

Smartphones Use Survey of American College Students

Smartphone Use Survey Project

HOME COLLECT DATA ▾ PROCESS DATABASE ▾ ANALYSIS DATA ▾ ABOUT US



Smartphone Use Survey Project Website

This survey is to collect data from American college student in order to research the status of smartphone use and impact on their education.

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Table of Contents

Title	1
Table of Contents	2
1. Introduction	3
1.1. Background	3
1.2. Objectives	4
1.3. Goals	4
1.1. 2019 Fall Semester Milestone	4
1.2. 2020 Spring Semester Plan	4
2. Review of Related Literature	5
3. Methodology	5
3.1. Techniques and Tools	6
3.2. Course Resources	6
3.3. Time Management	7
3.4. Requirements Analysis and Design	7
3.5. Implementation	7
3.6. Testing	7
4. Analysis and Discussion	7
5. Summary, Conclusions, and Recommendations	10
REFERENCES	11
APPENDICES	12

1. Introduction

Smartphones are fast becoming the most pervasive technological device on the planet. Along with keys and money, the smartphone is one of three survival tools most people carry with them. Smartphones give people the ability to transcend space and time by sending and receiving messages over long distances and at their convenience. In 2007 the world population was about 6.3 billion and about 3 billion people owned a cell phone. The expectation at that time was that about one billion cell phones would be added within two years (Chipchase, 2007). True to this prediction, there were 4.6 billion mobile subscriptions at the end of 2009 (The World in 2010, 2010). As of October 2010, there were 5.3 billion mobile subscribers worldwide. There are approximately 1,000 new cell phone subscribers every minute. About half the world's population now owns a cell phone. Most of the recent growth in cell phone subscriptions has occurred in certain countries such as China and India according to the director of the International Telecommunication Union Development Bureau ("ITU estimates," 2010, n.p.).

Currently, many parents and professors worry about their children and students overusing smartphones at colleges. Although some college students think smartphones as good tools for studying, some college students consider smartphones as leisure devices for 24 hours access to the internet. Smartphones could be distracting for college students. Obviously, overusing smartphones have become an issue in academic performance.

Therefore, we will develop a 15 survey questions website, which studies and analyzes the smartphone use of college students. The project is to collect data from American college student in order to research the status of smartphone use and impact on their education. Furthermore, we plan to write an analysis reports. We think that the report could help college students to control the excess use of smartphones and boost the academic performance of students.

1.1. Background

Over the past 20 years, mobile technologies have become everyday fixtures in American high school and university classrooms. Mobile technologies such as iPads, PDAs, smartphones, and electronic book readers are popular among students because they are small, inexpensive, and have multiple applications. Most American young people today own a smartphone because of their versatile uses as ubiquitous computers. According to a Pew Internet Survey, 98% of adults between the ages of 18-29 in the United States own a cellphone and 86% have smartphones (Anderson, 2015). In other words, almost 9 out of 10 college students own a smartphone. This data suggests that a generation of students, or "digital natives," don't know life without these technologies (Zickuhr, 2010). Smartphone use among college students concerns professors.

College students think smartphones as a tool for learning. However, global smartphone penetration has led to unprecedented addictive behaviors. Therefore, smartphone use has both positive and negative effects on academic performance. These are the hypothesis our survey is based on.

1.2. Objectives

The project is to study the usage of smartphones by college students. Also, the project is to determine the relationship between gender and usage of smartphones. Moreover, the project is to analyze the relationship between age and usage of smartphones. Finally, the last goal of the project is to examine the relationship between education qualification and usage of smartphones. The objective of the research is to check whether there is a significant relationship between the different demographic factors and the usages.

1.3. Goals

The project develops a 15 question survey system for collecting data from American college students. The web-version survey system can save time, save cost and easy to update than a paper-version survey. We plan to gather at least 120 responses from college students. Finally, we will write an analysis report. The report will study various ways smartphones are being used. For example, how smartphones and their use are being perceived. Meanwhile, we will try to find a better solution to reduce the use of smartphones. The solution of the survey report will be used to improve academic performance of college students.

1.4. 2019 Fall Semester Milestone

During September 16-September 22, we have read a lot of articles regarding smartphones use survey reports.

During September 23-September 29, we have analyzed some survey questions.

During September 30-October 20, we have designed and finished 15 survey questions.

During October 21- October 31, we have accomplished the development of survey system.

During November 1-November 25, we have tested the survey system and send links to 120 college students. Also, we have created smartphone use survey project website.

