Jada Moody

Elizabeth von Briesen

1100 Data Science and Visualization

April 12, 2023

Elon’s Mission

# Problem Formulation

Elon recently released their Boldly Elon strategic plan which describes their vision for Elon in 2023. Within this strategic plan, there are 4 themes, Learn, Thrive, Connect, and Rise. I will be focusing on the theme of Thrive which focuses on diversity and inclusion. Elon wants to provide an environment a more diverse and inclusive environment, but the recent increases in tuition may not leave room for an increase in diversity. It may lead to a decrease according to a report from the Center on Budget and Policy Priorities. According to Fredman, “While a more diverse population of students has been enrolling in higher education, this trend is likely to reverse if tuition costs — coupled with relatively low per-student funding from states — continue to rise” (Fredman). Elon may not be able to accomplish its mission if this is the case. Fredman also reports, “The report’s authors wrote that rising tuition costs “may harm students of color and reduce campus diversity,” citing a study that found that a $1,000 tuition increase for full-time freshman at less-selective institutions “was associated with a 4.5% percent drop in class diversity”” (Fredman). In this report, I will explore the question of whether tuition and fees negatively affect diversity and how Elon compares to its peer institutions based on these factors.

# Data Collection, Storage, Cleaning, and Analysis

Data Collection

To answer the question of whether tuition and fees affect diversity and see how Elon compares to its peer institutions based on these factors, I collected on tuition and fees from U.S. News & World Report (2022-2023 Best National Universities | US News Rankings) for Elon and its peer institutions. Some schools had in-state tuition and out of state tuition post, so for those I used in-state tuition. The other schools only had one tuition posted so I assumed that in state and out of state is the same. I used this same source to collection ethnicity information from these schools as well. I decided to collect the percent of minority enrollment and the percent of each ethnic group (White, Hispanic, Black, Asian, Multi-Racial, International, and Unknown). I chose to get my data from U.S. News & World Report because they use data and technology to publish independent reporting, ranking, journalism, and advice that has earned the trust of their readers and users for nearly 90 years (2022-2023 Best National Universities | US News Rankings).Within this source, I had to navigate to the Best National University Rankings page to be able to search for each of the schools. Once I found the school, I clicked on it and collected the data that I needed to answer the question. All of the data I collected is from the 2022-2023 academic school year.

Data Storage & Cleaning

I stored the data that I collected into an Excel spreadsheet. I created two workbooks, one named Tuition and Fees to hold the tuition and fees data for each college and the second one is named Student Demographics to hold the minority enrollment and ethnic group percentage for each college. Since I just collected the data that I needed to answer the question, I didn’t have to do any cleaning to the data.

Data Analysis

The data that I collected didn’t need any further aggregation. I was only looking for the tuition and fees of each school and their demographic information for ethnic groups. This information was provided by the source that I used, so I didn’t need to do anything else to the data.

# Data Visualizations

Chart, scatter chart

Description automatically generatedI created multiple visualizations to answer the question and show the correlation between tuition and fees and diversity. To answer the question of if tuition and fees negatively affect diversity and how Elon compares to its peer institutions based on these factors, I created tow scatter plots and a slope graph. The first scatter plot that I created, compares the tuition and fees of each university to the amount of minority enrollment they have, which can be seen in *Figure 1* below. This chart shows the correlation between tuition and fees and minority enrollment for each of the universities. After analyzing the graph, I observed that compared to its peer institutions; Elon has one of the lowest rates of minority enrollment. Elon mentions that they want to provide a more diverse and inclusive environment, but these numbers don’t reflect that. With the question of does tuition and fees negatively affect diversity, the graph doesn’t show that there is a negative effect. There are universities that have a much higher tuition than Elon’s and they have a much higher rate of minority enrollment. The next scatter plot that I created tells a different story. With this scatter plot, I compared each university’s tuition and fees to each ethnic group at that university. Below is *Figure 2*. Chart, scatter chart

Description automatically generatedAfter analyzing the scatter plot, I noticed that most of the universities have a high number of White students that attend. I also noticed that Elon has the highest number of White students compared to its peer institutions. Another thing that I noticed is that the minority group numbers are way lower than the White numbers. For each university, the percent for each minority group is low. This scatter plot goes into more detail and shows the story behind the numbers in *Figure 1*. In *Figure 1*, the numbers didn’t look that bad, but in *Figure 2,* it shows that each minority ethnic group has a very low number compared to the number for the White population. As mentioned before, these numbers don’t reflect Elon’s mission. Elon doesn’t seem to be doing so good in diversity compared to its peer institutions. Next, I created a slope graph to examine to relationship between tuition and fees and minority enrollment of each university. Below is *Figure 3*. With this graphChart, line chart

Description automatically generated I ranked the universities by highest to lowest tuition and fees. When examining this graph, I noticed that the lines going down may indicate that having a high tuition and fees leads to lower minority enrollment, which isn’t shown in the other graphs. This graph doesn’t show how bad Elon’s minority enrollment is like *Figure 1* and *Figure 2* shows.

Figure : Scatter Plot That Shows the correlation between tuition and fees and minority enrollment.

Figure : Scatter Plot Comparing Tuition and Fees to the Percent of Each Ethnic Group at that University.

Figure : Slope Graph to see the Relationship Between Tuition and Fees and Minority Enrollment

# Conclusions

After interpreting the data and reviewing the graphs, I can answer the question that I formed. Based on Elon and its peer institutions, I can’t say with certainty that tuition and fees negatively affect diversity because with some of the peer institutions, their tuition and fees are high, and they have high minority enrollment. Elon’s tuition and fees are high, and their minority enrollment is one of the lowest out of its peer institutions. I also can’t say for certain if tuition and fees are the reason that Elon’s minority enrollment is low. To answer the question of whether tuition and fees negatively affect diversity, I would have to do additional research. Maybe there is some other factor that causes Elon to have such low diversity. One limitation that I found is for answering the question is not having enough data. If I was able to collect additional data on more universities, I feel like I would have a better answer for the question. To answer the question of how Elon compares to its peer institutions based on tuition and fees and diversity, I can conclude that they have one of the lowest diverse campuses.

For the next steps or future work with this data, I would collect more data on different factors of each university to see if there is a reason for why Elon’s diversity is so low and why others are a fair amount.

# Works Cited

Fredman, Joelle. “College Tuition Increases Put Diversity in Higher Education at Risk, Report Says.” *NASFAA*, www.nasfaa.org/news-item/19848/College\_Tuition\_Increases\_Put\_Diversity\_in\_Higher\_Education\_at\_Risk\_Report\_Says.

“2022-2023 Best National Universities | US News Rankings.” *US News & World Report*, www.usnews.com/best-colleges/rankings/national-universities.