Feasibility Study of the Best AT&T Smartphones for UNT Students

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Executive Summary

The feasibility study we conducted on smartphones offered by AT&T will help UNT students choose the best phone for them. In 2014, a year of innovations, students use smart phones every day to communicate, learn, and plan their day. In this study, we are trying to find which is the best phone for UNT students from AT&T with a contract. We are basing our choice on these criteria:

- Size
- Price
- Rear-facing camera
- Talk time
- User friendliness.

We chose 6 phones from the AT&T’s best-bought phones, one from each cell phone maker, and then surveyed UNT students to choose the top three. The phones that we initially chose were:

- Samsung Galaxy S5
- Apple iPhone 5S
- LG G2
- Moto X
- HTC One
- Nokia Lumia 1520.

The UNT students limited our options to the Samsung Galaxy S5, Apple iPhone 5S, and LG G2 with their responses to our survey.

We have four major parts to our feasibility study:

- Methods of evaluation
- Results and evaluation
- Analysis of evaluation
- Recommendation

In the methods and evaluation section we explain the methods we used to acquire our data and calculate numbers to explain our data to the students. In the analysis of evaluation section we analyzed the data that we acquired from two surveys and the AT&T website. We also restated important information UNT students need to buy the best phone. In the recommendation section we recommended the best phone from the three options based on the criteria and the user-friendliness survey. We recommend the Samsung Galaxy S5 because of three main reasons. The reasons we recommend the Samsung Galaxy S5 are:

- The Samsung Galaxy S5 won the user-friendly survey.
- The Samsung Galaxy S5 has the best rear-facing camera.
- The Samsung Galaxy S5 has the longest talk time of our phone options.
Introduction to Feasibility Study on the Best Smartphone From AT&T for UNT Students

UNT students can use our feasibility study to choose the best phone they can buy in an AT&T contract. This study will help UNT students make the best choice on what smartphone to buy. A contract from AT&T means a period of 2 years that a student must pay for the plan that he or she chooses. Based on a number of criteria and two surveys that we conducted, we decided on the best phone for UNT students to buy. We limited our options to the 6 most bought phones from each cell phone manufacturer on the AT&T’s website and then surveyed UNT students to narrow our options down to the top three. Based on our survey, we chose the following phones from our 6 original choices:

- iPhone 5s
- Samsung Galaxy S5
- LG G2

Our hypothesis was that the iPhone 5S would be the best phone based on all of our criteria. In the following sections we will introduce our methods of evaluation, the results of our evaluation, our conclusion of the results, and make a recommendation of the best smartphone from AT&T for UNT students.
Methods of Evaluation

Options Survey
We began our feasibility study by conducting a survey of thirty UNT students to see which smartphones available from AT&T they preferred. We chose the newest smartphone made by each cell phone manufacturer (Samsung, Apple, LG, Motorola, HTC, and Nokia) offered by AT&T. We conducted our survey at 3:45pm Monday, April 28, 2014 at the Willis Library Mall. We have provided a list of the survey questions below. From the survey questions below we found the top three smartphones chosen by UNT students. These are the questions we used in our survey:

1. What is your age group?
   - 18-24
   - 25-33
   - 34-44
   - 45-55
   - 56-65
   - 66 or older

   The value of surveying age groups is to determine if there is a correlation between age and preferred AT&T phone.

2. What is your gender?
   - Male
   - Female

   The value of surveying genders is to determine if there is a correlation between gender and preferred AT&T phone.

3. What is your ethnic background?
   - Caucasian
   - Hispanic
   - African American
   - Asian
   - Other

   The value of surveying ethnicity is to determine if there is a correlation between ethnicity and preferred AT&T phone.
4. What is your household income?
   - Less than 50,000
   - $50,000 - $69,999
   - $70,000 - $89,999
   - $90,000 - $124,999
   - $125,000 and above
   - Choose not to say

The value of surveying household income is to determine if there is a correlation between household income and preferred AT&T phone.

5. These phones are a collection from AT&T phones based on size, price, rear facing camera, and talk time life. Please pick the phone you use or like from the options under the pick column on the next page.

The value of surveying 5 AT&T phones is to narrow the options to the top 3 AT&T phones chosen by UNT student.