1.5. 2020 Spring Semester Plan

We plan to convert those feedbacks into a database. We will apply mySQL to produce a relational database. Moreover, we can analyze the relationship between the status of smartphones use and academic performance at college using R language. Moreover, we will try to study the effects of smartphones on communication and interactions. Additionally, we plan to improve the survey system and project website.

2. Review of Related Literature

The smartphone survey requires a coordinated effort using a consistent set of questions so that findings can be compared across campuses. The starting point is to identify a set of questions that seem to be consistently asked about cell phone use. The American college student smartphone surveys in the past were asked whether or not they use their phone to: access the web, stream audio, view video, send messages, use apps. In previous surveys participants were asked whether or not it was acceptable for people to talk on their phones in public places like movies, restaurants, college properties etc.

The survey we are conducting is different from other previous surveys. Our only goal is to study the negative impacts smartphone use has among college students and decrease the use of smartphones during class and study time. In our study we developed four hypotheses to examine the relationship between formed variables and actual usage of smartphones by college students. Our study shows that college students are more likely to use smartphones than any other devices. The time they spend on smartphones is more on entertainment and social sites than educational materials. If students spend more time on educational materials when they are using smartphones, it would benefit them in the process of learning.

3. Methodology

To determine the usage of smartphones by College Students we used mixed approach. Both inductive and explanatory reasoning were used in order to gather information on the given topic to filter research questions. The identification of the information which is to be used along the sample to derive the response and their analysis, investigative questions were formulated.

Data: Survey data gathered from questionnaire is used as primary source of data. Various scholarly journals and research articles were used as a secondary source of data.

Reasoning: We employed inductive and exploratory reasoning because it satisfies the exploratory nature of our research.

3.1. Research Techniques and Tools

The survey is conducted on young college students using a self frames questionnaire which is forwarded to the respondents through web link, facebook, twitter and Linkden.

- Following steps were used to conduct the survey:
- Defining the objective of survey
- Determining the sampling survey
- Preparing the questionnaire
- Registering the responses
- Data analysis

The tools we used in our survey are:

Google Forms for survey system: We used Google forms because it is free and user friendly for surveyors and respondents.

GitHub for project website: We used GitHub as free tool to build a website and hosting on GitHub is free. GitHub is easy to use as well.

Gantt Chart and Pert Chart for Timeline: We used Gantt chart and Pert Chart to create Fall 2019 and Spring 2020 timeline. We have 160 working days on both semesters.

Use case diagram for analysis system: Use case diagram is used to analysis the process of the survey.

We will be using R programming language for analysing; Markdown, HTML, .Yml for coding; and Lucid chart and Draw.io for diagrams

3.2. Questionnaire Design

The questionnaire has been thoughtfully designed keeping the research objectives in mind. It consists of 15 questions. 14 questions are objective and the last one, question 15 is subjective type. We have kept the questionnaire as concise as possible to get the maximum

reliable responses. The questionnaire consists of simple category scale, multiple choice, single response scale and open ended question.

3.3. Time Management

In System Development Life Cycle (SDLC), for time consuming, we set one-third of project development schedule and one-third of development labor after we analyzed required resources, managerial complexity, and system quality.

3.4. Requirements Analysis and Design

- Users are interviewed
- Sample Forms, Reports and Descriptions are discussed
- Create Survey Model
- Prototypes or working demonstrations of selected portions are created
- Develop Use Cases to describe user roles, features, and functions

3.5. Implementation

- Survey Model is transformed into Survey System Design
- Survey System is developed
- Forms, Reports, and Descriptions are created
- Application Programs are written
- Users are trained, documentation is written, system is installed

3.6. Testing

In testing, we took system testing, integration testing, and unit testing. Also, we took the process of testing to begin early in the SDLC.

Hypotheses Testing

Our first hypothesis predicted that perceived ease of use would be positively related to perceived usefulness. .

