

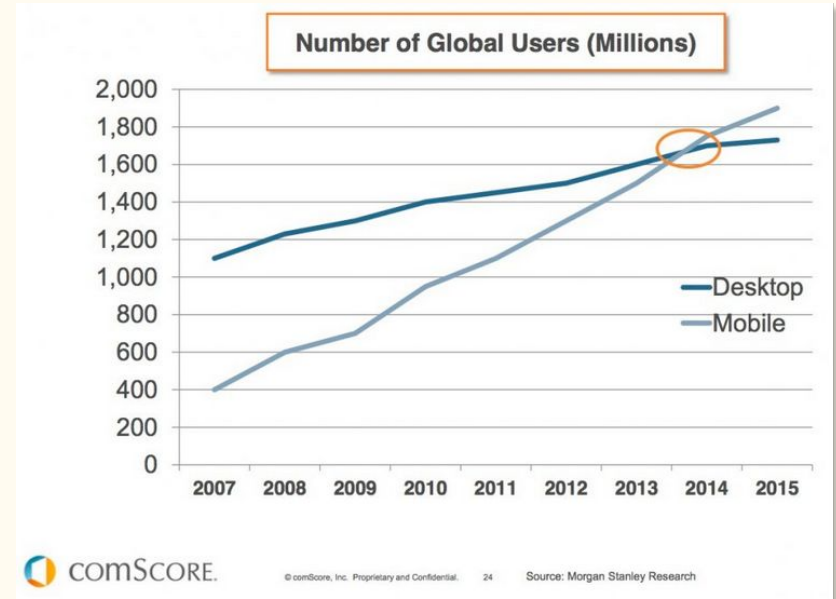
The Utilization, and Analysis of Mobile Devices

Daniel Ocampo

What is my
motivation?

History of Mobile Devices

- Mobile smart Phones came out in **2007**
- **Android Market**
- There is going to be **7.2 billion** users
- Tablets are taking over



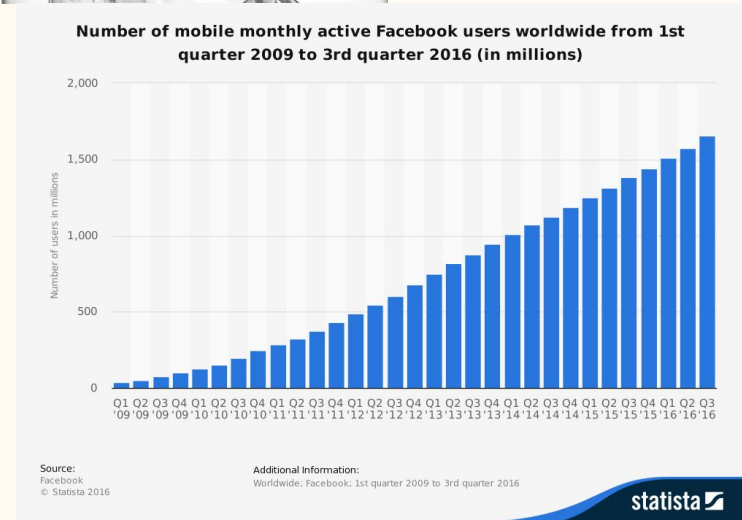
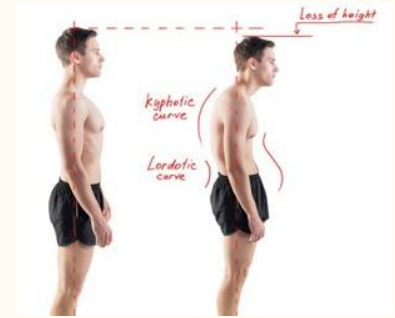
Positive Effects

- Obtain information very fast
- Socialize
- Purchase item
- Listen music
- Find directions