<table>
<thead>
<tr>
<th>Phone</th>
<th>Display Size (inches diagonally)</th>
<th>Price with AT&amp;T contract</th>
<th>Rear-Facing Camera</th>
<th>Talk time (hours)</th>
<th>Your Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samsung Galaxy S5</td>
<td>5.1 inches</td>
<td>$199.99</td>
<td>16MP Phase Detection Auto Focus camera with Flash</td>
<td>Up to 29</td>
<td></td>
</tr>
<tr>
<td>iPhone 5S</td>
<td>4 inches</td>
<td>$199.99</td>
<td>8-megapixel iSight® camera with autofocus and True Tone flash</td>
<td>Up to 10 on 3G</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Screen Size</td>
<td>Price</td>
<td>Camera Features</td>
<td>Battery Life</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>--------</td>
<td>------------------------------------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>LG G2</td>
<td>5.2 inches</td>
<td>Free</td>
<td>13MP autofocus with LED flash and optical image stabilization (OIS)</td>
<td>Up to 17.9</td>
<td></td>
</tr>
<tr>
<td>Moto X</td>
<td>4.7 inches</td>
<td>Free</td>
<td>10MP CLEAR PIXEL (RGBC) autofocus with LED flash</td>
<td>Up to 13</td>
<td></td>
</tr>
<tr>
<td>HTC One</td>
<td>5 inches</td>
<td>$199.99</td>
<td>HTC Duo Camera with autofocus and Dual LED flash</td>
<td>Up to 20 hours for 3G</td>
<td></td>
</tr>
<tr>
<td>Nokia Lumia 1520</td>
<td>6 inches</td>
<td>$199.99</td>
<td>20MP autofocus, OIS, ZEISS optics and dual LED flash</td>
<td>Up to 24</td>
<td></td>
</tr>
</tbody>
</table>
Options
UNT students chose the following phones from our survey:

- iPhone 5S
- LG G2
- Samsung Galaxy S5

Criteria
We chose the criteria listed below to find which phone is the best for UNT students:

- Price
- Display Size
- Battery life
- Camera
- User friendliness

We based the price criteria on the AT&T smartphone contracts. We found that the price range between $0 with a contract to $199.99 with a contract. We based the size criteria on the size of the phone display measure diagonally across the screen. We based the battery life criteria on talk time, meaning how many hours the battery can last while you are making phone calls. We found that the battery life ranges between 10 hours of talk time to 29 hours of talk time. We based the camera criteria on rear facing cameras by the number of megapixels. We based the user friendliness criteria on the opinion of UNT students. Students will decide how easy or difficult it is to use the phones based on:

- Features
- Ease of use
- Battery
- Display
- Design

User Friendliness Survey
We surveyed thirty students in the Willis Library Mall around 4:45 on Monday, April 28, 2014 for our user friendliness survey. We used this survey to determine which of the three phones chosen in our first survey is the most user friendly. We used the following questions in our survey:

iPhone 5S (1=worst and 5=best)

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Features</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Battery  O¹ O² O³ O⁴ O⁵
Display  O¹ O² O³ O⁴ O⁵
Design   O¹ O² O³ O⁴ O⁵

LG G2 (1=worst and 5=best)
Overall Rating  O¹ O² O³ O⁴ O⁵
Features       O¹ O² O³ O⁴ O⁵
Ease of use    O¹ O² O³ O⁴ O⁵
Battery        O¹ O² O³ O⁴ O⁵
Display        O¹ O² O³ O⁴ O⁵
Design         O¹ O² O³ O⁴ O⁵

Samsung Galaxy S5 (1=worst and 5=best)
Overall Rating  O¹ O² O³ O⁴ O⁵
Features       O¹ O² O³ O⁴ O⁵
Ease of use    O¹ O² O³ O⁴ O⁵
Battery        O¹ O² O³ O⁴ O⁵
Display        O¹ O² O³ O⁴ O⁵
Design         O¹ O² O³ O⁴ O⁵

We used the user-friendliness survey to rate each phone based on AT&T's definition of user friendly. Students can have their opinion swayed by the user friendliness and can disregard or purchase a cell phone based on the list criteria.

The information for the other criteria (price, display size, battery life, and camera) was all taken from the AT&T website http://www.att.com/shop/wireless/devices/smartphones.html. AT&T provides information on price, display size, battery life, and cameras for all of the phones that they offer their customers.
Results of Evaluation

We rated the phones on a point scale of 1 to 3; 1 being the worst option and 3 being the best. The phone we give the highest number of points based on surveys and other criteria is the best phone out of the three options. We are basing our choice of the best phone on the following criteria:

- Price
- Display Size
- Talk Time
- Camera
- User Friendly

Price
We based the price of each phone on the cost of the phone with a two-year contract from AT&T. The lower the price the more practical the phone is for UNT students. The LG G2 is free with a contract and the iPhone 5S and the Samsung Galaxy S5 are $199.99 with a contract. The best option is the LG G2 because it is free, and the worst options are the iPhone 5S and the Samsung Galaxy S5 because they are $199.99.