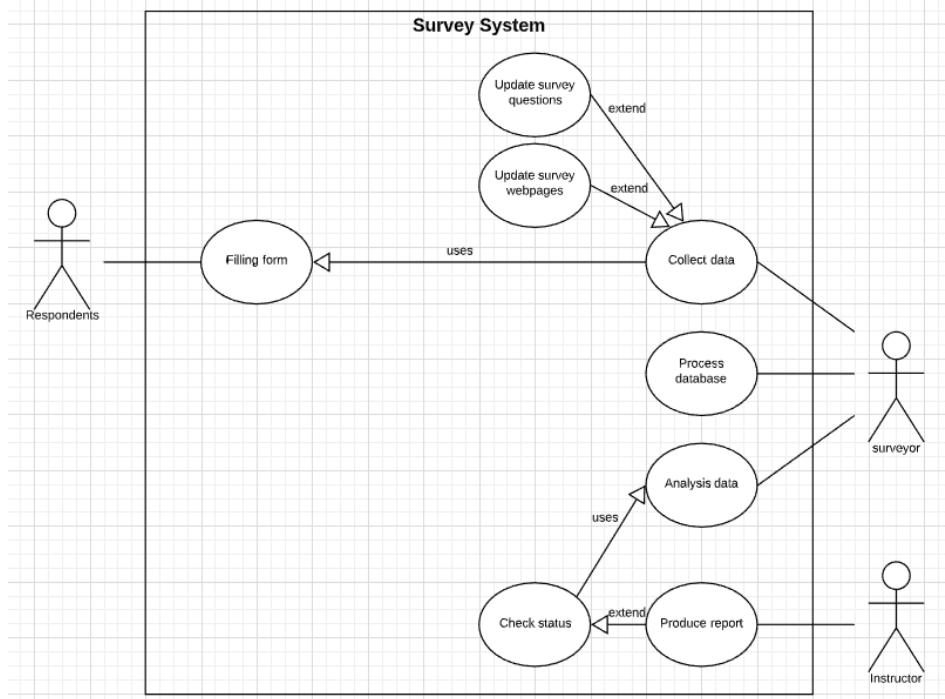
The second hypothesis predicted that perceived usefulness would be positively related to educational smartphone use.

The third hypothesis indicated that educational smartphone use would be positively related to student connectedness.

4. Analysis and Discussion

The development process of the smartphone-use-survey system includes three major phases, such as requirement analysis, design, and implementation. It consists of the analysis and interpretation of 42 responses collected on an unbiased basis from students from different local colleges. Analysis was done with the help of Google forms and then generating useful graphs in Microsoft excel.

First of all, we analyzed the smartphone-use-survey system. The system should have three types of users, such as respondents, surveyors, and instructors. Respondents, who are college students, fill out the form to answer survey questions. Surveyors collect data, process databases, and analyze data. Instructors check the status of smartphone use and produce reports.



Next, we researched similar projects that have been done in the past. Also, we studied the academic research articles that compare the smartphone usage of college students and the effect of excess use of phones. Then we designed 15 survey questions using Google Forms. The 15 survey questions that are directly related to college students and their smartphone use habits. Additionally, we choose Google Forms to develop the survey system because it is the best tool for us to collect, analyze and interpret the information from respondents.

Specifically, the 15 survey questions include multiple choice questions, so respondents can select one option from the list of answers. Multiple choice answers will provide respondents an easier survey taking experience in order to complete all the questions of the survey. Some sample questions that will be included in the survey are: (i) How well do you meet your studying goals? (ii) Do you always have a hard time concentrating in class after using a smartphone? (iii) Do you always miss work after using a smartphone? (iv) Do you always think about a smartphone even if you are not using it? (v) Do you always constantly check a smartphone in order to not miss any conversations with friends? (vi) Do you always use a smartphone longer than you planned? (vii) People around you, do they always say that you use a smartphone too much? (viii) Do you always feel pain in the neck, waist, or back after using a smartphone? Especially, we designed 2 survey questions to do comparison. For example, in question 3rd and question 4th, we wrote 2 survey questions to ask respondents the status of using a smartphone and watching TV. Additionally, we designed 2 questions to improve our survey. For example, in question 14, we have added a ‘Yes’ or ‘No’ question. If the question 14th is selected ‘Yes’, the survey moves to question 15th. If respondents selected ‘No’, survey will end. Especially,

question 15th is an open-ended question to ask respondents some suggestions about smartphone use. Answer to question 15th will be an important aspect to our survey because those suggestions will bring respondents move closer to our goal. If question 14th is selected ‘No’, the survey will end. After completing the survey, the system will generate an auto-confirmation message. Besides, we ensure that all the information collected from the survey will be carefully analyzed.

Then we developed the survey system using Google Forms. The system gathers data, transfers collected data to a database, and draw charts and diagrams. We set that each respondent submits only once. The system does not allow more than one time submitted by the same respondent. Additionally, we set ‘blue (#4285f4)’ as the background color and ‘medium (#d0e1fc) Basic’ as the font style.

Additionally, we tested the system within a small group of users before we sent the survey link to 120 college students.

