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### Smart Phone Purchasing Habits among the University of New Hampshire Students

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# Smart Phone Purchasing Habits among the University of New Hampshire Students

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*Honors Thesis*

## Abstract

College students are more connected to technology now than ever, especially because a smart phone that has all of the capabilities of a computer is right in their pockets. This study delves into why students at the University of New Hampshire purchase their smart phones, how they use their smart phones, and how to better market toward profitable segments. The two segments found were the technology buffs, who are smart phone experts and are constantly on their devices, and the practical users who mainly use their smart phones for texting and calling. The results from the study showed that students perceived the iOS operating system to be the best with Android, BlackBerry, and Windows Phone following respectively. I recommend that these smart phone brands focus on the technology buffs and improve their perception among the campus to gain market share.

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## Introduction

College students rely on smart phones for almost everything these days. Cell phones are not just for talking on the phone anymore. These all-in-one devices combine the mobile aspects of a cell phone with the capabilities of a computer and most college kids will not even leave their dorm rooms without it. Smart phones relay status, style, and sophistication to a college student and are valued highly in the college population.

Clearly smart phones are important to college kids who want instant gratification and can have any information literally at their fingertips at any part of the day. The only question left is how do they choose which smart phone to buy?

With competition within the smart phone industry growing, it is extremely important to effectively market to one of their most commanding target markets; college students. My main objective in this thesis is to conduct research to find how University of New Hampshire (UNH) students choose a smart phone and what characteristics and functions are most important to them and how they are using these devices. The operating systems being considered in this study are Apple's iOS, Android, Windows Phone and BlackBerry.

I have used this research opportunity to understand the importance of smart phones in everyday University of New Hampshire college life, to understand what features college students are looking for in a smart phone, to understand which brands are most popular among

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college students, to determine the potential impacts my findings have on the smart phone industry and to determine how to effectively market to college aged students.

The nature of this thesis required getting primary data from University of New Hampshire students to get current, significant data. I relied heavily on my marketing research skills and made use of online surveys and internet-based research. To analyze the data, a segmentation and positioning analysis were conducted on the results to determine target segments and a perceptual map to compare the operating systems.

I have applied all of my previously obtained skills and the new methods I learned in my market opportunity analysis class this semester to best conduct my research and come about a conclusion that will be helpful to me and to the smart phone industry.

This thesis was an interesting way to combine all of the skills I have learned in my marketing classes in the past four years and has wrapped up my college career with a well-researched project. I have learned how to not only collect data effectively and efficiently, but also how to analyze the data and draw conclusions.

Because I have a passion for technology and marketing, this thesis has proven to be not only highly informative, but extremely interesting. I believe that the work done in my thesis is a good example of the work I will be able to continue doing when I graduate and move into a career.

## Literature Overview

### History

The smart phone industry has revolutionized into one of the largest and most competitive markets. The competition within the smart phone industry is rising with new smart phones being introduced and the level of innovative technology breaking barriers. Smart phones became popular in 2002 when the BlackBerry was released. This early version offered email services, MP3 play, camera and wireless technology as well as the earlier functions of calculator and calendar. The iPhone was introduced in 2007 and boasted a massive app store. The Android operating system started to take off only a year later in 2008. The Windows Phone was released in October 2010.

Technological advances have had a tremendous impact on smart phones. Cell phones used to be able to only make phone calls, send text messages, take pictures and play snake. The strides in technology now allow a smart phone the size of your hand to have all of the capabilities of a computer. In less than a year, the most advanced phone went from having an 800 MHz twin core processor to a 1.4 GHz processor (“The Advance of Smartphone Technology”). This allows smart phones to be smaller and more powerful with added memory.

New features of smart phones include augmented reality, built-in projectors and seamless voice control (Poh, 2012). Augmented reality allows a user to point their phone as if they were taking a picture and places of interest will pop up on the screen indicating where each place is. This feature is like a live map that allows you to discover an area with no prior knowledge.

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Augmented reality is widely used in apps and is available on the UNH mobile app. Built-in projectors have been released on phones that are specifically made for gaming and allows several users to see the screen without huddling around the device. Seamless voice control is now standard on most smart phones. The iPhone uses Siri and Android has Ok Google to handle voice commands. This has revolutionized the way consumers use their phones while driving and allows a user to control their phone hands free.

The future of smart phones will only bring more advances and functions that devices years ago could not even dream of. A flexible smart phone may be forthcoming. LG started selling the G Flex in South Korea in December 2013 which has a curved design and can be pressed flat (Olson, 2013). LG is still testing and creating a more flexible phone that will be immune to falls. Many smart phone brands like the Galaxy S5 have come out with water resistant phones so leaving your device in rice overnight to dry out will be a technique of the past.

The smart phone industry has many competitors. The top four are currently iPhone, Android, BlackBerry and Windows Phone. According to Business Insider, Apple has 53% of the smart phone industry's profits while Android has 50% and everyone else has negative or zero (Yarow, 2013). In the previous year, Apple had 71% and Android had 37%. More competitors are joining that smart phone market and less expensive technology is being released at a rapid rate. Smart phones are becoming more commonplace than regular cell phones and this is causing the prices to drop.



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Overall the smart phone market is going to continue to grow and get more competitive. The advances in technology could bring a current no-name brand to be the leader of the market. The mobile app market alone is positioned to grow to \$38 billion by 2015 (Darell 2012).

## Consumption Habits

More than one in three of all United States adults own a smart phone (Darell). The typical profile of a smart phone owner in the U.S. is a male aged 18-29 with a household income of \$75,000, at least a college degree and resides in a urban or suburban location. Having a smart phone allows professionals to answer work calls and emails anywhere at any time. 35% of smart phone users in the U.S. think that their mobile device gives them more of a work balance. Almost half of the smart phone users carry two devices with them at all times.

College students are one of the main users of smart phones. Their on the go lifestyle is aided by the mass consumption of smart phones. Now people can be in contact immediately, virtually anywhere, through texting, Facebook notifications, emails or even tweets. Pictures and statuses can be posted while people are still participating in the event they are posting about. These devices have been widely adopted across all generations and cell phone plans are now centered on how much data you need each month for your smart phone. Classes are held at wireless stores to help new smart phone users to learn how to use their new device. Smart phones have all of the capabilities of laptops and computer on a mobile, compact device and are becoming more affordable.

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According to the Internet education portal OnlineColleges, 18-29 year olds use their smart phones for real-time information more than any other age group. 75% of college students use their smart phone during idle time, 74% when commuting and 52% even use it before they get out of bed in the morning.

