Sarah Katherine Stansell

Math 171-Stanton

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Written Paper Number 1

This assignment allowed students to understand how to successfully take a simple random sample from given set of data and find the frequency at which certain categories were chosen by students. A survey which was given to all math 171 students provided data about students political leaning, political party, and religion. I chose to evaluate student’s political party. From the data collected from the extra credit survey given out to all math 171 students at the beginning of the semester, I was able to find the frequency of which students at Longwood identified with certain political parties.

In a statistical study, individuals are the people or objects included in the study. A population includes all members of a defined group that we are studying or collecting information on. A sample is part of or a subset of the population. For this study, the individuals in the population would be all the Longwood University students who took the math 171 survey; however, the individuals in the sample are the 50 randomly selected students chosen in math 171 who completed the survey. As previously stated, I chose to evaluate the political party variable from the surveyed data which is qualitative data. Quantitative data is defined as data which have value or numerical measurement in which adding, or averaging make sense. Qualitative data is data which can be placed into a group or category. This data is qualitative because we are analyzing categories of political parties and political parties are not numerical amounts.

To successfully take a simple random sample of 50 students I used resources available in excel. First, I copied all the data under political parties in a new excel sheet under column A named “Political Parties”. After that, in the column B, named “Random”, I typed in “=RAND()” which is a function in excel which generates random values. I pressed enter and then double clicked on the lower right-hand corner of the random number cell and that repeated the formula among all of our data sets. After that, I copied the entirety of column B and hit paste values in order to keep the values it just generated from changing again. Then I highlighted all data and clicked “data” then “sort”. Sort by “random values” and sort on “values” and click “ok”. After that the data sorted in ascending order based on the random value assigned to each data point. To then obtain the simple random sample size of 50, use the top 50 data points generated.

I believe that this study was observational. This is because in an observational study one measures or surveys members of a sample without trying to affect them. In an experimental study, a researcher manipulates or changes a variable. Because this data was retrieved from a survey taken by math 171 students, the sample is observational and not experimental. There were no factors manipulating what students said in the survey and therefore the simple random sample I took was observational.

I think my sample was fairly representative of all students at Longwood University. The simple random sample size of 50 that I took from the entire data set happened to not include any libertarians in the sample. When analyzing the entirety of the population however, there are libertarians that attend Longwood University, but my simple random sample just happened to not include any. I do not think that this simple random sample is representative of all college students in Virginia. I believe this because the individuals of the sample size of this statistical survey was only 50 students and while that provides a fair representation of students at Longwood University, demographics vary greatly among different colleges across Virginia. In general, the majority of Virginia votes Republican; however, the overwhelming amount of people in Northern Virginia skew the Virginia vote to be Democratic. I believe that lots of schools in Northern Virginia would have more students who identify with the Democratic political party instead of the Republican Party. I think this survey could be representative of all college students across the USA. I think this because the United States currently has a republican president, but just as stated before I think that the data could vary greatly depending on where people live. I do not think this survey is representative of college students around the world because different countries have different political systems which vary greatly from the political system of the United States.

Overall, this statistical survey taken by math 171 students provided data to form a simple random sample that showed the frequency of students identifying with certain political parties. The simple random sample showed that students identified as republican at a frequency of 46%, as democratic 36%, as libertarians 0%, and as other 18%.

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| **Categories** | **Frequency** |
| Republican | 23 |
| Democratic | 18 |
| Libertarian | 0 |
| Other | 9 |

Tables, Charts, and Graphs