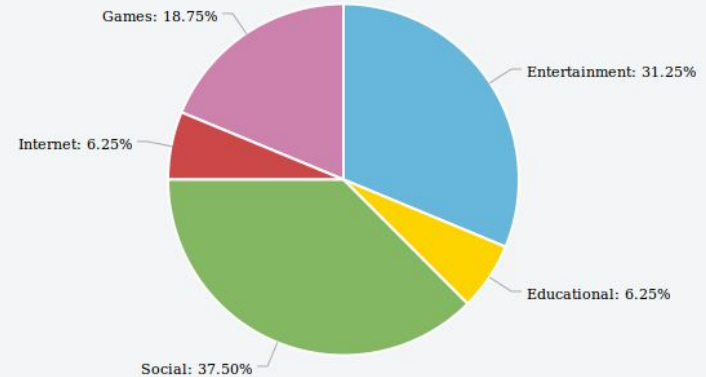
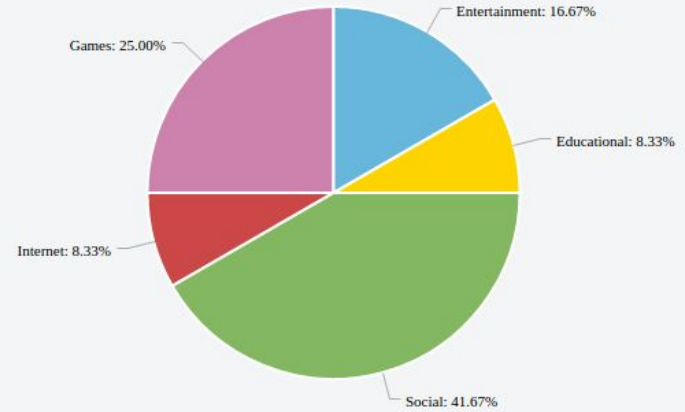
Negative Effects

1. Shoulder and Neck Injury
2. Lack of Sleep
3. Depression
4. Attention Span



Original Idea

- Visualization
- Help prevent User from over usage
- Keep Track of the users
- South Korea



Tools

Used to analyze data

- Google Forms
- Excel
- SQLite3
- R-Studio



Google Forms

1. IRB Approval
2. Creating Question
3. Adjusting Length

Course	Status	Completion Record	Survey
Responsible Conduct of Research (RCR)	Passed 02/04/2017	View/Print Share	Completed
Social & Behavioral Research - Basic/Refresher	Passed 03/03/2017	View/Print Share	Completed
Students conducting no more than minimal risk research	Passed 02/06/2017	View/Print Share	Completed



Mobile phone effects

Hello Participant, my name is Daniel O'campo and I am doing a study of mobile device consumption as part of my senior thesis research. The questions in this survey are designed to gather demographical information about the mobile device usage and the general trends associated with mobile device users. The survey will take approximately 10 minutes to complete.

Your participation in this survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty. You are free to omit any particular question you do not wish to answer for any reason.

You will receive no direct benefits from participating in this research study. However, your responses may help us learn more about the utilizations of mobile devices.

There are no foreseeable risks involved in participating in this study. Your survey answers will be sent to a link at Google forms where data will be stored in a password protected electronic format. Google forms does not collect identifying information such as your name, email address, or your IP address. Therefore, your responses will remain anonymous.

If you have questions at any time about this study or the procedures, you may contact the primary investigator, Dan O'campo at ocampod@allegheny.edu

What is your current age?

you must be at least 18 years or older (Also if you already took the survey please don't take it again)

- ☐ 18-22
- ☐ 23-25
- ☐ 25-30
- ☐ 31-35
- ☐ 35-40
- ☐ 41-45
- ☐ 45-64
- ☐ 65-74
- ☐ 75 years or older

Please specify your ethnicity.

- ☐ White
- ☐ Hispanic or Latino
- ☐ Black or African American
- ☐ Native American or American Indian

☐ Asian / Pacific Islander

☐ Other:

What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.

☐ High school graduate, diploma or the equivalent (for example: GED)

☐ Some college credit, no degree

☐ Trade/technical/vocational training

☐ Associate degree

☐ Bachelor's degree

☐ Master's degree

☐ Doctorate degree

☐ Other:

What is your major?