Consumers use smart phones for everything from browsing the internet to doing business. Phones now come with utilities like flashlights, tip calculators and a digital level. Smart phones are also widely used for gaming. Graphics on these devices have improved immensely in the last decade and are expected to get even better. Right now the most popular app in the Apple App Store is Piano Tiles where players need to hit a series of black boxes while avoiding white ones. The top app in the Google Play store is Facebook. Social media has been redefined thanks to smart phones. Apps like Instagram and FourSquare are made for smart phone users who want to share a picture of their activities instantly or check in to certain places to let their friends know where they are.

## **Methodology**

### **Aims and Objectives**

The purpose of this research study is to find out what is most important to the students of UNH when buying their smart phones. Through analysis of the data obtained from the survey, a positioning and segmentation study will be done. The main goal will be to see how to effectively market to UNH students.

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Descriptive data will be collected to segment the market and to show how students are using their phones and which brands students are already using. Responses will be compared to market shares and be used to see how representative the UNH campus is of the smart phone market.

The results from the data collection and analysis will help smart phone brands to understand what UNH students consider important when they make their purchase and will provide insight into what needs to be improved upon. The analysis will clearly show each smart phone brand where its strengths and weaknesses lie in the eye of the UNH student consumer.

### Study Design and Data Collection

A 13 question survey, as seen in Appendix A, was distributed to the UNH community. The survey was distributed through email and social media. The survey link was also sent to ten professors with a letter asking them to please distribute the survey among their current students. 55 responses were received. A request for Institutional Review Board Approval, IRB Project Description, support letter from advisor, consent letter and copy of the Smart Phone Purchasing Survey were submitted to the Institutional Review Board to ensure the safety of respondents when completing the survey. IRB approval was gained and the letter of acceptance can be seen in Appendix B.

Incentive of entering a raffle to win a \$5 iTunes, Google Play or Windows Store gift card was offered to any student who completed the survey. Students were brought to a separate

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survey to input their names, email addresses and which gift card they wanted. These responses were not connected to the smart phone survey in any way and all responses were completely confidential.

Students were first asked if they went to UNH, to make sure all respondents were in the market that was being researched. Respondents were then asked to rate how important operating system, smart phone brand, design of smart phone, compatibility, durability of smart phone, app store, battery life, memory, and ease of use were to them when purchasing a smart phone on a seven point scale ranging from not at all important to extremely important.

The nine attributes were chosen to get data about the functionality of the smart phone device. The operating system attribute is an overarching component to any smart phone. Each operating system has a distinct usability factor and appearance. The smart phone brand attribute was included to see if respondents cared about the appearance and look that go along with a brand. The design of the smart phone attribute would reveal information about how the design and look of the specific device were affecting the purchasing habits. The compatibility attribute is important for pairing smart phones with PCs, Macintosh computers, Bluetooth speakers and syncing with other devices. The durability of the smart phone refers to how the device fares with normal wear and tear and the occasional fall. The app store attribute inquires about the availability, variety and price of the apps on each phone. The battery life and memory are specifications that show how long the smart phone can run and how much it can store without compromising the speed. The ease of use attribute refers to how easy it is to adopt a

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certain smart phone. Some operating systems are set up to be navigated clearly and easily while others need directions or a lesson to fully understand.

Respondents were then asked to rate four well known smart phones, all running different operating systems, on the same nine attributes on a seven point scale ranging from very bad to very good. First, respondents were asked when considering the iPhone 5, which runs an iOS operating system, how does it rate on the attributes? They were then asked three more times in respect to a Samsung Galaxy S4, which runs an Android operating system, the Nokia Lumia Icon, which runs a Windows Phone operating system, and the BlackBerry Z30, which runs on a BlackBerry operating system.

Originally, the survey was going to ask only in respect to the different operating systems, but that might have been challenging for respondents who did not have much prior knowledge about smart phones, so a well-known device and brand were included to aid in getting accurate data from all respondents.

Respondents were also asked demographic questions. Students were asked if they currently own a smart phone and if they do what operating system it has. They were then asked to indicate their level of agreement with six statements to collect data on how UNH students are using their smart phones. Data including their gender and class standing were also collected.

The data was analyzed in an aggregate format without any names or identifying information. A segmentation and positioning analysis were run to find an optimal number of segments and to discover how each smart phone was positioned in the market with respect to the nine attributes included in the survey.

## Results

### Descriptive Statistics

Descriptive data was collected with the intention of gaining demographic data about the respondents and seeing how UNH students are using their smart phones and how prominent the devices are in their day to day life. The majority of respondents were female with 69% of survey takers being female and 31% being male. Students were also asked to indicate their class standing at UNH. 56% of respondents were seniors, 23% juniors and 21% sophomores. There were no freshman or graduate students that chose to participate in this survey.

The vast majority of survey respondents, 96%, currently own a smart phone. Of this 96%, 77% own an iPhone that runs iOS. The remaining 23% of respondents own a phone with an Android operating system. No respondents owned a Windows Phone or BlackBerry.

To collect data on the way that UNH students are using smart phones, a question was designed to gain information on how comfortable students are with smart phones and the functions they perform with the device. They were asked to indicate their level of agreement

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with six statements regarding their smart phone on a five point scale ranging from strongly disagree to strongly agree. The full discrimination output can be seen in Figure 4.

The statement that had the highest mean value of agreement was that they check their smart phone right before they go to bed. Students also highly agreed with the statement that they check their smart phone as soon as they wake up. 91% of respondents agreed or strongly agreed with each of these statements.

75% of students consider themselves brand loyal when purchasing a smart phone. 64% use their smart phone more than their laptop or computer. 51% use their smart phone mainly for texting and making phone calls. Only 40% of respondents consider themselves smart phone experts. The complete results of this survey question can be seen in Figure 1.

The main part of the survey focused on determining how important nine different attributes are to the students, then asking students to rate four different smart phones on how well they perform in regards to the same attributes. Figure 2 shows the percentage of respondents that rated the attributes as somewhat important, very important and extremely important. The data shows that students placed the more importance on the operating system, design of smart phone and durability of smart phone attributes. They did not value the app store, smart phone brand, or battery life attributes.

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Students then looked at the same attributes in respect to four different smart phones and indicated how well the brand performed. When calculating the 'good' or 'very good' ratings for each smart phone, the iPhone 5 got the seven highest scores in operating system, smart phone brand, design of smart phone, app store, compatibility, battery life and memory attributes. It had very low scores for durability and ease of use. The Samsung Galaxy S4 had very high ratings in the brand, durability and design of the phone and an overall good rating. The Nokia Lumia and BlackBerry Z30 had extremely low scores in every category. The perceptual map analysis goes into depth about the performance of each smart phone.

