P4. Data Analysis

Due 2/27

Team Name: GoldMoon

Problem Description: We look at excessive smartphone usage amongst students.
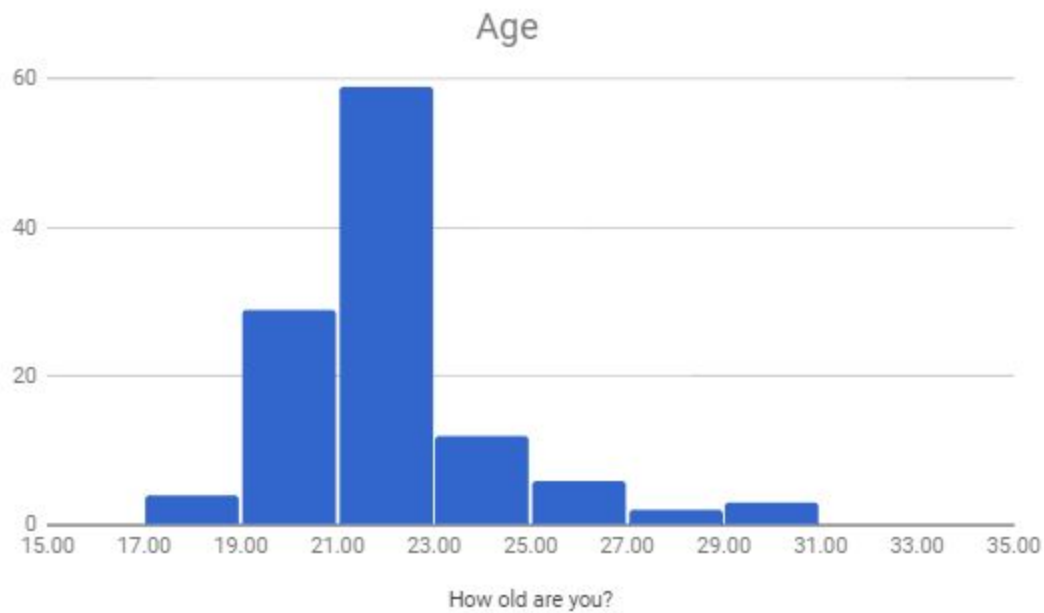
Website: https://ivanok.github.io/goldmoon/

- Survey Analysis -

(Based on **115** responses)

Respondent Demographic

Gender

non-binary 0.9%
Female 54.8% — 63
Male 44.3% — 51

Current Occupation

Started full-time work 9.6%
Pursuing PhD Degree 1.7%
Fifth Year or More of Bachelor's D... 4.3%
Second Year of Bachelor's Degree 15.7% — 18
First Year of Bachelor's Degree 5.2% — 6
Third Year of Bachelor's Degree 13.9% — 16
Pursuing Master's Degree 8.7% — 10
Fourth Year of Bachelor's Degree 40.9% — 47
11
5