Finally, for release our project, we created a project website using Github. Github is free and includes hosting. In the development of the project website, we designed a navigation bar on the top of the webpage. Then we created a set of tabs menus and drop-down menus coding HTML, Markdown, and YAML. They made the webpage clearer, more concise, and more understandable for users.

```
27 # List of links in the navigation bar
28 navbar-links:
29   Home: ""
30   Collect Data:
31     - Survey Questions: "new-page"
32   Process Database:
33     - Database: "getstarted"
34   Analysis Data:
35     - Charts and Diagrams: "md-example"
36   About US: "https://www.cps.gwu.edu/information-technology-bachelors-degree-completion-program"
```

5. Summary and Conclusions

All in one, we have accomplished the development of the survey system and the project website on time. The survey system have gathered 42 feedback. Respondents like our survey system. The responses we received from respondents were very encouraging, they stated that the survey system is very clear and easier to understand. Meanwhile, users would like to use our project website as well. The results of this project are based on the analysis of data collected from a sample of 42 students from local colleges. The students who participated in the survey are

from various educational backgrounds and different age groups. The main objective of this research is to understand the usage of smartphones among college students. The analysis of data showed that gender, age, educational qualification of students have significant relationship with the usage of smartphones. Social networking, emails, online shopping, reading documents are the attributes which have a relationship with the gender of college students. Calls, emails, music and social networking are attributes which have relations with the age of college students. Emails, college announcement and e-learning are attributes which have a relationship with educational qualification of college students.

Smartphones are pervasive and powerful. They help us meet basic needs of convenience and safety. They provide us with a new and superior means of communicating with each other. They encourage talk, not conversation. We are allowing smartphones to become a symbol of our status. Therefore right use of smartphone is necessary for college students as it will encourage them to use smartphones in a systematic manner. Once we educate college students about the negative effects of smartphone, the smartphone use rate will decrease dramatically and it will be a positive factor in their studies.

Next semester, we will study the responses that are received till the first week of January as our survey is open till January 7, 2020. We will study all the responses in detail and try to analyze the way a typical college student would understand. We will use the data to find if there is any relation between smartphone addiction, academic performance and healthy life. By the end of next semester we will be able to find out a better solution to reduce the use of smartphone and increase the academic performance of college students. We believe our study will be useful to college students of all genders, ages and academic qualification.