## Segmentation Analysis

The main purpose of the segmentation analysis was to discover what attributes were important to different groups of people. Marketing the same way toward an entire population will result in missing out on the attention of specific groups and therefore not gaining as many customers. Segmenting the population helps to clearly see the different groups of people that value different smart phone attributes and aids in creating customized marketing campaigns that will appear to smaller groups directly and will bring more sales.

The market was segmented using the Marketing Engineering for Excel program by DecisionPro in Microsoft Excel. The software takes the data from the Smart Phone Purchasing Habits among UNH Students survey and compares the respondents' answers to the survey questions and creates clusters based on the results. These clusters then are compared to the



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demographic data and clear segments are formed. The entire segmentation output can be seen in Figure 5.

At first a dendrogram was prepared with nine clusters to see how similar the segments were and to determine the optimal number of segments. The first significant jump in the distance between the clusters was seen between .75 and .90. This jump is the ideal point in the dendrogram to choose the number of clusters from because the clusters are differentiated enough to see a difference in preferences, but are close enough that there is no data being lost by grouping dissimilar respondents together. This results in two segments. The two segments found showed both sides of the smart phone consumer and encompassed the whole market. The dendrogram can be seen in Figure 3.

Segment 1 were the technology buffs. This segment is the tried and true smart phone lovers. The majority of the market, 40 people, were in this segment. They use their smart phones for much more than texting and making phone calls and are dedicated users who check their phone as soon as they wake up and right before they go to bed. This segment does not only use smart phones, however. Even though they are on their smart phones a great deal, they still use other technology, such as laptops and computers more. They consider themselves smart phone experts and are mostly lower classmen and mainly males.

The technology buffs rated all nine attributes as at least somewhat important. They found a high value in each attribute and favored the operating system and smart phone brand

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attributes above all others. They placed the least importance on durability, app store and battery life.

Segment 2 were the practical smart phone owners. This was a much smaller segment with only 15 people. They use their smart phones for the traditional uses of texting and calling. They do not check their smart phone as soon as they wake up and right before they go to bed. They do not value brand when purchasing a phone. They do not consider themselves smart phone experts, but do use their smart phones more than a laptop or computer. This segment is mainly female upperclassmen.

The practical smart phone owners valued all attributes less than the average of all respondents. They placed the most importance on durability and battery life. They had a very low score for the operating system and smart phone brand attributes. This segment clearly values the basic functions of the phone over the attributes that describe the capabilities.

## Positioning Analysis

The purpose of the positioning analysis is to see how each smart phone operating system compares to one another and how they are perceived in the minds of UNH students. The positioning map created shows how similar and dissimilar iOS, Android, BlackBerry and Windows Phone are to each other. The perceptual map also shows how well each brand was perceived on the attributes and shows where the brands need to improve. This analysis helps to determine an ideal position strategy for each company to gain more market share.

The positioning map in Figure 6 shows how the four competitors are positioned within the smart phone market at UNH. The physical proximity of the brands on the map shows how similar or dissimilar they are. Each brand is positioned very different from one another. iOS, Android, BlackBerry and Windows Phone are all in their own quadrant of the map, and no two brands are very close.

The perceptual map shown in Figure 7 applies students' responses to how important the nine attributes were and how each smart phone scored to the map to show where each brand falls in regards to the attributes. All of the vectors are increasing as they move away from the center of the map. The longest vectors indicated the most important attributes. According to the UNH students, the most important attributes were durability, operating system, brand, battery life and design of smart phone. The shortest vectors are the least important attributes. The map shows that students did not value ease of use.

The axes of the map are determined by the longest and closest vectors to each axis. The horizontal axis was labeled capabilities because it had long attributes such as battery life, operating system and smart phone brand closest to it. This axis had a variance of 87.6%, showing that this dimension explained the majority of the data. This axis explains so much data because of all of the attributes that fall very close to it.

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The vertical axis was labeled the durability axis because the durability attribute was the longest and closest vector to the dimension. This explained 11% of the data. The total variance explained was 98.6%, which leaves very little data still unexplained.

By drawing a perpendicular line from each operating system to any given vector, you can see how high each brand falls on each attribute. Following this logic, iOS falls the highest on every single vector, but very low on the durability of smart phone attribute. The Android phone is perceived as second to iOS in compatibility, app store, ease of use, battery life, operating system, brand, design of smart phone and memory. Android is perceived as the most durable phone. The BlackBerry smart phone is perceived negatively on every attribute, but positively on the durability of smart phone. The Windows smart phone is negatively perceived on every single attribute.

## Discussion

Overall, students prefer the iPhone which runs iOS, and the design of smart phone attribute above all other factors. Every respondent answered that they thought the design of the smart phone was at least somewhat important. Each new smart phone that comes out boasts a larger screen and a slimmer phone. Students are seeking a sleek, compact device while still valuing the style of the phone.

An astonishing 91% of students use their phones as soon as they wake up and right before they go to bed. Students can obtain any information they need instantly with a device

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that is small enough to take anywhere. The days of turning on the news and waiting to see if UNH has a snow day are gone because when you wake up, an email from Dick Cannon is waiting on your phone to tell you the news. The fact that students are on their smart phones this often shows how important the devices are to them and how quickly they became adapted to be a part of everyday life.

The cross tabulation shown in Figure 8 shows the relationship between how important respondents indicated brand name was compared to how well each smart phone performed on the brand name attribute. iOS had 20 respondents who rated the iPhone 5 smart phone brand as very good. Of those 20 respondents, 12 answered that the smart phone brand is very or extremely important in their decision making process. Android had 31 respondents rate their brand as fair or good and 20 say that the brand was very important in their purchasing process. Both Windows Phone and BlackBerry had 25 respondents answer that their brand was neither good nor bad. This shows the overwhelming preference for the iPhone, the positive response for Android and the lack of knowledge and experience toward Windows Phone and BlackBerry.

The iPhone 5 and iOS operating system has a very strong brand image, as can be seen from the cross tabulation data. According to a BGR article, iOS had 48% of the United States smart phone market share while Android had 46% in 2013. They have moved into the leader in market share and will continue to grow under the success of their brand name. iPods, iPads, iPhones and iMacs can all be synced across the same platform and is very appealing to users

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who own many devices. Apps like FaceTime also increase the exclusivity of Apple product users.

The iPhone has a very easy to interpret interface with an actual button to go to the home screen, straightforward menus and the same usability that came with iPods, which were already widely adopted. The iPhone is not known for its durability. Countless cracked iPhone screens can be seen on the bus, in the dining hall, and even in classes. The phone repair industry is expected to grow 4.3% in the next year according to IBIS world because of the high price of newer smart phones.

