

SAMPLE REPORT – Grade “B or B+”

Polling Project Report

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Polling & Sample Survey: The Report

The polling project sought to answer the following question “Why does homework take so long?”. Many different researchers have discussed the potential causes of the increased time for homework completion of American students in the past decade. This new trend is primarily due to increased social media usage. Common Sense Media, a family technology education non-profit group, actually states that the average teen spends 9 hours per day on social media. This has been linked to procrastination, multitasking (which inhibits productivity), and ultimately, wasting time. In this project, the other factors that potentially may lead to longer time doing homework were identified and tested with the survey. The factors include the home environment (i.e. having a quiet place to study), jobs, extracurricular activities, and class difficulty (AP classes). The focus question used is as follows: how does anonymity of the survey results change the participants’ responses to sensitive questions? In short, this survey was used to determine whether these factors listed above were actually linked to longer homework completion times and if the results were synonymous with other research.

To find the adequate number of participants for the survey, a convenience sample was used. This means that the results came completely from volunteers, who can be subject to many types of bias. For instance, response bias was definitely an issue: there was no way that the

truthfulness/validity of the responses could be evaluated and enforced. Also, nonresponse bias could have been an issue for those who did not complete the survey (when asked). The population identified was all students currently enrolled at DuPont Manual for the 2017-18 school year. A Google Form was used as a platform for the survey and a sample of 87 people completed it. The survey consisted some of the following questions:

- ◆ How many AP classes do you take?
- ◆ What is the average amount of time it takes you to complete your homework?
- ◆ Do have your phone next to you when you study?
 - If you answered yes to the last question, what do you use your phone for?
- ◆ Do you participate in any extracurriculars (i.e. clubs, sports)?
 - Approximately, how much time do you spend on extracurriculars a week?
- ◆ Do you have a quiet place to study at home?
- ◆ Do you have any duties required of you at home (i.e. chores, taking care of siblings)?
 - If you answered yes, please estimate how much time that takes weekly.

Demographic information was also collected on the survey participants (gender, grade, magnets, race, number of people in household). While our survey yielded adequate results, we could have maximized randomness of the individuals by using a stratified sample of 20 people per grade level. A list of all the students at Manual would have been necessary.

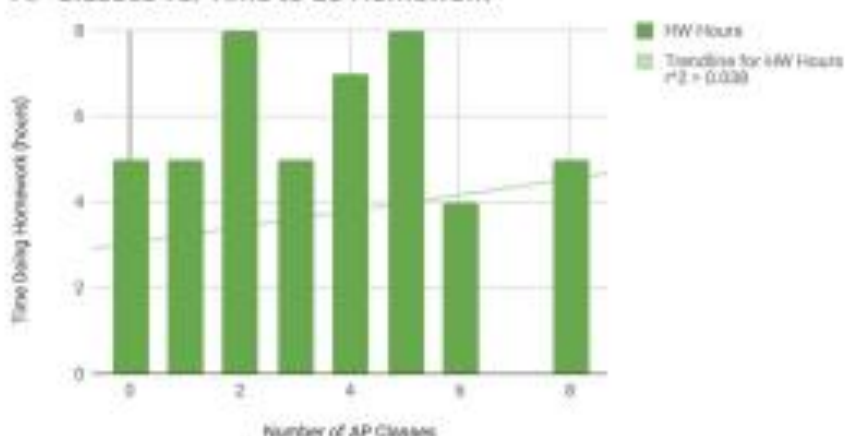
After collecting data from the survey and performing several statistical analyses, the following results were acquired. The average amount of time that Manual students spend on their homework is 3.469 hours and 11th graders spent the most time on their homework. The most

shocking statistic was actually that 93.8% of students use their phones while studying. This was acquired through a proportion of successes calculation (\hat{p}). The average times per magnet, grade, and gender were also found. J+C students spent the most time at a whopping 4 hours per night and females tended to spend more time than males (3.782 hours). Cumulatively, the average, mode, standard deviation, range, variance, and median were found for the amount of time spent on homework by all Manual students.

Average	Mode	Median	Standard Deviation	Range	Variance
3.469	3	3	2.034	8	2.150

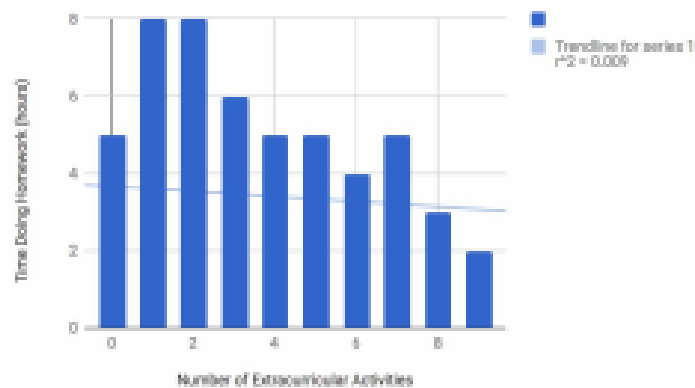
Three relationships were also looked at. These were AP Classes vs. Homework time, Extracurriculars vs. Homework time, and Home Duties (i.e. chores, taking care of siblings) vs. Homework time. After performing the correlation coefficient and coefficient of determination on all three graphs, it was decided that none of the relationships defined had strong linear relationships. However, after creating a residual plot, the points were systematically placed (in a curve), which leads to the belief that the relationships were not linear at all.

