UNDERSTANDING STUDENT GPA

INTRODUCTION

As a student of Stephen F. Austin State University, I was intrigued to find a relationship between student living habits and cumulative college GPA (grade point average). The manner in which we conducted our project was to randomly distribute and collect surveys from the student body. Our survey was comprised of many variables but the ones that had statistical significance in our model were: current GPA, female, High School GPA, nights per week, partying per week, and ethnicity.

With these statistically significant variables we were able to generate our predicted GPA's and compare them to our actual GPA's. We have found that our model accurately predicted each student’s current GPA. For group member Malcolm Reinoso, his predicted GPA was 2.579 and his actual GPA was 2.9. Lastly, for group member Carla Torres, her predicted GPA was 2.855 and while her actual GPA was 2.6. After running the regression equation against our actual GPA’s, we have inferred that our statistical model is on average a reasonable estimate of actual GPA’s.

My overall goal of this project is to make these results accessible to all SFA students because I want to make students more aware of that there is a clear relationship if their actions are in fact a determinant of college GPA.

EVALUATING THE REGRESSION

Goodness of Fit
Our Adjusted R² was .23 which means that 23% of the variation in Current GPA is explained by our model. Our Adjusted R² of .23 was fairly good considering that human behavior is known to be difficult to model, as expected.

Significant Variables
The significant variables in our regression are HS GPA and White because both of their p-values fell under our alpha of 0.05. HS GPA has a p-value of 0.003 and White has a p-value of 0.007. The next closest significant variables in our regression that was deemed relevant was Partying Night per Week, with a p-value of 0.06, and Exercise per Week, with a p-value of 0.08, because their p-values fell under an alpha of 0.1. The other variables in our regression had p-values greater than or equal to alpha 0.1 so they were not significant variables.

Signs and Magnitudes
When looking at the signs and magnitudes of our variables in our regression we agree that the coefficients of our variables correctly state the relationship we expected with our dependent variable, Current GPA. We expected the variables of Female, HS GPA, Exercise Hours per Week, and White to have positive coefficients because these variables are expected to increase Current GPA. Partying Nights per Week was expected to have negative coefficients as an increase in these variables would decrease Current GPA.

Sample Size
Large samples always lead to more accurate predictions. For our project we sampled over 100 people on campus. While sampling people we assured them that their information would be kept private and anonymous by having a box for their results and in return we hoped for their honest results. If we had every student on campus take this survey our prediction of a student’s Current GPA should be closer to their actual current GPA then the prediction we have obtained with only 100 samples.

Potential Variables Left Out
Potential variables left out that would have contributed to our project would be if they’re in a relationship or not, if they have a pet, how many siblings they have, how many siblings they have, if they go to church every week, etc. These variables may have negative coefficients as an increase in these variables would decrease Current GPA.

Insignificant Variables
The variables with the highest p-value in our regression was Female. This indicated that whether or not the student was Female had a minimal effect on their current GPA. Although, with an alpha just over .1 we deemed it as minimal because we were mainly concerned with variables with alphas below .1 or .05 as these variables impacted GPA much more greatly.

EXECUTIVE SUMMARY

As a student of Stephen F. Austin State University, I was intrigued to find a relationship between student living habits and cumulative college GPA (grade point average). The manner in which we conducted our project was to randomly distribute and collect surveys from the student body. Our survey was comprised of many variables but the ones that had statistical significance in our model were: current GPA, female, High School GPA, nights per week, partying per week, and ethnicity.

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My overall goal of this project is to make these results accessible to all SFA students because I want to make students more aware of their everyday habits and how it corresponds positively or negatively in relation to their current college GPA. I would set up a simple generator, based on my results, and make it available to various resources on campus such as the AARC (Academic Assistance and Resource Center), the student help desk, and even the campus recreational center in hopes that students will utilize what I’ve learned and apply it towards better understanding where their time could be more effective in areas that would boost their GPA.

CONCLUSION

The purpose of our project was to effectively prove that certain aspects of a student’s weekly activities have a positive or negative relationship when comparing it to cumulative college GPA. We have come to the conclusion that having a high High School GPA, the ethnicity of the student, if the student is male or female, and the amount of hours a student exercise per week are clear positive affecting factors in adequately predicting changes to Current GPA.

In the future our research can be furthered by increasing the sample size and including omitted variables in the survey to get a more accurate regression equation for more accurate predictions of student’s Current GPA.

With our research we hope to be able to persuade more students on campus to take advantage of their time and utilize the resources on campus such as the recreation center or even the Academic Assistance and Resource Center (AARC). By having people put in their information into our regression equation at one of the accessible locations on campus we hope our project results will make students more aware of how they could increase their Current GPA if they took advantage of the resources SFA has to offer.

GPA PREDICTION

ŷ = 1.365 + 1.76(Female) + 3.69(High School GPA) - 0.72(Partying per Week) - 0.012(Exercising per Week) + 0.292(White)

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* Faculty Sponsor: Ryan Phelps (Economics and Finance)
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TABLE 1: SUMMARY OUTPUT

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<th>Coefficient</th>
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