The durability of the iPhone also refers to the life span of the device. Many mobile carriers sign customers into two year plans and offer a discount when their two years are up. iPhone has been coming out with newer versions faster than the average consumers is eligible for an upgrade in their plan, making their current smart phone outdated and lowering the value of the device.

Android devices are more of a developer's phone. These smart phones are easier to modify and appeal to consumers who want to customize their devices. This causes the Android operating system to be more difficult to adopt, especially when switching from the iOS operating system. While iPhone has a clear hierarchy of smart phones (iPhone 4, iPhone 5, iPhone 5s, etc.) the Android operating system runs on several different smart phone brands such as Motorola and Samsung phones. When choosing a smart phone with the Android

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operating system, customers have choices between several newest phones and not just a single latest option. Android smart phones focus on different capabilities that each phone has to offer rather than having an exclusive line of phones. This causes more tradeoffs, such as choosing a phone that has more memory, but a higher upfront cost.

Android devices are perceived as the most durable smart phones. Most Motorola and Samsung smart phones are made with Gorilla Glass which is a tougher glass that has exceptional damage resistance to scratches and bumps that come with every day use, but is still a thin, light material. The Samsung Galaxy S5 is currently being promoted as a water resistant phone. The advertisements show consumers dropping their phone into water and one even washing his phone off in the sink. Android is successfully capitalizing on the durability factor that iPhone is lacking.

Both Windows Phone and BlackBerry had very negative rating on the perceptual map which correlated with the statistic that no respondents owned these types of smart phones. This information may have been due to the fact that the UNH community does not have enough knowledge or experience with the BlackBerry or Windows Phone to know how well it performs and scored based on past knowledge of the brand.

BlackBerry was perceived as the second most durable smart phone. This, paired with the low rating on all the other attributes, leads me to believe that students rated based on what they remember about BlackBerry when it was the most popular smart phone. It is interesting

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that BlackBerry scored so high on durability. That proved to be a very important to respondents who clearly remember the brand name and phones but prefer other operating systems.

BlackBerry was once the leading smart phone and was used by businesspeople across many industries. In just a matter of years, the iPhone came out and redefined the smart phone industry. They focused more on the fun aspects of the device, while still having the email and web capabilities that made BlackBerry so attractive to the business world. According to the BGR article, BlackBerry had 0% market share in 2013.

BlackBerry is obsolete on the UNH campus. It is viewed as the old version of smart phones. A series of ads were released in February of 2014 showing the phone setting a man on fire and turning a careening semi-truck into rubber ducks with the message at the end being "it's easier to show you what it can't do." These ads are not run nearly as often as iPhone and Android phones and as a result, awareness is very low.

The Windows Phone is fairly new to the smart phone market. The Windows brand has a very strong brand name and image, but is known for computers. The smart phones are an addition to the product line up that will help Windows compete directly with Apple by streamlining all devices across a single platform. Because the Windows Phone entered the smart phone market after clear leaders were established, it will be gaining customers that are unhappy with their current smart phone. This means that every new customer they get will already be accustomed to the set up and usage of a different operating system and will have to



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learn the new Windows 8 platform. This makes it difficult, especially for users who do not have a computer that has Windows 8, to adopt the new operating system and might make them choose another smart phone option instead. Windows may have a better, easier to use, more durable phone than iPhone, but UNH students are not aware.

## Conclusion and Recommendations

To target UNH students, each smart phone brand should focus on what is important to UNH students; durability, operating system, brand, battery life and design of smart phone. Each brand has their strengths and weaknesses and needs to work on different elements.

iOS already has the attention and business of UNH students and needs to continue to improve their phones to maintain their majority of the market. iPhone needs to manufacture a more durable phone and not rely so heavily on tough cases like the Otter box that can protect against water and damage caused from dropping a smart phone. The newest iPhone upgrades have focused on increasing the usability of the phone, making Siri standard and upgrading to the new iOS 7, the most advanced form of the operating system. The newest iPhone 5C focuses on the customizability of the iPhone, making several colors available. The phones are getting slimmer and sleeker, but iPhone needs a slim, durable phone. iPhone needs to focus on trying new materials instead of having a completely glass front and back to their phones. Apple has done a great job increasing the usability and ease of use of the iPhone, but I recommend that they research materials like Gorilla Glass and have a smart phone with a rubber based backing instead of glass.

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iPhone should focus on the technology buffs, but will also pick up the attention of the practical owner because of how easy the phone is to navigate. The technology buffs use other devices like laptops and computers more than their smart phones. Apple should capitalize on the fact that all iPhones, iPods, iPads and Macs are completely compatible and focus on students who already own these devices.

To effectively market UNH students, I recommend that iOS sends a representative to the university to do a demonstration. Apple already has a prominent brand name and several TV and internet advertisements. Tables set up in the MUB and at U-Day attract the attention of thousands of students a day. A representative could set up a table with the new, more durable iPhone and demonstrate how easy it is to sync all calendars, music, contacts and even text messages between all devices. This is a very inexpensive way to reach the UNH population and will allow the representative to make a personal connection with each student that approaches the table to learn more. Eventually, this approach could be initiated at campuses across the country and would appeal to university students who need a more rugged phone, but are dedicated Apple users.

Android is viewed as the overall second best smart phone brand at UNH. More than a quarter of the respondents currently use an Android smart phone. They scored highest in durability of smart phone and second highest on the memory, design, brand, operating system, battery life, ease of use, app store and compatibility attributes.

Android's main market at UNH will be the technology buffs because of the customizability of the phone and because the operating system is harder to adopt than iOS. Android is in direct competition with iOS and needs to convey that it has the durability that students are seeking. Android may not have the ease of use that iPhone does, but it comes with many features that automate the phone to the user. The Galaxy S4 comes with eye-tracking, that scrolls the page up or down depending on your eye movement and the ability to automatically pause a video if you close your eyes or look away. This is a very attractive feature for college students who may be watching a lecture at home and nodding off a couple of times. The phone ensures that the student does not miss any of the information and no rewinding or fast forwarding was necessary. Students also responded that they often use their phone right before bed and right when waking up. This feature would aid in dimming the screen when a user is on their smart phone then falls asleep.

I recommend a side by side comparison advertisement of an iPhone 5 and a Galaxy S4. Show that both are the same age and have been used in the same manner. Both phones have been dropped from a small height and the iPhones back screen is completely cracked, while the Galaxy screen is still intact due to the rubber based back of the device. Next show both phones opening up a word document attachment from an email. The iPhone does not have all of the functions of Microsoft Office and manipulating the document is difficult. The Android came pre-installed with Quick Office and has all of the same functionality of Microsoft Word in a mobile setting. This direct comparison ad will show students the exact areas where Android performs

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better than iPhone while showing examples of attributes that are important to the UNH students.

