Web Source Review: Microsoft Excel

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The first web source I will review is the program Microsoft Excel. I chose this program because it is extremely common. Whether on a program at school or on a personal computer, most high school students would have access to Excel. Additionally, it may be beneficial to use Excel in a high school statistics course because many students will already have some level of familiarity with Excel. Most schools are likely to have Excel already loaded the school computers so there is not additional downloading of software needed.

Although students are likely to have some degree of familiarity with Excel, it is unlikely that they have used the program for statistics or probability. Therefore, to use Excel in a statistics course, the instructor would have to spend some time teaching students how to use Excel. I am not familiar with using Excel for statistics and probability but Excel's "help" option is often helpful. I used it quite a bit when exploring the program's capabilities. The "help" option gives students, or teachers, a good resource to use as a reference. The "help" resources are typically easy to understand and follow.

Excel has an extensive list of statistical functions that can be used. Many of these functions are similar to those a student would typically use a TI-83 or TI-84 (or higher) calculator. The syntax is also similar to that of a graphing calculator. For example, to calculate the normal cumulative distribution of a mean and a standard deviation, the student would choose "NORMDIST" from the statistical functions menu. A new window pops up that prompts the student for the x value, the mean, and the standard deviation. Excel does require a "TRUE" or "FALSE" entry; the "TRUE" response is for the cumulative distribution function and the

"FALSE" response is the probability mass function. Students are probably not familiar with using logic in functions so this may be confusing but Excel is usually clear in the explanation of what the function needs. Excel will then calculate the desired function and insert it into the cell. Students can then select this same cell in the future to see how the information in the cell was calculated. This "NORMDIST" function, and many of the other functions available, is similar to those used in a typical graphing calculator. This similarity may be beneficial to students but could also be confusing if students do not realize the syntax is not always the same.

Excel's "Data Analysis" tool can also be used to quickly calculate descriptive statistics like mean, median, mode, standard deviation, range, minimum, and maximum. The "Data Analysis" tool is found under the "Data" menu. The same tool can calculate correlation, create a histogram, generate random numbers, create regression lines, and perform z and t-tests. The histograms and other graphs that are generated in Excel can easily be saved as an image or copy and pasted into other programs.

Excel could easily be incorporated into the MM2D1 standard of the GPS curriculum. The standard states: "Using sample data, students will make informal inferences about population means and standard deviations." Students could survey students in their own class or in the whole school and then input the data into Excel and quickly calculate descriptive statistics. Once the students input the data, they could email the file or save it to a school server and the teacher could easily compile all of the students' data sets for comparison. Histograms could also be created for each students' data and the data for the whole class.

Overall, Excel may not be the most extensive program for a statistics and probability classroom. However, the fact that most students are familiar with Excel and most school

computers have Excel makes it a good resource that a teacher can utilize. A teacher may need to teach themselves how to use Excel for statistics before teaching with the program but the program's explanations and "help" menu make this a much easier task.