Age
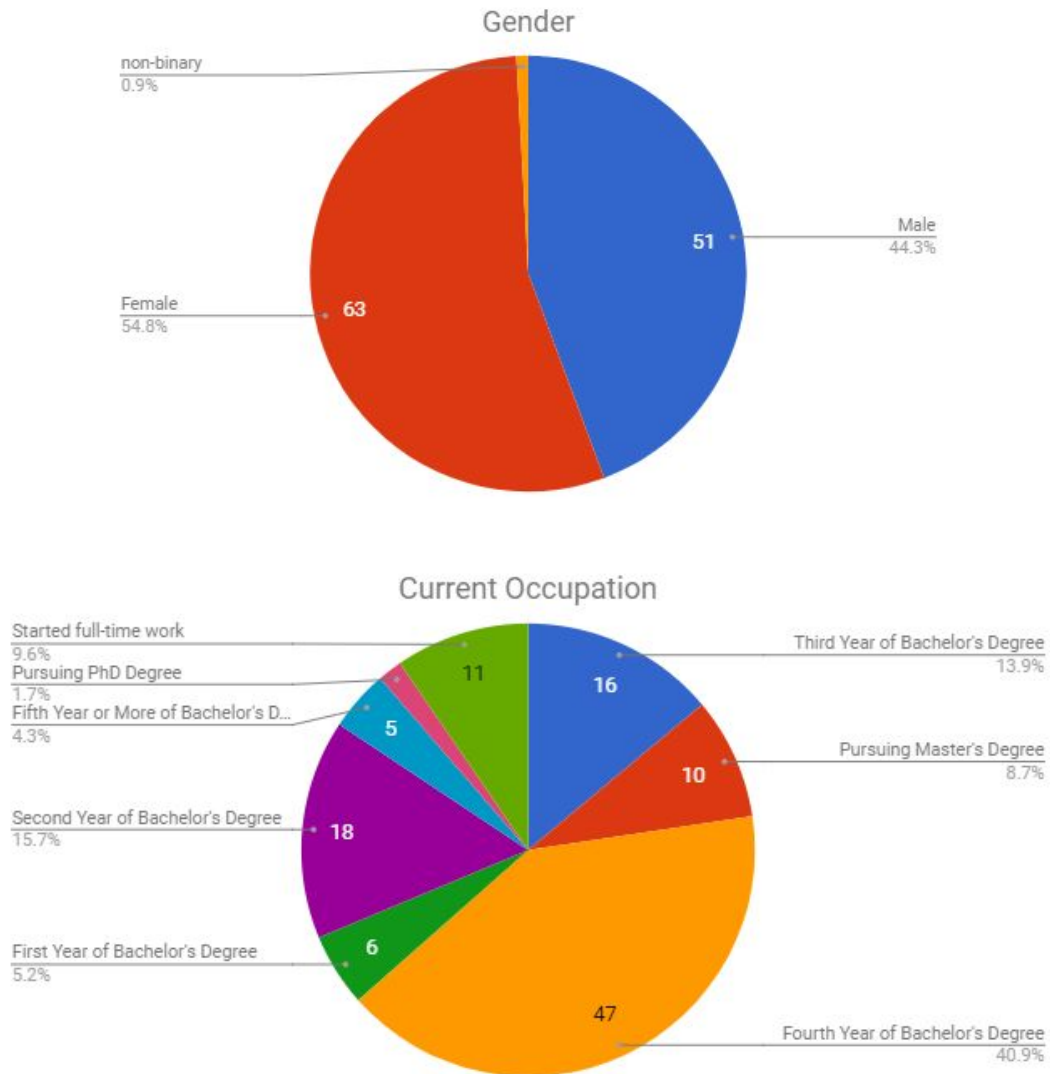
Descriptive Statistics for Age

Sample Size:	115
Range:	13
Mean:	21.6
1st Quartile:	20
Median:	21
3rd Quartile:	22
Interquartile Range:	2
Standard Deviation:	2.27
Variance:	5.16

Observation: As for aggregates, our sample respondent resembles a persona of a 22 year female who is in her fourth year of undergrad. Whereas, we've almost zero representation from non-binary gender, anyone below 17 years old or above 31 years old or anyone who is pursuing a PhD.
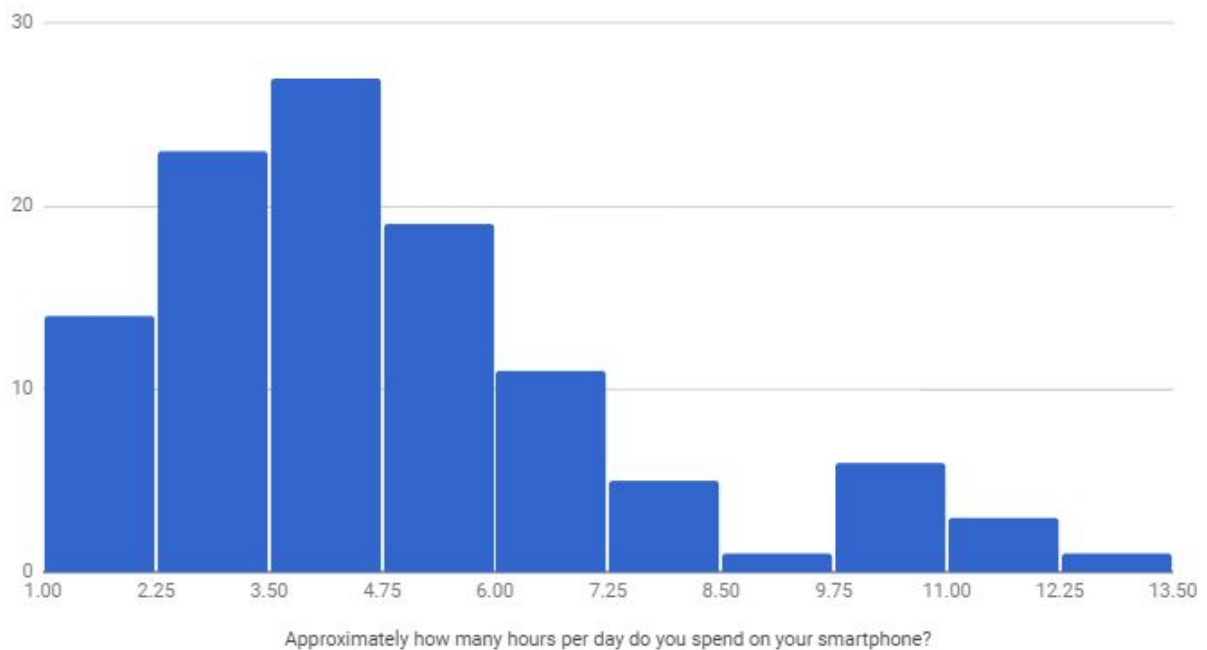
Usage