BlackBerry needs to focus on gaining more awareness and showing UNH students that their smart phones have come a long way. BlackBerry phones have been improving and offer many more features than the traditional BlackBerry and would benefit from making those new features known. Technology buffs are the ideal market for the BlackBerry because these students are the ones who know the strong brand name and would be more apt to switch operating systems because of the added benefits that come with the phone.

Advertisements and promotions need to focus on the capabilities of the smart phone and that BlackBerrys are not just for business anymore. Smart phones are used for fun things like games and social media. The BlackBerry app store is not widely known and should expand the variety of apps and offer free trials. An improvement in the app store would help BlackBerry break out of the strictly business mode that has been associated with the brand.

Focusing on the durability factor that UNH students already perceive them performing well on will be the easiest way to gain attention. Playing the BlackBerry Z30 ads boasting how it is easier to tell viewers what the phone can't do on more will catch students' attention. Playing the ad on mediums that reach many college students like television stations and on online video sites like YouTube and Hulu will help to show consumers how much the new smart phone has to offer and will result in the BlackBerry gaining more market share and moving toward the

## Smart Phone Purchasing Habits

positive side of the capabilities dimension on the perceptual map. The ads for BlackBerry are interesting and prompt viewers to do some research on the BlackBerry to see what else it can do.

The Windows Phone is currently in the worst position on the perceptual map. It needs to improve on every single attribute to come close to competing with BlackBerry, Android and iPhone. History has shown that a product entering into the smart phone market from a well-established brand can overtake the current market share leader and eventually become the most popular smart phone in the U.S. It will require innovation and a strong marketing campaign, but Windows Phone could surpass iPhone.

I believe that the Windows Phone needs to capitalize on the fact that you can have all of the streamlined devices on the Windows platform. This will directly appeal to the technology buffs who are already on other devices more than their smart phone and would benefit from having all of their devices be synced. The Windows Phone is especially attractive to students who already own a PC and do not want to switch to a Mac to have that connection between all devices.

Advertisements featuring college aged students using Windows Phones along with PCs are the perfect way to convey the ease of use that comes with already knowing the Windows platform. An ideal commercial would feature a college student using Apple products and having difficulty opening Word documents, PowerPoints, and Excel sheets. Next to them a student

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would be seen with all of their Windows devices looking at a PowerPoint on his computer and editing it on his phone with ease. This advertisement will target students who currently use Windows on a computer and are comfortable with the operating system.

The Windows 8 operating system can be a big shock to Windows 7 or older users. Windows should focus on getting younger college students to become loyal Windows 8 users. Freshman accepted students often get mail from the UNH computer store with details about the products available. Windows should partner with the UNH computer store to offer a package deal with a Window 8 laptop and Nokia Lumia Icon to incoming freshman to gain customers before they get settled into another platform.

All of the smart phone brands have areas where they can improve and even the leader of the market needs to put in effort to maintain their position. Overall, each brand should focus their marketing efforts on targeting the technology buffs. By improving their position on the perceptual map they will also improve on the attributes that were important to the practical owners and gain market share in the UNH students' community.

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## Figures

**Figure 1: Descriptive Data**

Please indicate your level of agreement with the following statements.

#	Question	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total Responses	Percentage that chose Agree or Strongly Agree
1	You consider yourself brand loyal when purchasing a smart phone	3	7	4	25	16	55	75%
2	You use your smart phone mainly for texting and making phone calls	3	15	9	18	10	55	51%
3	You check your smart phone as soon as you wake up	0	2	3	21	29	55	91%
4	You check your smart phone right before you go to bed	0	2	3	17	33	55	91%
5	You consider yourself a smart phone expert	3	13	17	11	11	55	40%
6	You use your smart phone more than your laptop or computer	2	6	12	17	18	55	64%

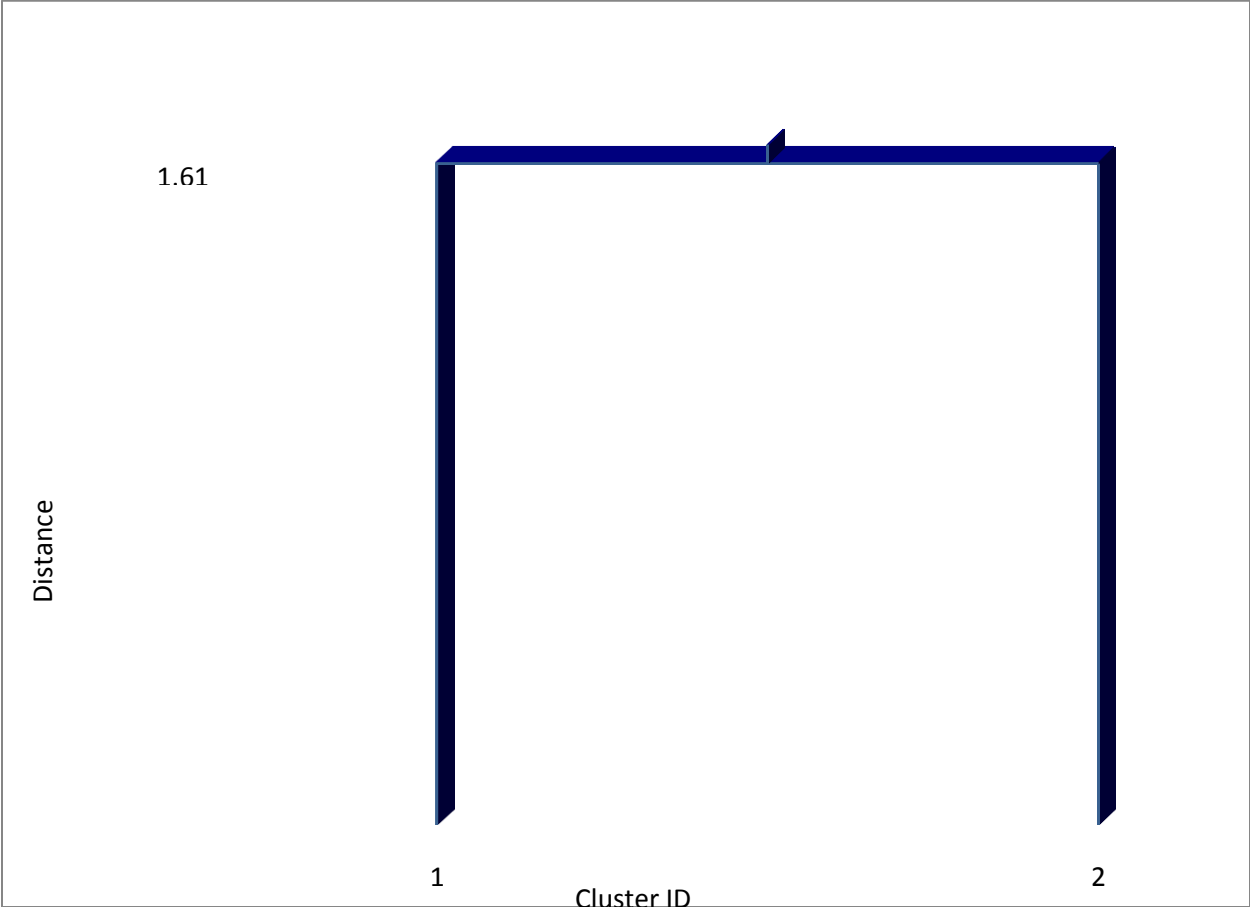


**Figure 2: Attribute Importance**

When purchasing a smart phone, how important are the following attributes in your decision making process?