AP Classes vs. Time to do Homework



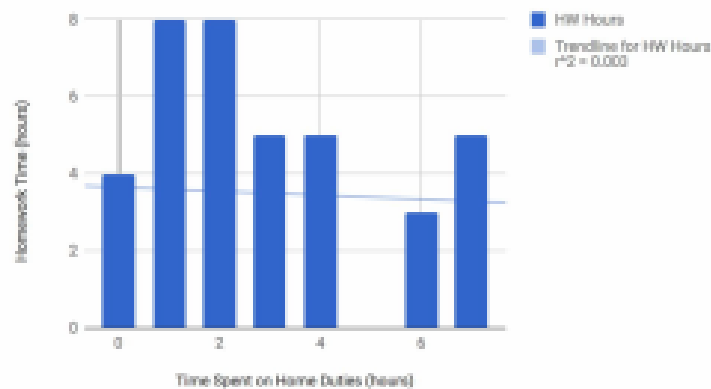
Bimodal Distribution
 $r = 0.195$
 $r^2 = 0.038$

Extracurriculars vs. Homework Time



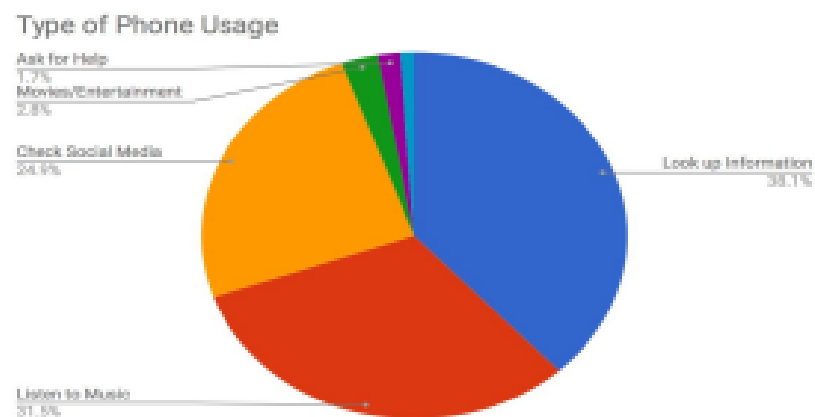
Positively Skewed
 $r = -0.093$
 $r^2 = 0.009$

Home Duties vs. Homework

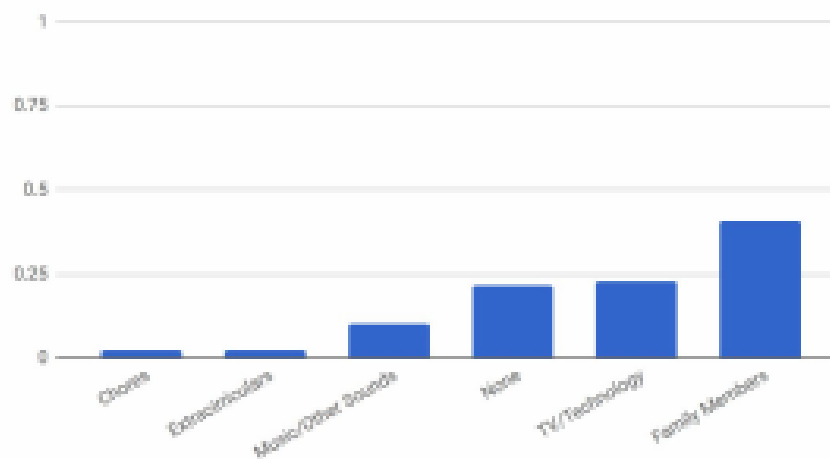


Unimodal
 $r = -0.055$
 $r^2 = 0.003$

Also, for the group of individuals that used phones during study, the relative frequencies of the types of phone usage was displayed in a pie chart and a relative frequency distribution.



Relative Frequency Distribution: Distractions



To conclude, the biggest time waster identified with this study was social media/phone use and on average, they performed worse in terms of length of time. Also, as mentioned above, most of the relationships defined as being factors in homework time did not have strong linear relationships. To address the focus question, anonymity definitely did affect the responses. We had approximately 50 people perform the survey with the knowledge that the results would not be anonymous (although we kept their identities secret). They tended to answer the questions in a more civilized manner and for the most part, truthfully. For the 37 other individuals, they took the survey anonymously and they were prone to lying and misuse of the survey (i.e. responding with “stripper” to which extracurriculars they did and “martian” for race).