What kind of apps do you use the most on your smartphone? Check all that apply. If other, please explain.

115 responses

App	Count
Books (ex. iBo...	22 (19.1%)
Music (ex. Pan...	97 (84.3%)
Navigation (ex....	97 (84.3%)
Education (ex....	25 (21.7%)
News/Sports (...	51 (44.3%)
Entertainment...	65 (56.5%)
Photo & Video...	91 (79.1%)
Food & Drink (...	49 (42.6%)
Reference/Utili...	82 (71.3%)
Shopping (ex....	57 (49.6%)
Games (ex. Po...	43 (37.4%)
Health & Fitne...	38 (33%)
Social Network...	104 (90.4%)
Religion & Spir...	1 (0.9%)
AirBNB	1 (0.9%)
I often google...	1 (0.9%)
Digital drawing...	1 (0.9%)
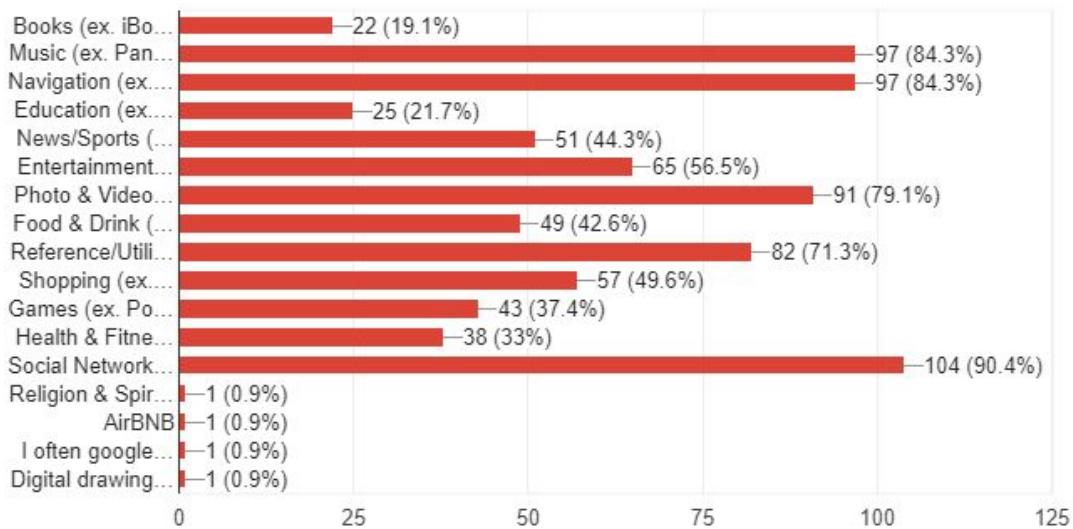
Histogram of smartphone usage based on hours per day

Approximately how many hours per day do you spend on your smartphone?

Descriptive Statistics for Smartphone Usage (hrs/day)

Sample Size:	110
Range:	12
Mean:	4.72
1st Quartile:	3
Median:	4
3rd Quartile:	5.5
Interquartile Range:	2.5
Standard Deviation:	2.59
Variance:	6.69

Observation: For the 11 people that don't use social networking apps, the mean decreased to 3.63. Similarly, for people who use their phone for books, the mean decreased to 3.90.
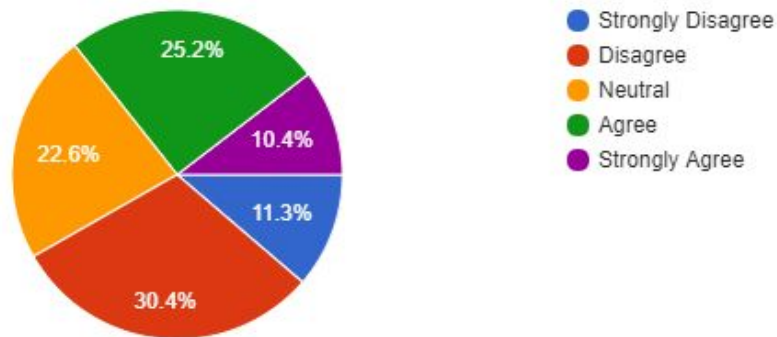
Satisfaction

Rate your level of agreement here: I have found myself using my phone longer than I originally intended.