	<b>Somewhat Important</b>	<b>Very Important</b>	<b>Extremely Important</b>
Operating System	32%	48%	9%
Smart Phone Brand	34%	32%	14%
Design of Smart Phone	23%	55%	23%
App Store (Variety, Price of Apps)	34%	27%	14%
Durability of Smart Phone	14%	45%	34%
Compatibility (With PC, Mac, Speaker Systems, etc.)	23%	41%	18%
Battery Life	25%	32%	32%
Memory	27%	39%	18%
Ease of Use (Is the smart phone easy to operate without directions)	14%	34%	25%

Figure 3: Dendrogram



## Figure 4: Discrimination Output

### Cluster Sizes

The following table lists the size of the population and of each segment, in both absolute and relative terms.

Size / Cluster	Overall	Cluster 1	Cluster 2
Number of observations	55	40	15
Proportion	1	0.727	0.273

### Discriminant Variables

Means of each discriminant variable for each segment.

Discriminant variable / Cluster	Overall	Cluster 1	Cluster 2
You consider yourself brand loyal when purchasing a smart phone	3.618	3.625	3.6
You use your smart phone mainly for texting and making phone calls	3.091	3.075	3.133
You check your smart phone as soon as you wake up	4.455	4.55	<b>4.2</b>
You check your smart phone right before you go to bed	4.436	4.55	<b>4.133</b>
You consider yourself a smart phone expert	3.345	3.425	3.133
You use your smart phone more than your laptop or computer	3.618	3.6	3.667
Gender	1.709	1.7	1.733
Class Standing	3.327	3.3	3.4

### Confusion Matrix

Comparison of cluster membership predictions based on discriminant data and actual cluster memberships. High values in the diagonal of the confusion matrix (in bold)

indicate that discriminant data is good at predicting cluster membership.

Actual / Predicted cluster	Cluster 1	Cluster 2
Cluster 1	<b>27</b>	13
Cluster 2	4	<b>11</b>

Actual / Predicted cluster	Cluster 1	Cluster 2
Cluster 1	<b>67.50%</b>	32.50%
Cluster 2	26.70%	<b>73.30%</b>

Hit Rate (percent of total cases correctly classified)

**69.09%**

## Figure 5: Segmentation Output

### Cluster Sizes

The following table lists the size of the population and of each segment, in both absolute and relative terms.

Size / Cluster	Overall	Cluster 1	Cluster 2
Number of observations	55	40	15
Proportion	1	0.727	0.273

### Segmentation Variables

Means of each segmentation variable for each segment.

Segmentation variable / Cluster	Overall	Cluster 1	Cluster 2
Operating System	5.16	5.7	<b>3.73</b>
Smart Phone Brand	4.96	5.43	<b>3.73</b>
Design of Smart Phone	5.82	<b>6.12</b>	<b>5</b>
Compatibility (With PC, Mac, Speaker Systems, etc.)	5.55	5.82	<b>4.8</b>
Durability of Smart Phone	6.02	6.05	5.93
App Store (Variety, Price of Apps)	5.35	5.5	4.93
Battery Life	5.67	5.82	5.27
Memory	5.51	5.75	<b>4.87</b>
Ease of Use (Is the smart phone easy to operate without directions)	5.51	5.88	<b>4.53</b>

