divided into groups of ten. The class consists of basic study skills, time management, test-taking skills, dealing with test anxiety, library skills, computer skills, career counseling, and areas directly related to student-athletes such as working with the media and the freshman transition experience as student-athlete. Student-athletes predicted to fall into the low GPA range are put into sections where more individual attention is provided. The instructor selected to work with these groups check each student's class assignment completion and note-taking on a daily basis. Fortunately, one of the athletic academic support offices is located next to the dining hall in the football facility. Hence, it is easy for freshmen football and

basketball student-athletes to stop in with their work. Even though the study skills program formally ends in October, the instructor continues this daily check until the end of the school year.

A third application of the prediction formula is to help us decide which freshmen student-athletes need tutors. At the beginning of each semester, class schedules of all football and basketball student-athletes with marginal GPAs are evaluated and tutors are assigned for some or all classes. The same is done with freshmen, with the numbers of tutor groups required dependent upon the assessment of each individual's potential as well as the difficulty of fall class schedules. High risk student-athletes would very likely be assigned to a tutor group for every class. The only exception would be an English class where all student-athletes under concern would be assigned an individual English tutor. It is a Total Person Program policy that all English tutoring be done on an individual basis.

Next, the Coordinator of the Academic Progress Monitoring division makes use of the categories to assign the minimum number of hours per week that scholarship football and basketball student-athletes are required to be in either tutor groups or supervised study hall. A predicted high risk student-athlete might be required to have as many as 15 hours compared to a little risk student-athlete who may be only required to have six hours. The student-athletes are introduced to a system whereby they are responsible for securing the signature of all tutors and study hall supervisors to verify their participation in required study time. The time sheets are submitted on Friday afternoons with the new week beginning again on Saturday. After semester grades are reported, the Coordinator of Academic Progress Monitoring reviews the term GPAs and the assigned hours are adjusted if warranted.

The fifth way the GPA prediction model is employed is in the identification of those who might benefit from special learning workshops and individual diagnostic testing. High risk freshmen student-athletes are required to attend a two day reading improvement workshop. This twelve hour workshop dramatically improved reading speed and comprehension of the fall 1987 freshmen. Reading speed and comprehension improved 4-5 times their normal rate and the student-athletes enjoyed participating in the workshop and witnessing their quick improvement. In addition, the program employs a staff member trained in administering diagnostic tests to help assess individual strengths and weaknesses of the high risk student-athlete. After testing, the staff member develops any remedial instructional programs considered necessary. This staff member also confers with the individual tutors of the student-athletes tested and supplies them with remedial learning strategies that will better help the student-athletes to learn and process information. Special remedial work is performed by another staff member trained in remediation techniques.

By the end of fall semester, in most instances, the freshmen student-athletes have become much better prepared to succeed academically as they have been provided with a structure where they can organize themselves and complete school work assignments as well as participate in intercollegiate athletics. They become accustomed to the monitoring of their class attendance, tutor groups and study hall time and have accepted the serious academic environment at the University of Missouri-Columbia.

A process is now underway to educate the coaches in the uses of the formula in recruiting student-athletes with strong academic as well as athletic talent. The prediction formula could be a way to identify a four-year contributor as opposed to a recruit that will be a marginal student at best. Admittedly, in-state blue-chip talent, even if predicted to be a high risk student-athlete, will still be heavily recruited. However, we hope the prediction formula will start to be a useful tool for the coaches in making wise recruiting decisions.

Our approach may be a major reason that the grade point average of the football team is increasing at a steady rate, although the freshmen student-athletes' fall 1987 GPAs are still not at the level that we desire. It was hoped that this academic year (1987-88) the actual Fall GPAs would be higher than the predicted GPAs with there being a statistically significant difference between the means. Part of the problem may be that the predicted scores are slightly inflated because student-athletes often take the ACT and SAT multiple times while they are in high school thus decreasing the predictive strength of these variables. Also, the high school class rank of some student-athletes from educationally sub-par inner city schools may result in a higher predicted GPA. The prediction formula must now be refined by studying the last two years of freshmen student-athletes with emphasis on how high school core course GPA, as well as several other demographic and behavioral variables contribute as predictors. Also, there is a need to examine the effect of Bylaw 5-1-j on our prediction formula.

Finally, our prediction formula was developed within the environment of the University of Missouri-Columbia. Because of the variability among educational institutions, our formula may not be universally useful. Although the formula may serve as a guideline, each institution needs to engage in research in order to develop its own GPA prediction formula useful in program development.

References

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