104 responses
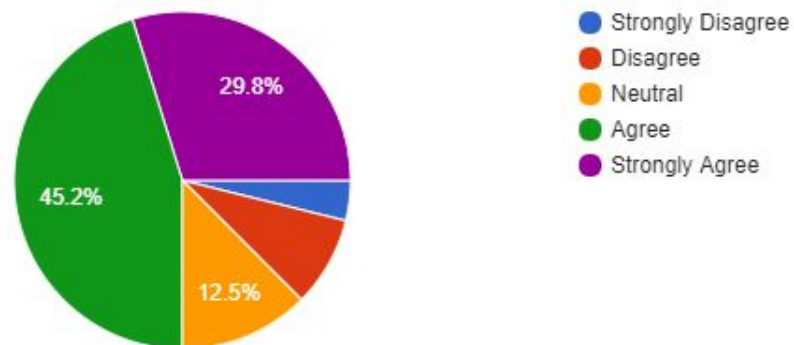
Rate your level of agreement here: I am satisfied with the amount of time I spend on my phone.
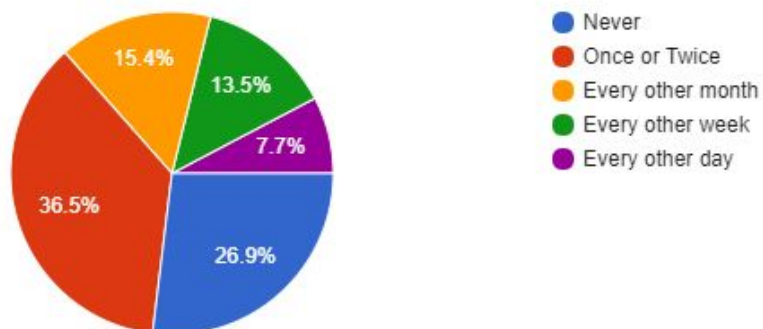
115 responses

Observation: Overall, 41.7% respondents feel unsatisfied with the amount of time spent on their phone. If we filter out respondents who agree that they've found themselves using their phone longer than intended, 52.6% respondents feel unsatisfied with the amount of time spent on their phone. There is not a significant difference in level of satisfaction based on whether one feels that they use their phone longer than intended. Similarly, there is no difference in level of satisfaction based on whether you use productivity apps on your phone.
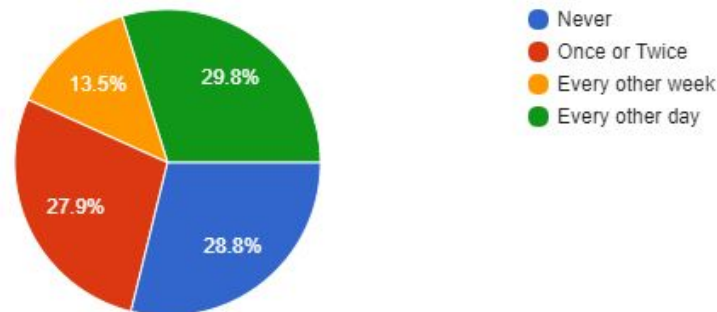
Effects

Over the past year, how often have you felt unhappy or even depressed about your smartphone usage habits? (Choose the nearest estimate)
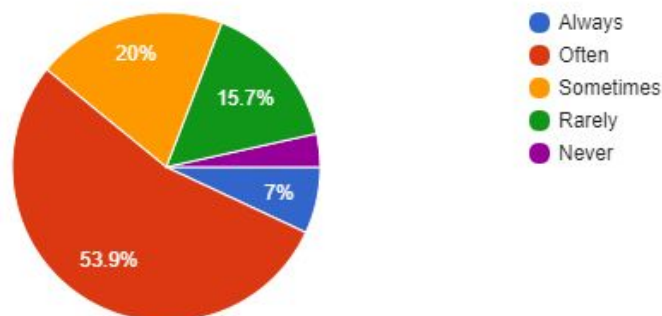
104 responses