Figure 6: Positioning Map

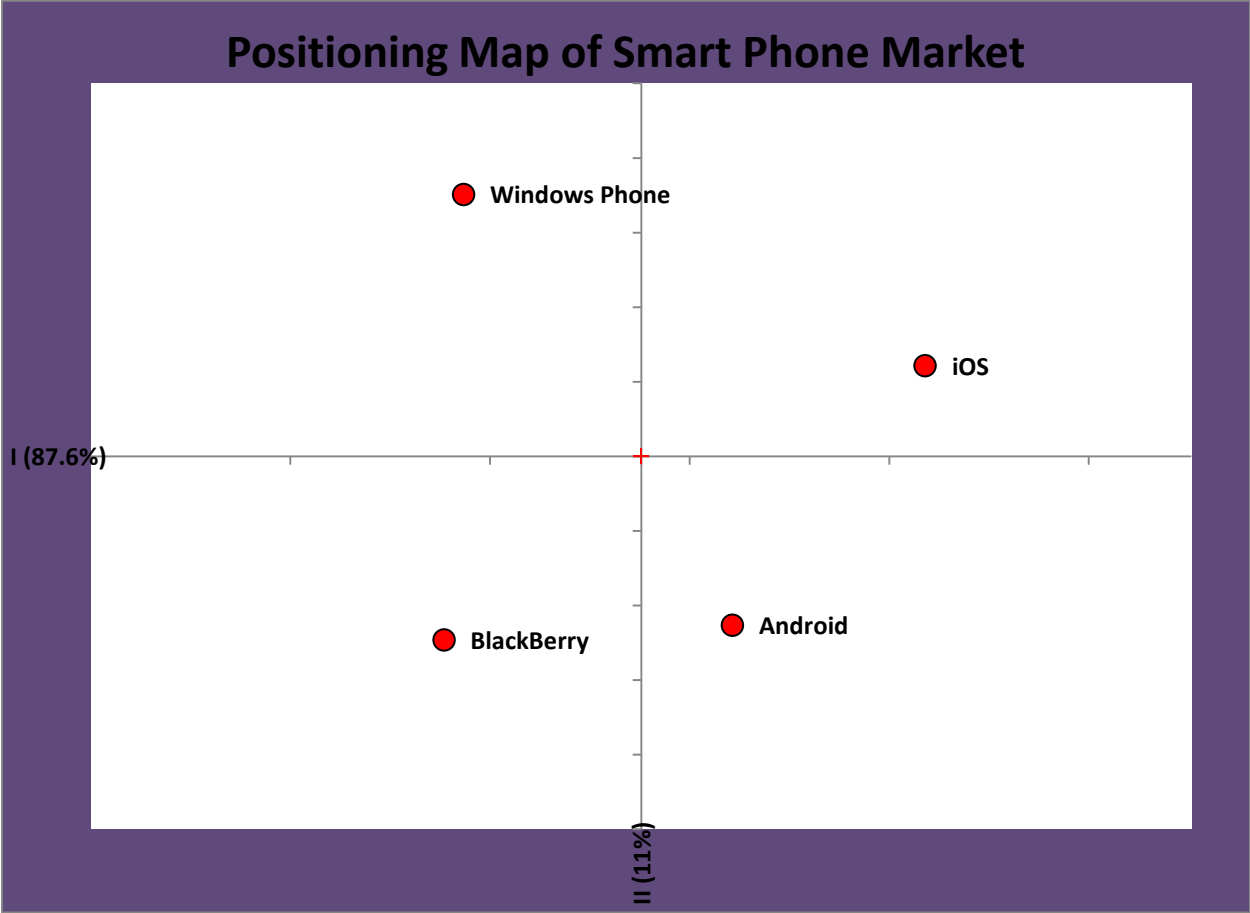
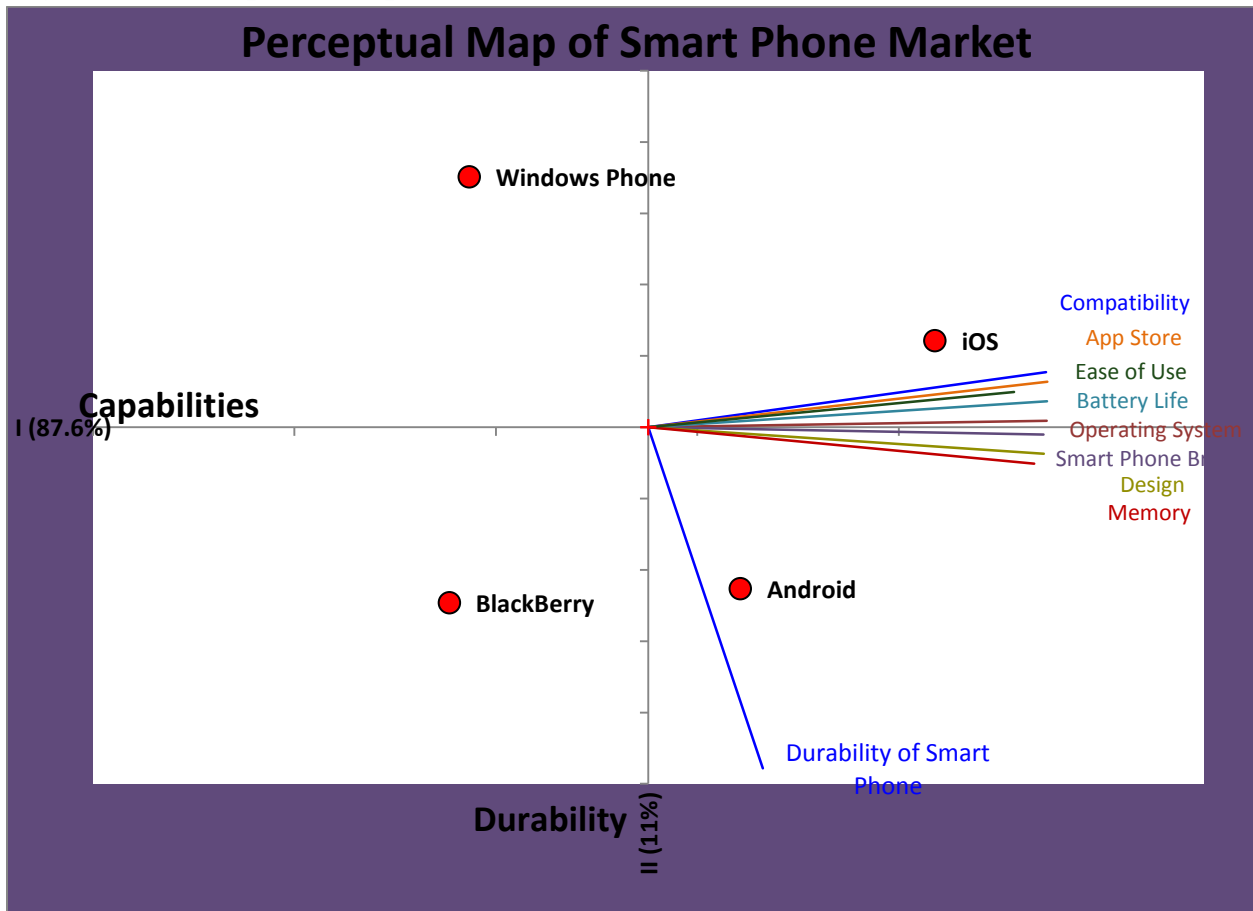


Figure 7: Perceptual Map



## Smart Phone Purchasing Habits

### Figure 8: Cross Tabulation

		When purchasing a smart phone, how important are the following attributes in your decision making process? - Smart Phone Brand							Total
		Not at all Important	Very Unimportant	Somewhat Unimportant	Neither Important nor Unimportant	Somewhat Important	Very Important	Extremely Important	
When considering the iPhone 5, which runs on an iOS operating system, how does it rate on the following attributes? - Smart Phone Brand	Very Bad	0	0	0	0	0	0	0	0
	Bad	0	0	0	0	0	0	0	0
	Poor	0	0	0	2	0	0	0	2
	Neither Good nor Bad	0	1	2	2	2	0	0	7
	Fair	0	0	1	0	4	0	0	5
	Good	1	1	0	2	7	10	0	21
	Very Good	0	0	0	2	6	6	6	20
	<b>Total</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>8</b>	<b>19</b>	<b>16</b>	<b>6</b>	<b>55</b>
When considering the Samsung Galaxy S 4, which runs on an Android operating system, how does it rate on the following attributes? - Smart Phone Brand	Very Bad	0	0	0	0	0	0	1	1
	Bad	0	0	0	0	0	0	0	0
	Poor	0	0	0	0	0	2	0	2
	Neither Good nor Bad	1	0	0	0	2	6	1	10
	Fair	0	0	2	1	3	5	2	13
	Good	0	3	0	2	5	5	3	18
	Very Good	0	0	2	3	4	2	0	11
	<b>Total</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>6</b>	<b>14</b>	<b>20</b>	<b>7</b>	<b>55</b>
When considering the Nokia Lumia Icon, which runs on a Windows Phone operating system, how does it rate on the following attributes? - Smart Phone Brand	Very Bad	2	0	0	0	1	0	1	4
	Bad	0	0	0	2	0	2	0	4
	Poor	0	0	0	3	0	2	0	5
	Neither Good nor Bad	0	3	2	0	8	8	4	25
	Fair	0	0	0	3	3	4	0	10
	Good	0	0	2	0	3	2	0	7
	Very Good	0	0	0	0	0	0	0	0
	<b>Total</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>8</b>	<b>15</b>	<b>18</b>	<b>5</b>	<b>55</b>
When considering the BlackBerry Z30, which runs on a BlackBerry operating system, how does it rate on the following attributes? - Smart Phone Brand	Very Bad	2	0	1	0	0	0	2	5
	Bad	0	0	0	1	3	0	0	4
	Poor	0	2	1	0	2	2	0	7
	Neither Good nor Bad	0	2	0	0	10	9	4	25
	Fair	0	0	0	2	2	2	0	6
	Good	0	0	0	2	2	3	1	8
	Very Good	0	0	0	0	0	0	0	0
	<b>Total</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>5</b>	<b>19</b>	<b>16</b>	<b>7</b>	<b>55</b>

