Spring 5-10-2017

Do You Know What Your Phone is Doing to You? - Analysis on Usage Data Over an Entire Semester

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Do you know what your phone is doing to you? Analysis on usage data over an entire semester

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Introduction

Like many teens today, I am a victim of cell phone addiction. Over the course of the spring 2017 semester I recorded my phone usage with the aim to quantify the degree of my addiction. I am using an iPhone application called Moment, which records the amount of time I spend on each application, the number of times I pick up my phone, and when I first and last used my phone during the day. I decided to keep track of the applications I want to minimize my time on which include Snapchat, Instagram, Netflix, YouTube and Messages. I am also tracking my usage of an application called LINE which is how I communicate with my parents since I am out of my home country. This is the only application I wish to use more. Along with application tracking, I am also keeping record of my mood during the day on a scale from 1-5, 1 being “horrible” and 5 being “amazing”. I keep track of my sleeping times by using the first and last used information, information provided by Moment. I hope to take what I learn by observing my phone habits to help other people, especially my 17-year-old cousin, who may be suffering from the same addiction.

Research Questions

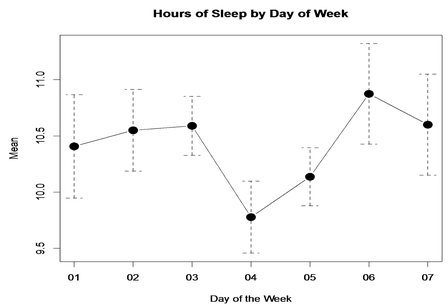
- Is there a relationship between mood, sleep and total phone use time?
- Are there other correlations between these variables?

Data Table

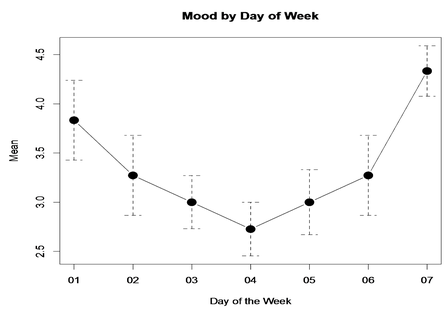
Variable	Mean (SD), (min, max)
Total time (hr.)*	3.6 (1.39), (0.93, 8.5)
Busy Days (33)	3.06 (1.06), (0.93, 6.13)
Relax Days (46)	3.99 (1.48), (1.65, 8.5)
Hours slept (hr.)	10.42 (1.26), (7.93, 13.92)
Snapchat (min)	18.61 (8.53), (5, 48)
Line (min)*	28.47 (26), (1, 108)
Busy Days (25)	37.20 (32.55), (5, 108)
Relax Days (23)	21.66 (17.12), (1, 59)
YouTube (min)*	18.04 (18.1), (1, 90)
Busy Days (33)	11.88 (9.88), (1, 47)
Relax Days (46)	22.85 (21.44), (1, 90)
Instagram (min)*	27.06 (13.8), (2, 66)
Busy Days (33)	23.39 (11.18), (2, 47)
Relax Days (46)	29.76 (14.99), (2, 66)
Netflix (min)	34.76 (23.7), (5, 90)
Messages (min)	5.27 (4.16), (1, 19)
Pick ups*	51.33 (17.62), (21, 102)
Busy Days (33)	45.67 (16.83), (21, 95)
Relax Days (46)	55.39 (17.21), (27, 102)
Mood (1-5)*	3.37 (1.22), (1, 5)
Busy Days (33)	2.91 (0.95), (1, 5)
Relax Days (46)	3.70 (1.30), (1, 5)

*There is a significant mean difference between busy and relax days

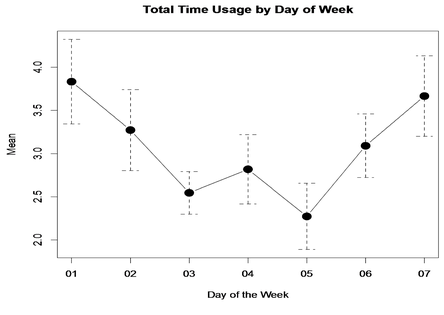
The table displays the data collected starting with February 2nd, 2017 till April 23rd, 2017. I am a 2nd semester freshman at Chapman University majoring in Business Administration taking a 12 credit course load and living on campus.



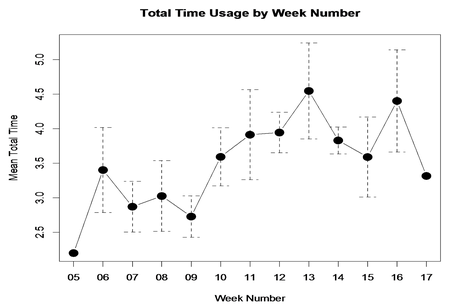
This plot of means compares the average time of sleep by the day of the week starting with Sunday as day 01. The graph shows that I get the least average amount of sleep on Wednesdays and the greatest average amount on Fridays.