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APPENDICES

Gantt Chart

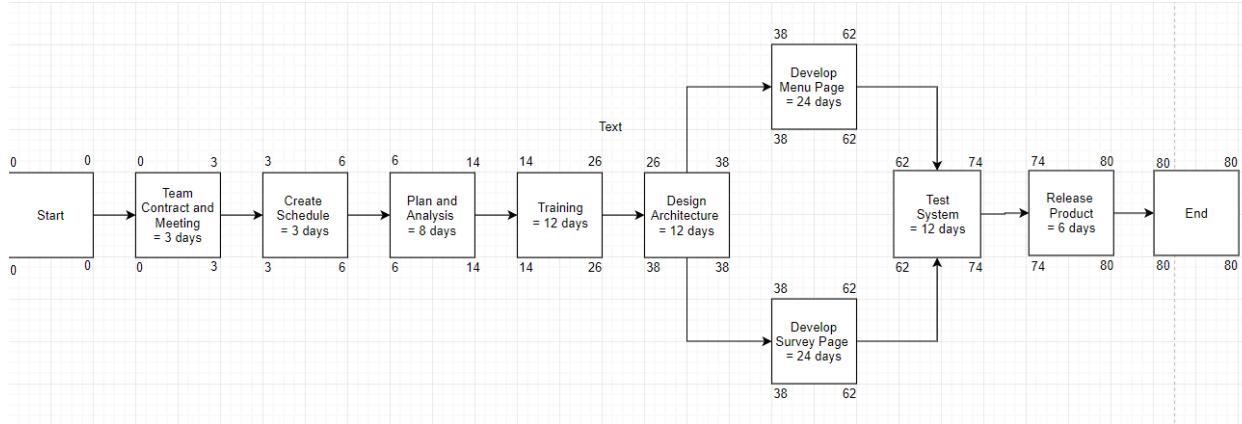
2019 Fall Semester Project Gantt Chart



2020 Spring Semester Project Gantt Chart

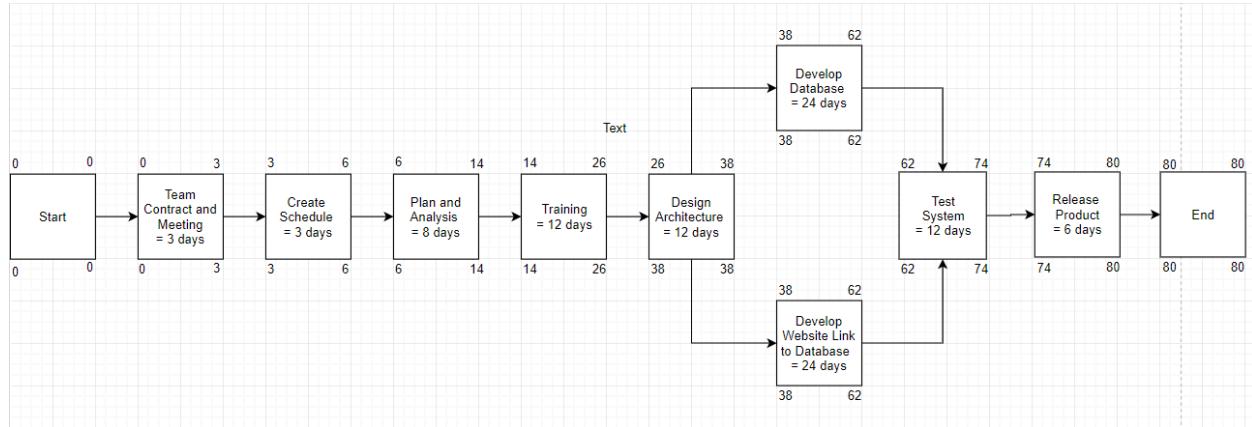


PERT Chart



Most likely time = 80 workdays

$$\begin{aligned} \text{PERT weighted average} &= (\text{optimistic time} + 4 \times \text{most likely time} + \text{pessimistic time})/6 \\ &= (70 + 4 \times 80 + 90)/6 \\ &= 80 \text{ workdays} \end{aligned}$$



Most likely time = 80 workdays

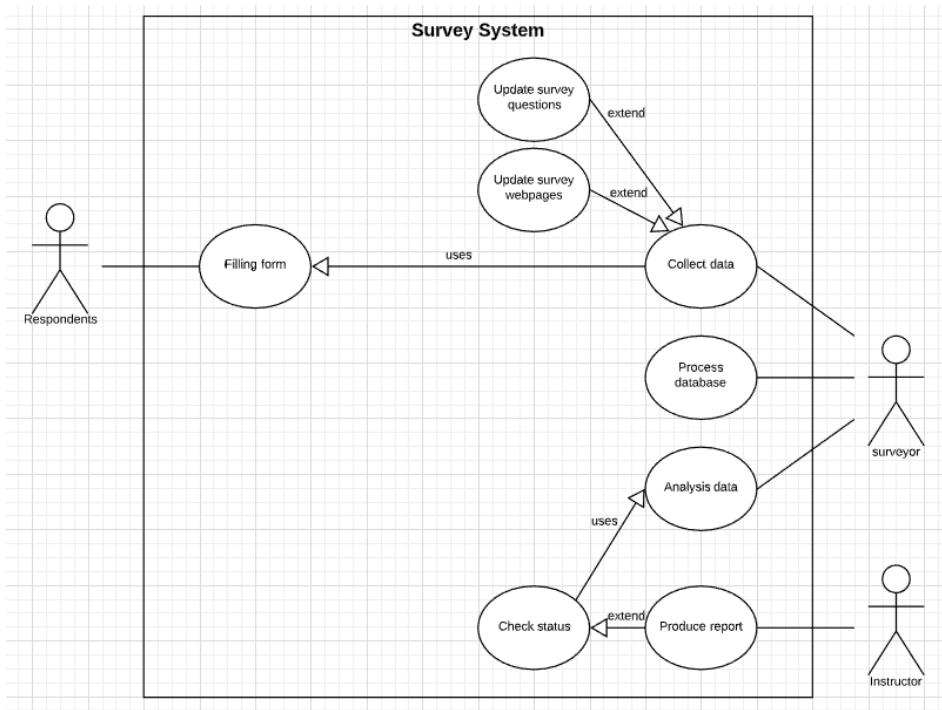
$$\begin{aligned} \text{PERT weighted average} &= (\text{optimistic time} + 4 \times \text{most likely time} + \text{pessimistic time})/6 \\ &= (70 + 4 \times 80 + 90)/6 \\ &= 80 \text{ workdays} \end{aligned}$$

Course Resources

PSIS 4191 Caps Proj & Senior Thesis - I
PSIS 4192 Caps Proj & Senior Thesis - II
PSIS 2103 Found Math & Stat Sci - I
PSIS 2104 Found Math & Stat Sci - II
PSIS 2105 Found Info Tech & Comp - I
PSIS 2106 Found Info Tech & Comp - II
PSIS 4142 Rel Databases & Design

PSIS 4199 IT Project Management
PSIS 4145 Software Sys Dev Processes
PSIS 2101 Writing & Comm & Med Rel - I
PSIS 2102 Writing & Comm & Med Rel - II

Use case diagram for Survey System



Coding

```

27 # List of links in the navigation bar
28 navbar-links:
29   Home: ""
30   Collect Data:
31     - Survey Questions: "new-page"
32   Process Database:
33     - Database: "getstarted"
34   Analysis Data:
35     - Charts and Diagrams: "md-example"
36   About US: "https://www.cps.gwu.edu/information-technology-bachelors-degree-completion-program"
  
```

15 Survey Questions

Responses cannot be edited

Smartphone Use Survey of American College Students

This survey is to collect data from American college student in order to research the status of smartphone use and impact on their education.