Over the past month, how often have you felt anxious about clearing up all your notifications? (Choose the nearest estimate)
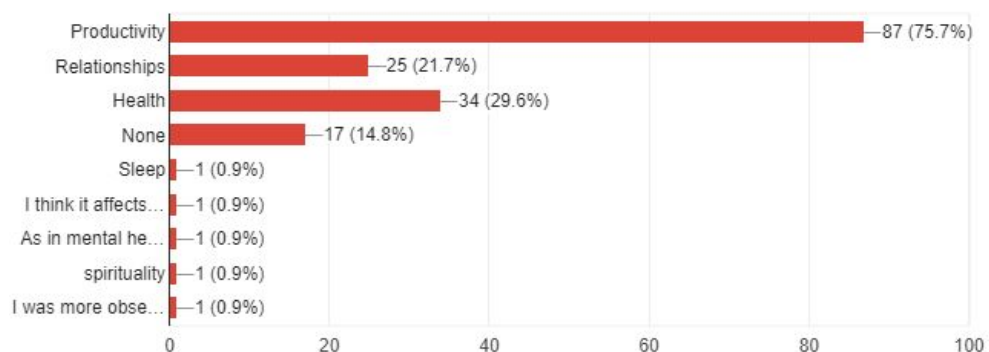
104 responses

- Never
- Once or Twice
- Every other week
- Every other day

29.8%
13.5%
27.9%
28.8%

How often have you used your smartphone when you knew you should be sleeping?

115 responses

- Always
- Often
- Sometimes
- Rarely
- Never

20%
15.7%
7%
53.9%

Where does the smartphone negatively affect your life? Check all that apply.

115 responses

Productivity — 87 (75.7%)
Relationships — 25 (21.7%)
Health — 34 (29.6%)
None — 17 (14.8%)
Sleep — 1 (0.9%)
I think it affects… — 1 (0.9%)
As in mental he… — 1 (0.9%)
spirituality — 1 (0.9%)
I was more obse… — 1 (0.9%)

Observation: Over 85% respondents believe that the smartphone negatively affects their life. While most feel that their productivity is affected, less than one-third respondents feel that their health is affected. What is interesting though, is that of all respondents who didn't consider that their health was negatively affected, at least two-thirds have faced some sort of depression because of their usage habits and usually find themselves being anxious because of catering to notifications. Moreover, a strong 80% of respondents feel that their sleeping cycle is disturbed because of using their smartphone. As for distraction, more than half of the respondents find their phone most distracting in a public work setting like lecture halls and meetings.

Remedies

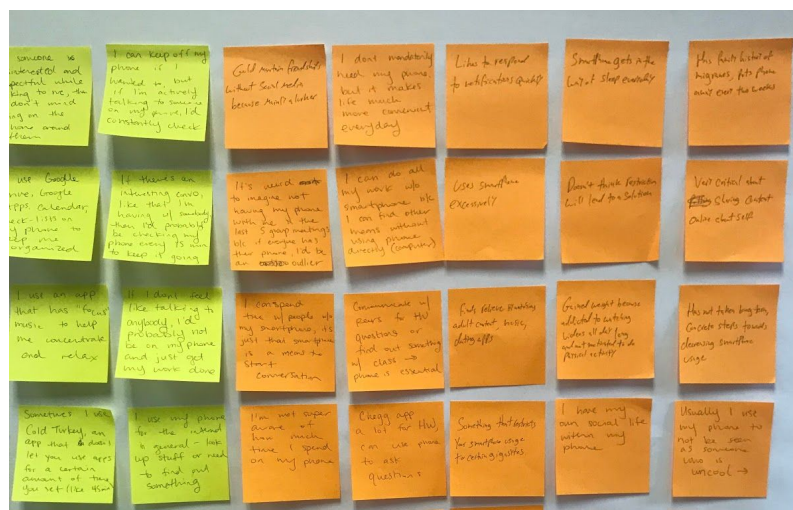## Do you ever purposely leave your smartphone at home to feel disconnected?
115 responses

- Yes
- No

67.8%

32.2%
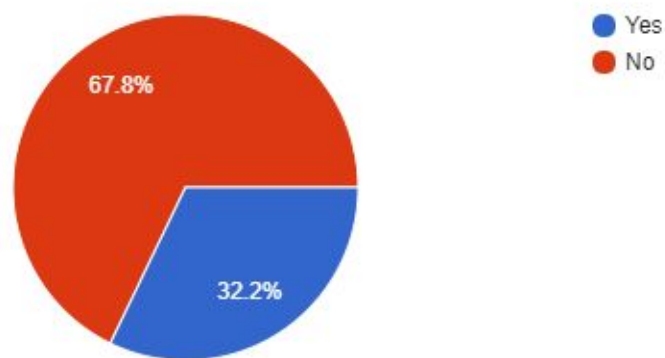
Observation: While one-third of the respondents purposefully leave their smartphones at home sometimes just to feel disconnected, one-third of the respondents also mentioned approaching this issue with brute force and developing self control of turning off the phone or keeping it inaccessible when working. Almost 20% of the respondents also mentioned using apps that restrict usage by time and block apps that are not productive.