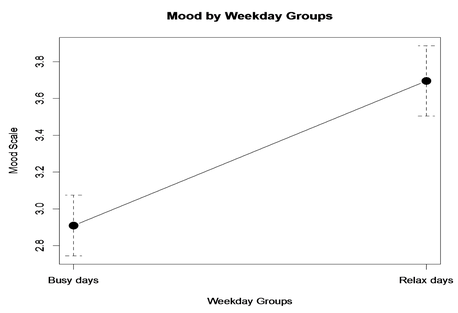
This plot of means compares the mean mood (1-5 scale)by day of the week starting with Sunday as day 01. My mood is lowest on Wednesdays and highest on Saturdays and Sundays.



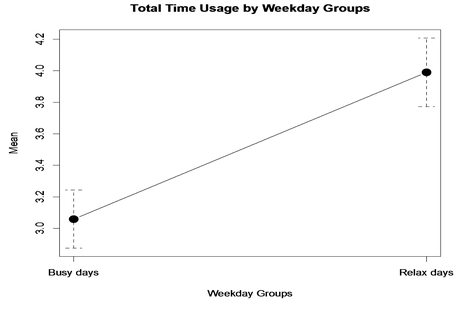
This plot of means compares my mean of total phone usage time by the day of the week. Phone usage increases during the weekend (Saturday and Sunday) and is lowest during the middle of the work week.



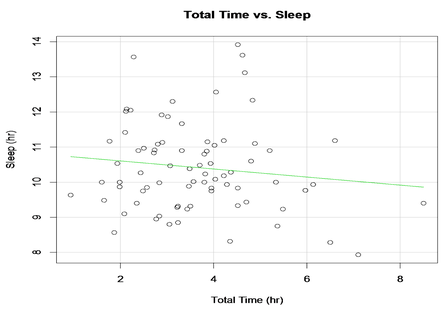
This plot of means looks at total phone usage time by the week number starting with one day for week 05 (February 4) and ending with one day for week 17 (April 23). My phone usage fluctuates throughout the semester. Increased use of Snapchat during week 13 accounts for the spike in total phone usage that week. I got my hair done and was initiated into my sorority that week.



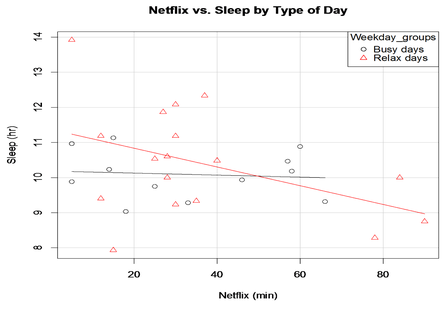
This plot of means illustrates my mood by my busy days (Tuesday, Wednesday, and Thursday) and relax days (Sunday, Monday, Friday, and Saturday). My mood is higher on relax days than busy days.



This plot of means categorizes the average phone usage time based on my busy days (Tuesday, Wednesday, and Thursday) and relax days (Sunday, Monday, Friday, and Saturday). Phone usage time is higher on relax days than busy days.



This scatterplot compares the total sleep by total phone usage time. There is a slight negative correlation illustrating that as my phone usage increases, the amount of sleep I get decreases. The linear regression line equation is $\hat{y} = 10.8 - 0.1146(x)$.
The y intercept is 10.8 meaning that if I don’t spend any time on my phone, I can expect to get 10.8 hours of sleep. The slope explains that for every hour extra I spend on my phone, my sleep decreases by 0.1146 of an hour (6.9 minutes).



This graph represents the relationship between sleep and Netflix usage on my phone categorized by my weekday groups (busy and relax). Busy days are Tuesday, Wednesday and Thursday while relax days are Sunday, Monday, Friday and Saturday. As Netflix on relax days increases, sleep decreases. It is relatively stable during my busy days.
2 hours and 24 minutes less sleep for 90 minutes of Netflix. (via multiple regression with hours of Netflix, relaxed/busy days, and interaction term in the model).

Conclusion

There is a non-significant relationship between sleep and total phone usage. I use my phone less during my busy days because of the increase in number of classes I have during the three days. My mood is relatively neutral (3) during my busy days meaning I experience on average normal days, while my relax days show an increase in mood due to spending more time around friends and not stressing about school work. Organizing my days and spreading out my classes throughout the week would increase my overall mood since I would no longer categorize my days as busy or relaxing.