* Required

Email address *

1. Which category below includes your age? *

17 or younger

18 to 20

21 to 29

30 to 39

40 or older

2. Are you male or female? *

Female

Male

Prefer not to say

3. On average, how many hours do you use a smartphone per day? *

Less than 30 mins

30 mins to 1 hours

1 to 2 hours

More than 2 hours

4. On average, how many hours do you watch TV per day? *

Less than 30 mins

30 mins to 1 hours

1 to 2 hours

More than 3 hours

5. On average, how many hours of sleep do you get per day? *

Less than 4 hours

4 to 7 hours

More than 8 hours

6. How well do you meet your studying goals?*

Completely meet study goals

Somewhat meet study goals

Do not meet any study goals

7. Do you always have a hard time concentrating in class after using a smartphone? *

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

8. Do you always miss work after using a smartphone? *

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

9. Do you always think about a smartphone even if you are not using it? *

Strongly disagree

Disagree

Neutral

Agree

Strongly Agree

10. Do you always constantly check a smartphone in order to not miss any conversations with friends? *

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

11. Do you always use a smartphone longer than you planned? *

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

12. People around you, do they always say that you use a smartphone too much? *

Strongly disagree

Disagree

Neutral

Agree

Strongly agree

13. Do you always feel pain in the neck, waist, or back after using a smartphone? *

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

14. Do you REALLY think American College Students overuse smartphone? *

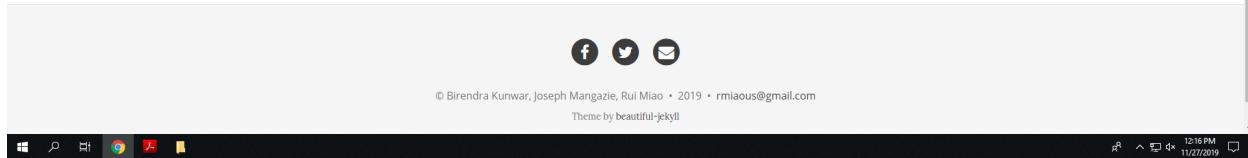
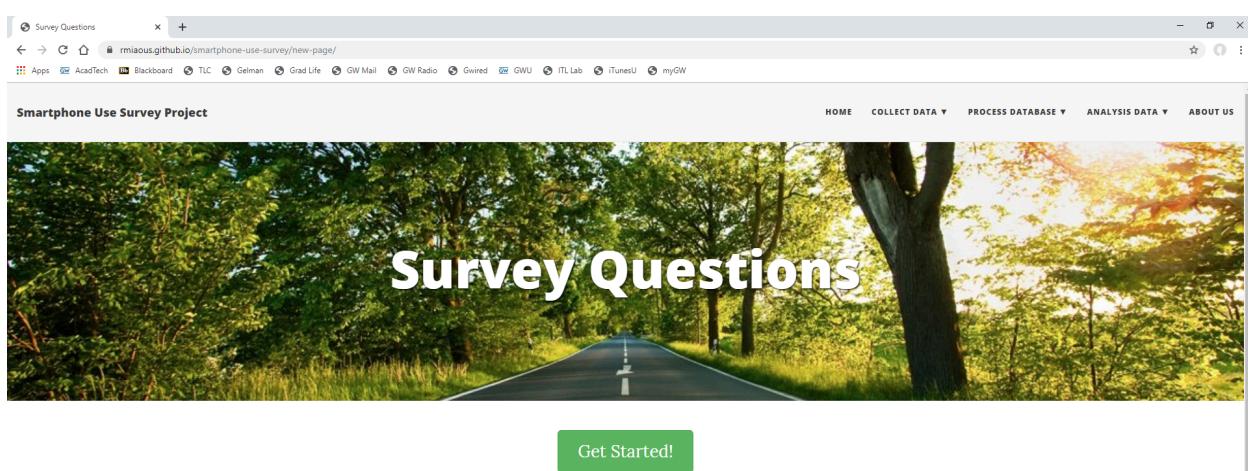
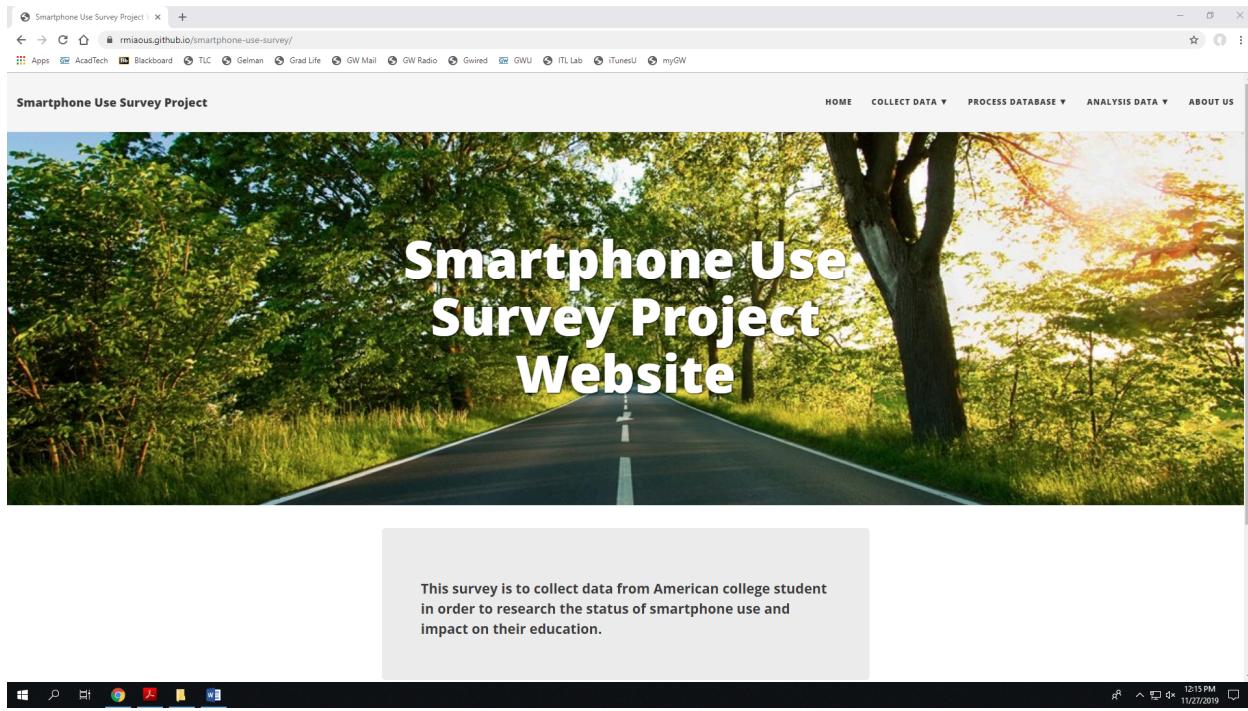
Yes