<u>What have we learned?</u>

When we compared the number of daily hours spent by a satisfied smartphone user with that of an unsatisfied one, the average usage is almost the same. This is helps us understand that the amount of hours spent does not relate to whether you will be unsatisfied, but rather what you spend it on and how you look at excessive usage. In further comments, several respondents presented strong feelings about how smartphone addiction is growing and is harming them and

society more than its helping, however, very few have actually looked into solving this problem systematically through a process or seeking aid from a friend or an app. In spite of admitting how it negatively affects their productivity, health and relationships, people seem to just have accepted that they'll have to live with it, because not having a smartphone in this day and age, isn't an option.

- Affinity Diagram -

Process (Raw Data)

Before Synthesis

During Synthesis

Completed Synthesis

SIGNS OF ADDICTION

CONS OF TEXTING

FACE TO FACE CONNECTION

MISTRESS

LONGEST TIME AWAY FROM PHONE

LESS SLEEP

FREQUENCY OF CHECKING PHONE

WORK APPS

CONVENIENCE / ACCESSIBILITY

Digital Version of Diagram

Link: https://ivanok.github.io/goldmoon/affinity-diagram.html

Affinity Diagram

Key:

Category | James | Tazz | Micaela | Roger

Current Restrictions

Doesn't think restriction will lead to a solution	Proactive in making it a hassle to use phone and get distracted	Thinks that you shouldn't be able to change the settings on restrictive smartphone usage apps so easily. Can change it too easily, doesn't help	I use an app that has "focus" music to help me concetrate and relax
Has not taken long term, concrete steps towards decreasing smartphone usage	Sometimes I use Cold Turkey, an app that doesn't let you use apps for a certain amount of time you set (like 45 minutes)	Thinks that there's a value to restricting apps to certain times of day or only allowing a certain amount of times to check a certain app	I just turn my phone upside down if I'm distracted
Thinks that notification blocking is important or even silencing your phone often	Has taken steps to stop smartphone usage: - Puts phone in different room, -silenced notifications for certain apps (personal email, Facebook, some GroupMe Messages)	Got rid of Instagram and Snapchat because it wasn't good for her	If I need to get work done I log out of my social media accounts so I don't get any notifications
Has family history of migranes, puts phone away every two weeks			

General Smartphone Use

Everyone uses their phone for different things, like if someone's laptop died, etc.	I use my phone for the internet in general - look up stuff or need to find out stuff	Use apps for entertainment and to stay organized	Uses smartphone for calling, texting, social media, navigation, keeping track of life, organization
Communication, social media, internet, texting	Uses messaging and social media apps the most	Main form of communication is texting	

Entertainment & Relaxation

Watches YouTube and listens to music to de-stress	Watching YouTube videos really helps me lighten the mood - whether it be for relaxing or to laugh	Finds relieve by watching adult content, music, dating apps

Image

Thinks that smartphones only appear to offer answer to loneliness, but they can actually increase it by making you feel dissatisfied with your own life, wanting someone else's life

Thinks that there's pressure to maintain a perfect iamge on social media, or to "be in the know" which leads to needing likes / needing affirmation. This leads to greater tendency to check more often.

Usually I use my phone to not be seen as someone who is uncool

It's weird to imagine not having my phone with me in the last 5 group meetings because if everyone has their phone, I'd be an outlier.

Thinks that comparison makes us ultimately dissatisfied with social media, but we feel the need to use it anyway. Example: Instagram is the perfect life, Snapchat is the fun life

Dead Phone Shows Reliance on Phone

Hates that it dies

Relies on GPS for navigation, would be lost without smartphone

Thoughts when her phone dies: Fear about what if I miss something or what if I need it? Also *relief* - she can't even try so why worry?