(or was your major)

What is your current occupation?

Are you a first generation college graduate or student?

☐ Yes

☐ No

What is your current GPA?

If already graduated, enter your final GPA.

☐ 1.5-1.9

☐ 2.0-2.5

☐ 2.6-2.9

☐ 3.0-3.5

☐ 3.6-4.0

How long do you use social media in one day in terms of hours ? (includes twitter,Facebook, instagram, youtube, yikyak, and other you deem worthy of social media)

How many hours a week do you spend in class and/or work?

☐ 10-20

☐ 21-30

- ☐ 31-40
- ☐ 41 -50
- ☐ 51- 60
- ☐ 61 or more

What type of a mobile device do you use the most?

- ☐ Android
- ☐ IOS
- ☐ Windows
- ☐ Other:

Do you feel efficient with your mobile device?

- ☐ Yes
- ☐ No
- ☐ Maybe

In average how many hours of sleep do you think you get per night?

- ☐ 3-5
- ☐ 6-7
- ☐ 8-10
- ☐ 10 or more

Do you think mobile phones take a big part of your time?

- ☐ Yes
- ☐ No

How much time do you spend on social media using your phone?

on an avg day

How much time do you spend playing game using your phone?

on an avg day

How much time do you spend listening to music on your mobile device?

on an avg day

How much time do spend watching videos/movies on your mobile devices

How many text messages do you send per day?

on an avg day

What is your favorite pass time using your mobile devices?

on an avg day

How much time do you spend using your favorite pass time on your mobile device?

on an avg day

Submit

Never submit passwords through Google Forms.

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Sqlite3

1. Queries
2. Storage
3. Analysis

```
sqlite> select sum(social) from sort where Gpa= "2.6-2.9";
110.5
sqlite> select sum(social)/29 from sort where Gpa= "2.6-2.9";
3.81034482758621
sqlite> select (sum(social))/29 from sort where Gpa= "2.6-2.9";
3.81034482758621
sqlite> select Mobile from sort where Gpa= "2.6-2.9";
Error: no such column: Mobile
sqlite> .schema
CREATE TABLE Sort(
date VARCHAR (20),
ID VARCHAR (20),
age VARCHAR (20) ,
race VARCHAR (20) ,
degree VARCHAR (20) ,
major VARCHAR (20) ,
gen VARCHAR (20) ,
GPA VARCHAR (20),
social VARCHAR (20),
work VARCHAR (20),
OS VARCHAR (20) ,
efficient VARCHAR (20) ,
sleep VARCHAR (20) ,
opinion VARCHAR (20) ,
smartphone VARCHAR (20) ,
games VARCHAR (20) ,
music VARCHAR (20) ,
videos VARCHAR (20),
texts VARCHAR (20) ,
passtime VARCHAR (20) ,
amountPasstime VARCHAR (20),
occupation VARCHAR (20),
```



Sample Queries

1.select music from sort where gpa = "3.0-3.5";

2.select sum(smartphone) from sort where Gpa="2.0-2.5";

3. select count (distinct passtime),count(gen),Count(degree) from Sort ;

- .mode csv
- .output newdata.csv
- Select * from Sort;
- .Output stdout
- Cat data.txt | Sqlite3 data.Sqlite3