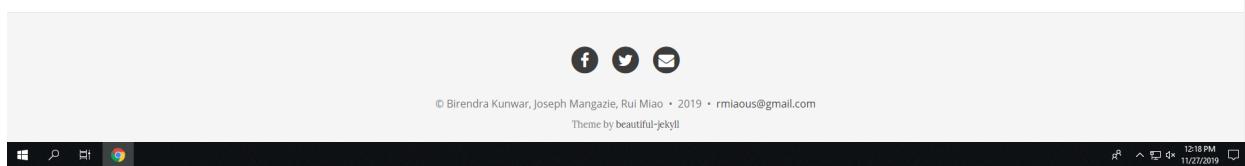
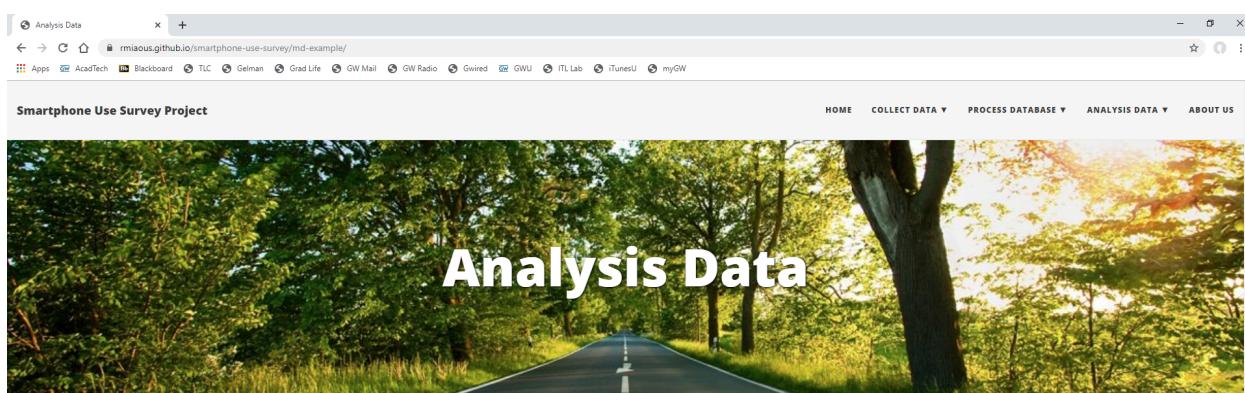
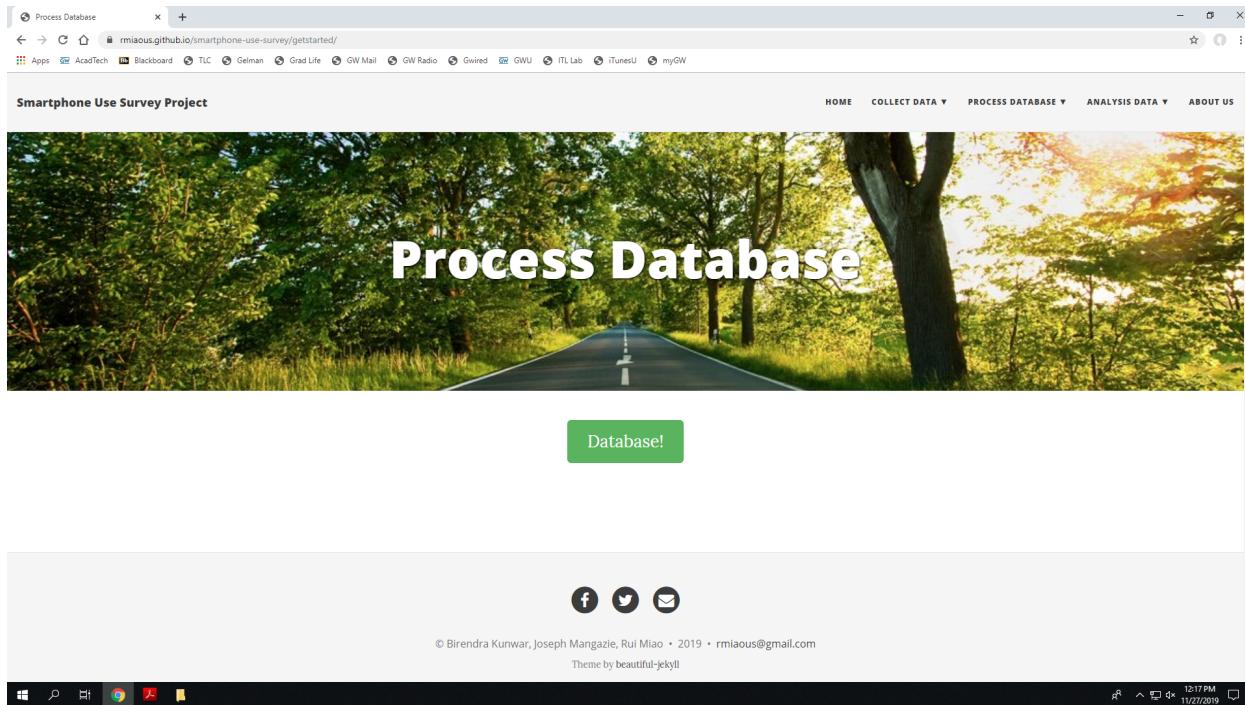
No

Suggestion

15. Please provide your suggestion for American College Students to control smartphone use.

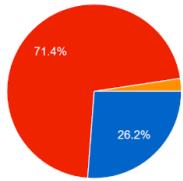
Project Website



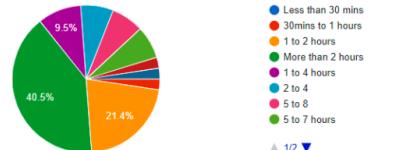


Survey Outcome

2. Are you male or female?
42 responses

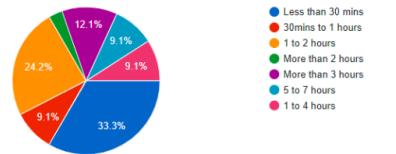


3. On average, how many hours do you use a smartphone per day?
42 responses



▲ 1/2 ▼

4. On average, how many hours do you watch TV per day?
33 responses



Overuse Smartphone

14. Do you REALLY think American College Students overuse smartphone?
35 responses