Phone has died while waiting for Uber, on phone calls

My smartphone has died on my when I needed it as a GPS in a place I didn't know and I was lost

Connecting To Outside World

YouTube helps me keep up with world news, current events, and pop culture

Keep up with the world

I use Facebook and messenger the most for seeing events going on around me and communication

Phone's Role in Connecting Relationships

I can maintain relationships with long distance friends because I can check what they're up to on social media

Could maintain friendships without social media because mainly a lurker

Stays connected with more people

Communicate with peers for homework questioning or finding out something with class, therefore phone is essential

I probably wouldn't be as close to people without social media

Says that if we were forced to be more intentional in relationships without social media / messaging, it could ehance some of them

It is a lot more intimate to make plans with people in person, but sometimes we're both busy, so it's nice that we have our phones to chat with each other while we're busy

Thinks that root issue is more than just 'Oh, I want to use my smartphone a lot'. Thinks that people are *lonely*, seeking connection, seeking to be known

I have my own social life within my phone

Believes that social media can delude us into thinking we have deeper relationships / friendships with people than we actually do. There's more quantity than quality

Smartphones make communication easier compared to flip phones because social media and sending photos or videos are great conversation starters

It's so much easier to maintain friendships with people who don't live close to me because I can communicate with a smartphone

Awareness of Use: Self Awareness of Self

Very critical about sharing content online about self

Doesn't feel a need to delete social media apps to stay focused

Appreciates living in the moment

I used to not understand why people spent so much time on social media, but now I realize why because I do it too

I used to not be on my phone as much. In high school, I had a flip phone, so I really only used it for texting or calling

Uses smartphone excessively

I'm not super aware of how much time I spend on my phone

Disciplined with how to use smartphone

Awareness of Use: Self Awareness of Others

Thinks that yes, she could be deemed as using her smartphone excessively, but not as much as others

It annoys me when I go out to eat with friends and then everyone whips out their phones, no real conversation going

You don't know everyone's reason as to why they're on their phone. Seems excessive but it's not.

Would judge people less if unaware of what they're up to

Most people can't just live in the moment

I feel as if I compare to the overall norm of smartphone users

Personally, my friends don't spend that much time on their phones and are disciplined if they feel the need to be

Awareness of Use: Others Awareness of Self

My parents confront me a lot about being on my phone too much

Although my parents have confronted me about my smartphone usage, I kind of just shrugged it off and they don't bother me about it anymore

Awareness of Use: Justification / Acceptance

Justifies use of social media by thinknig 'Oh, there might be something important - what if I miss it?'

Justifies use of social media by thinking 'Oh, it's just a moment and I can click off after a short while'

Justifies social media checking frequency because it's done out of boredom

When on bus, needs something to do on phone

I don't think I use my smartphone excessively because everyone probably uses it the same amount as I do

I just accept that people go and use their phone a lot because I accepted that I do myself

I use my phone to pass time (like on the bus or waiting for appointment)

Thinks that people can use smartphones to avoid the reality of life, or just to avoid boredom or feeling empty

Signs of Addiction

When watching through videos, you go through this spiral of binging information and you start to question if you actually need the info or if it will be valuable

Easy to get distracted when being productive on smartphone

Everyday, I think that I'm wasting so much time with this when I could've been doing other work

I feel like I'm getting too connected, I'm trying to break away from that.

Thinks that a lot of people struggle with excessive smartphone usage and have addictive tendencies

Doesn't like that her smartphone distracts her / grabs her attention too much - feels too attached to it

It's a time waster for me, I feel like I'm spending too much time on it

Her smartphone usage negatively affects her productivity by distracting her in class - "Inability to multitask"

Procrastinating passively and before you realize, it becomes actively. Watching YouTube videos on side then it becomes my main activity before I realize

Gained weight because addicted to watching videos all day long and not motivated to do physical activity

Just put your phone away, try to focus on something else, do a little work, the cycle repeats and then going on phone again

Signs of Addiction: Longest Time Away From Phone

I am never away from my smartphone because it acts as an alarm for me everyday

Didn't check for 2 days during finals

Longest period without phone: 2 days

Signs of Addiction: Less Sleep

Admits that she could probably get more sleep if she didn't use up time checking her phone, but it doesn't affect her a ton

I start watching a video on YouTube at 11:30, next thing I know it's 3 AM and I planned to sleep a while ago

Smartphone gets in the way of sleep everyday

Spends hours before bed on social media, justifies it in the morning because he enjoyed it

Use most at night before sleep

I don't really care that my phone gets in the way of sleep, I just accept the fact that it happens and it's who I am

Signs of Addiction: Frequency of Checking Phone

If I don't feel like talking to anybody, I'd probably not be on my phone and just get my work done.

Checks social media 10/15 times a day (as an understatement). She's scared by that number.