R-Programming

1. Mostly used for statics
2. Functional Based programming
3. R-studio
4. Taking in Data

```
econ380graphs.R x data_in_R.R x
Source on Save Run Source
1 data <- read.table(file.choose(), header=T, sep=",")
2
3 attach(data)
4 dim(data)
5 ##### the ages of the participants
6 names(data)
7 class(age)
8 table(age)
9 count2 <- table(age)
10 barplot(count2, main= "Age groups", xlab="Age Ranges", ylab= "Number of participants")
11 png(file = "photos/Rplots.png")
12
13 #ethnic background needs a lot of work
14 #count3 <- table(race)
15 #class(race)
16 #table(race)
17 #barplot(count3[-c(4:5)], main= "Diverse groups", xlab="Race", xlim=c(0,4), ylab= "Number of participants")
18 #png(file = "Race.png")
19 HR <- c(14,11,39,6,3,99)
20 MR <- c("Asian", "Black", "Hispanic", "Mixed", "N/A", "White")
21 png(file = "Race.png")
22 barplot(HR, names.arg = MR, xlab = " GPA", ylab = "Number of Participants",
23         main = "General Demographics", las=1, xlim = c(0,7), ylim = c(0,100) )
24
25
26 #level of education needs a lot of work
27 count4 <- table(degree)
28 class(degree)
29 table(degree)
30 barplot(count4)
31
1:1 (Top Level) R Script
```

Console ~/ ↵

```
R version 3.4.0 (2017-04-21) -- "You Stupid Darkness"
Copyright (C) 2017 The R Foundation for Statistical Computing
Platform: x86_64-pc-linux-gnu (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

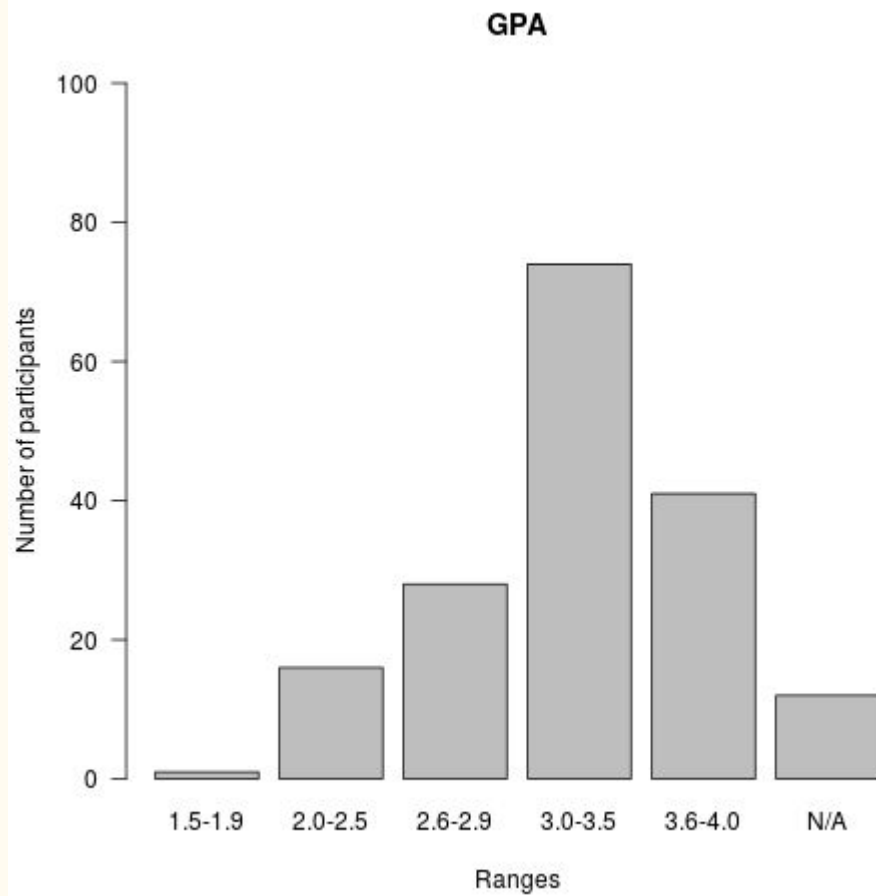
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.
```