## Appendix

### Appendix A: Smart Phone Purchasing Habits among UNH Students Survey

Q1 I am a student at the University of New Hampshire's Peter T. Paul School of Business and Economics, collecting data on UNH students and their smart phone purchasing habits. Your responses will be used to find what students consider important when purchasing a smart phone and what they use smart phones for. Please answer all of the questions truthfully, and all data and results will remain anonymous. At the end of the survey there is a chance to win either an iTunes, Google Play, or Windows Store gift card! Thank you for your time and participation!

Q2 Do you attend the University of New Hampshire?

- Yes (1)
- No (2)



## Smart Phone Purchasing Habits

Q3 When purchasing a smart phone, how important are the following attributes in your decision making process?

	Not at all Important (1)	Very Unimportant (2)	Somewhat Unimportant (3)	Neither Important nor Unimportant (4)	Somewhat Important (5)	Very Important (6)	Extremely Important (7)
<b>Operating System (1)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Smart Phone Brand (2)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Design of Smart Phone (3)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Compatibility (With PC, Mac, Speaker Systems, etc.) (4)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Durability of Smart Phone (5)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>App Store (Variety, Price of Apps) (6)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Battery Life (7)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Memory (8)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Ease of Use (Is the smart phone easy to operate without directions) (9)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4 Do you currently own a smart phone?

- Yes (1)
- No (2)

## Smart Phone Purchasing Habits

Q5 What Operating System does your smart phone have?

- iOS (1)
- Android (2)
- Windows Phone (3)
- BlackBerry (4)
- Other: (5) \_\_\_\_\_

Q6 When considering the iPhone 5, which runs on an iOS operating system, how does it rate on the following attributes?

	Very Bad (1)	Bad (2)	Poor (3)	Neither Good nor Bad (4)	Fair (5)	Good (6)	Very Good (7)
<b>Operating System (1)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Smart Phone Brand (2)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Design of Smart Phone (3)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Compatibility (With PC, Mac, Speaker Systems, etc.) (4)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Durability of Smart Phone (5)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>App Store (Variety, Price of Apps) (6)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Battery Life (7)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Memory (8)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Ease of Use (Is the smart phone easy to operate without directions) (9)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 When considering the Samsung Galaxy S 4, which runs on an Android operating system, how does it rate on the following attributes?

	Very Bad (1)	Bad (2)	Poor (3)	Neither Good nor Bad (4)	Fair (5)	Good (6)	Very Good (7)
<b>Operating System (1)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Smart Phone Brand (2)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Design of Smart Phone (3)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Compatibility (With PC, Mac, Speaker Systems, etc.) (4)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Durability of Smart Phone (5)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>App Store (Variety, Price of Apps) (6)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Battery Life (7)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Memory (8)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Ease of Use (Is the smart phone easy to operate without directions) (9)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Smart Phone Purchasing Habits

Q8 When considering the Nokia Lumia Icon, which runs on a Windows Phone operating system, how does it rate on the following attributes?

	Very Bad (1)	Bad (2)	Poor (3)	Neither Good nor Bad (4)	Fair (5)	Good (6)	Very Good (7)
Operating System (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart Phone Brand (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design of Smart Phone (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compatibility (With PC, Mac, Speaker Systems, etc.) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Durability of Smart Phone (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
App Store (Variety, Price of Apps) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Battery Life (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Memory (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of Use (Is the smart phone easy to operate without directions) (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q9 When considering the BlackBerry Z30, which runs on a BlackBerry operating system, how does it rate on the following attributes?

	Very Bad (1)	Bad (2)	Poor (3)	Neither Good nor Bad (4)	Fair (5)	Good (6)	Very Good (7)
Operating System (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart Phone Brand (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design of Smart Phone (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compatibility (With PC, Mac, Speaker Systems, etc.) (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Durability of Smart Phone (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
App Store (Variety, Price of Apps) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Battery Life (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Memory (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of Use (Is the smart phone easy to operate without directions) (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Smart Phone Purchasing Habits

Q10 Please indicate your level of agreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
<b>You consider yourself brand loyal when purchasing a smart phone (1)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>You use your smart phone mainly for texting and making phone calls (2)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>You check your smart phone as soon as you wake up (3)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>You check your smart phone right before you go to bed (4)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>You consider yourself a smart phone expert (5)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>You use your smart phone more than your laptop or computer (6)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11 What is your gender?

- Male (1)
- Female (2)

Q12 What is your class standing?

- Freshman (1)
- Sophomore (2)
- Junior (3)
- Senior (4)
- Graduate Student (5)

Q13 Thank you for your responses! If you would like to enter the drawing for a \$5 iTunes, Google Play, or Windows Store gift card click yes below, if not please click no to submit the survey.

- Yes (1)
- No (2)

## Appendix B: IRB Approval Letter

### University of New Hampshire

Research Integrity Services, Service Building  
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08-Apr-2014

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**IRB #:** 5976

**Study:** Smart Phone Purchasing Habits Among the University of New Hampshire Students

**Approval Date:** 07-Apr-2014

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Exempt as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 101(b). Approval is granted to conduct your study as described in your protocol.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, *Responsibilities of Directors of Research Studies Involving Human Subjects*. (This document is also available at <http://unh.edu/research/irb-application-resources>.) Please read this document carefully before commencing your work involving human subjects.

Upon completion of your study, please complete the enclosed Exempt Study Final Report form and return it to this office along with a report of your findings.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or [Julie.simpson@unh.edu](mailto:Julie.simpson@unh.edu). Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,



Julie F. Simpson  
Director

cc: File  
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