I get about 100 notifications a day (texts, social media notificaitons)

If there's an interesting convo, like that I'm having with somebody, then I'd probably be checking my phone every 15 minutes to keep it going

Likes to respond to notifications quickly

I check my phone about 20 times a day

I can keep off my phone if I wanted to, but if I'm actively talking to someone on my phone, I'd constantly check

Checks social media almost every half hour

If nothing (notifications) pop up on my screen, I don't have an urge to check my phone

It doesn't annoy me if someone is on their phone just to check a notification really quick

Checks in between doing everyday things (shower, eating, getting dressed, etc)

Checks it, doesn't stay on for more than 10 minutes

Face to Face Conversation

If someone is disinterested and disrespectful while talking to me, then I don't mind being on the phone around them

I can spend time with people without my smartphone, It's just that smartphone is a means to start conversation

Able to spend time with people without smartphone, but needs to make intentional effort to make sure it's not present or on her mind

I can spend time with people without using the phone, but it depends if they are engaged in conversation or if I am too

I enjoy face to face talking more than being on the phone because more connectivity

Can be with friends on and off phone

Work Apps

Uses Google Calendar, Google Keep to help her be productive (but can lead to distraction)

Chegg app a lot for Homework, can use phone to ask questions

I use Gmail, Google Calendar, alarms, reminders for productivity

Relies on Google Calendar for staying organized

I can do all my work without smartphone because I can find other means without using phone directly (computer)

Uses note for things to know by the end of the day

I use Google Drive, Google Apps, Google Calendar, check-lists on my phone to keep me organized

Mostly uses email or group messaging for School/Work

Convenience & Accessibility

I don't mandatorily need my phone, but it makes life much more convenient everyday

Likes that you can do a lot of things at once on her smartphone

I like how I can access the internet at anytime wherever I am. Portable and convenient.

Now that I can watch videos with a smartphone, I can spend every minute doing that

Believes that she would be able to get all the work done that she needs to without a smartphone, but her smartphone is more accessible.

Possible Solutions

When asked what features she would include as a solution for decreasing smartphone usage, her first answer was "A hammer - just smash it."

Would be interested in an app that tells you "you can use your phone from this time to this time, and then from this time to this time you can't."

An app to help go to bed early

Something that restricts your smartphone usage to certain gigabytes

A customizable experience for the app

Thinks that it's difficutl to create a remedy to excessive smartphoen usage or to find the 'root issue.' It's hard to get benefits from smartphones without going too far

Thinks it would be worthwhile to try out a service that would help her use her device less excessively

The app could be backed with a psychological concept to help people stay focused.

What have we learned?

Our interviews were very rich and in-depth which allowed us to explore motivations for smartphone usage beyond what appears on the surface. It was interesting to see how each of our interviewees were all somehow aware of excessive smartphone usage, but had different attitudes about it. One has taken many steps to hinder excessive smartphone usage; another just accepts it, sees it as the way things are, and doesn't care; another is disciplined about his usage and is able to detach from his phone fairly easily; while yet another seems to focus more on the positives that he gets out of it, thus justifying his excessive usage. It was good and informative for us to see four different perspectives and to hear the many different answers to each of the questions.

One big thing that we can draw from our interviews is the conclusion that students *do* use their smartphones excessively, and that smartphones act as distractions from being productive. The students also communicate a general sense of excessive smartphone usage negatively impacting their lives in areas such as mental or physical health, productivity level, or social pressure. We have noted that their constant reliance and apparent 'need' or preference for their smartphones ultimately shows *signs of addiction* (thus why we made this a super category with several sub-categories included within).

Another super category that we formulated is *Awareness of Use*. Our interviewees displayed and shared about their different levels of self-awareness, awareness of others' use, others' awareness of their use, and a sense of justification or acceptance of their use. All of these things point to how students see and experience the phenomenon of excessive smartphone usage in their own lives and the world around them. Understanding our interviewees and their own awareness (how they see and react to the world) helps us step inside their shoes and look at the situation from a user perspective. Other categories such as current restrictions they use, or what they think would help them use their smartphones less excessively point to some potential solutions.

Without delving in too deeply, we have found it interesting to observe the underlying motivations and 'root issues' responsible for this *addiction*. In reviewing our interviewees' answers and expressions, we observe fears of loneliness or appearing 'uncool', a need to escape boredom or emptiness, apathy and mindless distraction, a desire for connection and relationships, and comparison combined with pressure to upkeep an 'image' of the self through social media. While there are, of course, positives to smartphones and how we use them, we observe many negatives which could be addressed. We would like to further explore these observations and see if we can formulate unique and creative solutions which are based on root causes, thus attacking the problem from the inside out.

- Contributions -

Affinity Diagram: Beatrice, Ivanok, Theresa, Vishal

Survey Analysis: Vishal, Ivanok

Digital Affinity Diagram: Ivanok

Affinity Diagram Analysis: Theresa

Editing, Formatting: Beatrice, Ivanok, Theresa