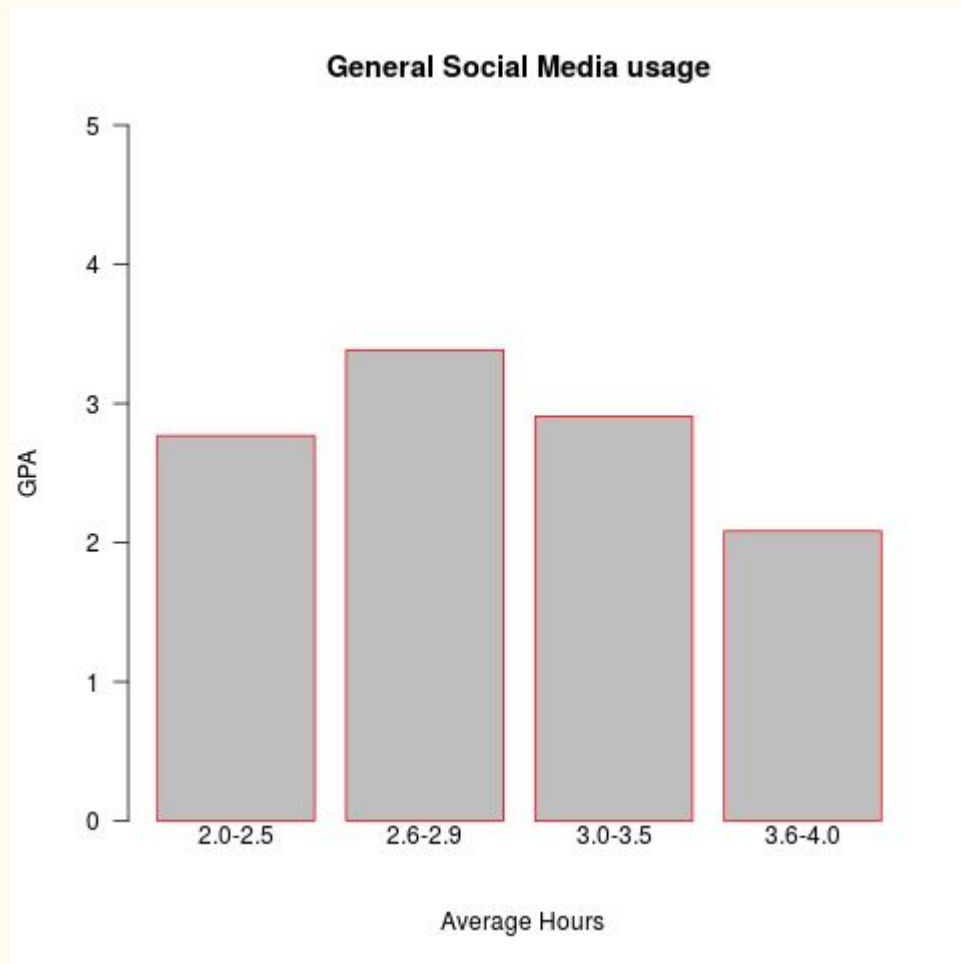


Method of Approach

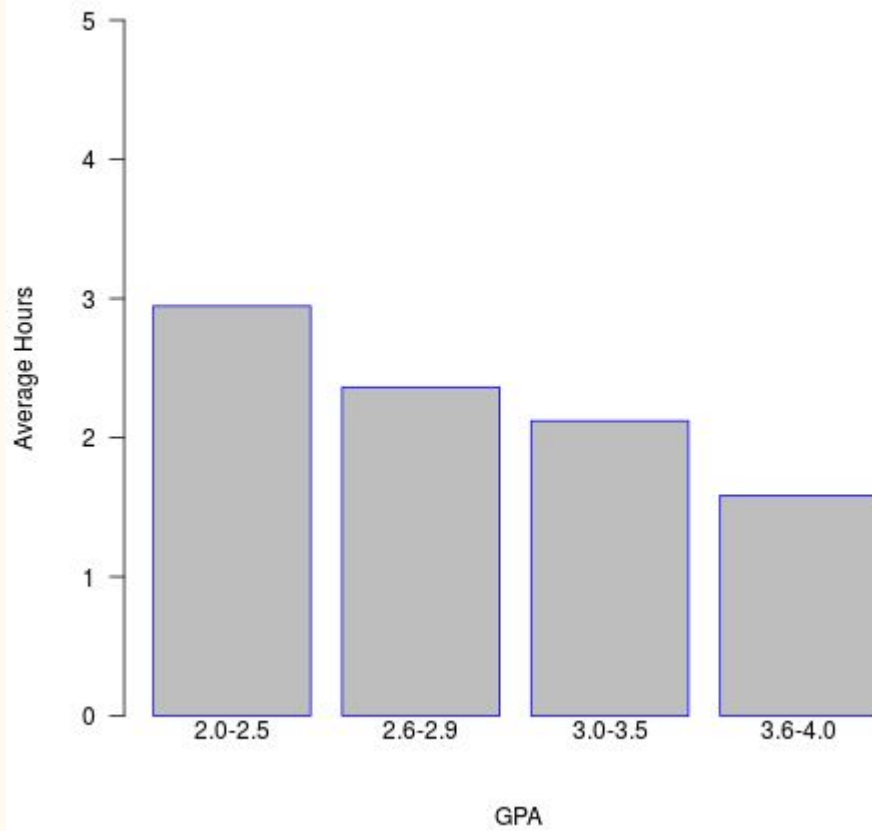
Hypothesis



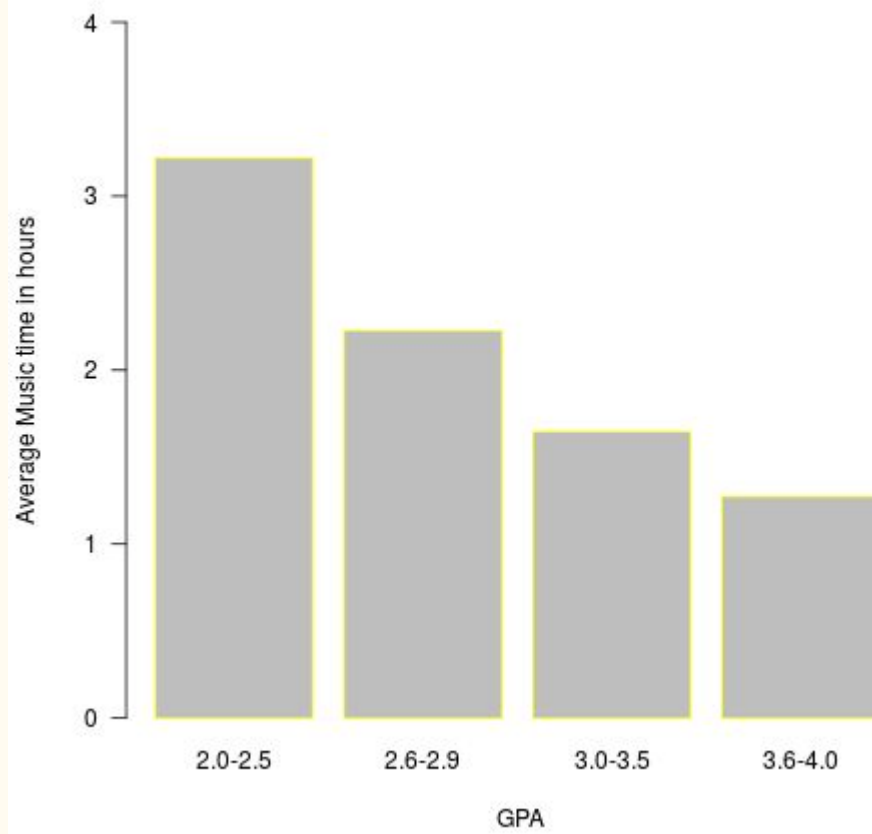
The Data



General Mobile Social Media usage



General music usage



Threats to Validity

- User Input
- Misunderstanding of the data
- Outliers
- Insufficient Data
- Non-Student Participants
- Older population

Future Work

- Implement Complex Idea
- Add in filters

Conclusion

- The need for Visual Aids
- Participants who suffered the most in regards to GPA
- User need self regulation