Smartphone Prices From AT&T With a Contract

<table>
<thead>
<tr>
<th>Phone</th>
<th>Price With a Contract</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone 5S</td>
<td>$199.99</td>
<td>1</td>
</tr>
<tr>
<td>LG G2</td>
<td>Free</td>
<td>3</td>
</tr>
<tr>
<td>Samsung Galaxy S5</td>
<td>$199.99</td>
<td>1</td>
</tr>
</tbody>
</table>

This chart shows each phone and their price. The third column shows the points that each phone received.
Display Size
We based the size criteria on the size of the screen on each phone. The best option is the LG G2 because the screen is 5.2 inches diagonally. The worst option is the iPhone 5S because the screen is 4 inches diagonally.

Smartphone Display Sizes

<table>
<thead>
<tr>
<th>Phone</th>
<th>Display Size (in. diagonally)</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone 5S</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>LG G2</td>
<td>5.2</td>
<td>3</td>
</tr>
<tr>
<td>Samsung Galaxy S5</td>
<td>5.1</td>
<td>2</td>
</tr>
</tbody>
</table>

This chart shows each phone and the display size in inches diagonally. The third column shows the points each phone received for this criteria.
**Talk Time**

We based the battery life criteria on the phones talk time. The longer the phones battery will last while in use the better the phone will serve UNT students. The best option in the Samsung Galaxy S5, and the worst option is the iPhone 5S.

**Smartphone Talk Times in Hours**

<table>
<thead>
<tr>
<th>Phone</th>
<th>Talk Time (hours)</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone 5S</td>
<td>Up to 10 hours on 3G</td>
<td>1</td>
</tr>
<tr>
<td>LG G2</td>
<td>Up to 17.9 hours</td>
<td>2</td>
</tr>
<tr>
<td>Samsung Galaxy S5</td>
<td>Up to 29 hours</td>
<td>3</td>
</tr>
</tbody>
</table>

This chart shows each phone option and their battery life in talk time hours. The third column shows the points each phone received for this criteria.
Camera
We base the camera criteria on the megapixels in the rear-facing camera in each phone. The more megapixels the camera has the better picture the camera will take. The best option is the Samsung Galaxy S5. The worst option is the iPhone 5S.

Smartphone Cameras Based on Megapixels

<table>
<thead>
<tr>
<th>Phone</th>
<th>Camera</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone 5S</td>
<td>8 Megapixels</td>
<td>1</td>
</tr>
<tr>
<td>LG G2</td>
<td>13 Megapixels</td>
<td>2</td>
</tr>
<tr>
<td>Samsung Galaxy S5</td>
<td>16 Megapixels</td>
<td>3</td>
</tr>
</tbody>
</table>

This chart shows each phone and the megapixels of the rear-facing camera. This third column shows the points each phone received for this criteria.
User Friendliness
We conducted a survey of UNT students to determine which phone is the most user friendly. We included asked UNT students to score each phone on a scale of 1 to 5; 1 being the worst and 5 being the best. We asked the survey participants to rank each phone on the following criteria:

- Overall rating
- Features
- Ease of use
- Battery
- Display
- Design

The Samsung Galaxy S5 received the most points from the survey, and the LG G2 received the least amount of points.

Smartphone User Friendliness

<table>
<thead>
<tr>
<th>Phone</th>
<th>Overall Rating</th>
<th>Features</th>
<th>Ease of Use</th>
<th>Battery</th>
<th>Display</th>
<th>Design</th>
<th>Total</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone 5S</td>
<td>4.43</td>
<td>4.28</td>
<td>4.57</td>
<td>3.93</td>
<td>4.39</td>
<td>4.43</td>
<td>21.64</td>
<td>2</td>
</tr>
<tr>
<td>LG G2</td>
<td>3.50</td>
<td>3.41</td>
<td>3.41</td>
<td>3.64</td>
<td>3.36</td>
<td>3.45</td>
<td>20.77</td>
<td>1</td>
</tr>
<tr>
<td>Samsung Galaxy S5</td>
<td>4.22</td>
<td>4.07</td>
<td>3.89</td>
<td>3.85</td>
<td>4.22</td>
<td>3.89</td>
<td>24.14</td>
<td>3</td>
</tr>
</tbody>
</table>

This chart shows the average score that each phone received in each category on the survey based on the five-point scale. The total column shows the total points each phone received from the survey. The rating column shows the points each phone received for this criteria.
Summary of Results

Results of Each Criteria for the iPhone 5S, Samsung Galaxy S5, and LG G2

<table>
<thead>
<tr>
<th>Phone</th>
<th>Price with Contract</th>
<th>Display Size (in. diagonal)</th>
<th>Talk Time (hours)</th>
<th>Camera (Megapixels)</th>
<th>User Friendliness</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone 5S</td>
<td>$199.99</td>
<td>4 in.</td>
<td>Up to 10 hours on 3G</td>
<td>8 MP</td>
<td>21.64</td>
</tr>
<tr>
<td>LG G2</td>
<td>Free</td>
<td>5.2 in.</td>
<td>Up to 17.9 hours</td>
<td>13 MP</td>
<td>20.77</td>
</tr>
<tr>
<td>Samsung Galaxy S5</td>
<td>$199.99</td>
<td>5.1 in.</td>
<td>Up to 29 hours</td>
<td>16 MP</td>
<td>24.14</td>
</tr>
</tbody>
</table>

This chart summarizes the results of each criteria.

Points Received For Each Criteria

<table>
<thead>
<tr>
<th>Phone</th>
<th>Price</th>
<th>Display Size</th>
<th>Talk Time</th>
<th>Camera</th>
<th>User Friendly</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone 5S</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>LG G2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Samsung Galaxy S5</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

This chart shows the points each phone received for each criteria and the points each phone received in total.
Analysis of Evaluation

We hypothesized that the iPhone 5S would be the best overall phone for UNT students. Based on five criteria of price, display size, talk time, camera, and user friendliness, we rated the three phone options on a three point rating scale. In the following paragraphs we will analyze the results of each criteria.

Analysis of Smartphone Prices
The first criteria we evaluated is the price of each phone with a two-year contract. The prices ranged from free to $199.99. The best option is the LG G2 because its free. The iPhone 5S and the Samsung Galaxy S5 are worse options because they both cost $199.99. The LG G2 is better for UNT students because it has a lower price than the iPhone 5S and the Samsung Galaxy S5. UNT students already pay for tuition, books, housing, parking, and food. Therefore, the lower the price of the cell phone the more feasible that phone is for UNT students to purchase.

Analysis of Smartphone Display Sizes
The second criteria we evaluated is the display size of each phone. The display size measured diagonally across the phone screen. The display sizes ranged from 4 inches to 5.2 inches. The LG G2 is the best option based on display size, and the iPhone 5S is the worst option. The bigger the display the easier it is to read text, watch videos, search the internet, and use applications. UNT students use their phones to check blackboard, email professors, contact group members for projects, and stay in touch with family. A bigger screen helps students accomplish these tasks.

Analysis of Smartphone Talk Time
The next criteria we evaluated is the hours of talk time. The hours of talk time for the Samsung Galaxy S5 is the best at 29 hours. The iPhone has the lowest hours of talk time at 10 hours. UNT students need reliable phones with long battery life to connect, communicate, and learn. UNT students need their phones to maintain battery throughout the school day.

Analysis of Smartphone Rear Facing Cameras
The next criteria we evaluated is the rear facing camera on each phone. The cell phone manufacturers included auto focus and flash in each of the phones. We based the value of each camera on the amount of megapixels each camera has. We found that the Samsung Galaxy S5 had the most megapixels, and the iPhone had the least. UNT students can use the camera on their phones for class projects and documenting their time at UNT.

Analysis of Smartphone User Friendliness
The last criteria we evaluated is the user friendliness based on survey responses from UNT students. UNT students rated the phone options on a 5-point scale based on overall rating, features, ease of use, battery life, display size, design. UNT students rated the Samsung Galaxy S5 the highest in user friendliness. UNT students rated the LG G2 as the lowest in user friendliness. UNT students need a user friendly phone for easy navigation of applications.

In conclusion, we rated the Samsung Galaxy S5 as the best phone overall based on UNT student responses, our own analysis, and in comparison to the iPhone 5S and the LG G2. Our initial hypothesis of the iPhone 5S as the winner of our feasibility study was incorrect. We found that
the iPhone 5S consistently rated lower on our criteria than the Samsung Galaxy S5 and the LG G2. Although we found that the Samsung Galaxy S5 scored lower than the LG G2 on screen size and price, the Samsung Galaxy S5 scored the highest on rear-facing camera, talk time, and user friendliness. Therefore, we rate the Samsung Galaxy S5 as the best phone for UNT students.

**Recommendation**

Based on the results of our study, we recommend the Samsung Galaxy S5 as the best phone for UNT students. We found that the Samsung Galaxy S5 received the highest ratings from our criteria of talk time, rear camera, and user friendliness, and scored well in display size. In addition, UNT students gave the Samsung Galaxy S5 the highest rating on our survey, which makes it the most preferred phone of our options. We propose that Samsung Galaxy S5 is the best combination of price, display size, talk time, rear camera, and user friendliness. Therefore we recommend it as the best AT&T contract phone.