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Caffeine Consumption Habits and Perceptions among University of New Hampshire Students

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Honors Thesis

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Abstract

College students in today's society have become dependent on caffeine in order to perform at their best in multiple facets of their hectic lives, including classes, clubs, and internships. This study focuses on the specific reasons why college students at the University of New Hampshire are consuming caffeine, where they purchase it, what types of caffeinated beverages they are consuming, and how much they are consuming on a daily basis. The results from the study indicate that coffee is the most popular caffeinated product on campus, and that Dunkin' Donuts at the MUB is the most popular place to buy coffee among UNH caffeine consumers. Major situations in which UNH students consume caffeinated products include when they did not get enough sleep the night before, before driving long distances, and before studying for an exam. University of New Hampshire students seem to understand the health benefits and concerns of caffeine intake, are not influenced by the media or their peers when making caffeine purchase decisions, and very price-sensitive. In order to gain market share in the UNH community, I recommend that retail locations effectively target segments of students whose caffeinated beverage preferences align with their product offerings.

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Introduction

On the University of New Hampshire (UNH) campus, as well as in other college campuses nationally and internationally, caffeine is a major part of students' lives. Between exams, homework, and socializing, students have an increasing demand for caffeinated products. Energy drinks, coffee, tea, and soda can be seen in UNH students' hands as they go to class, hang out downtown, or head out for the night. The University of New Hampshire provides students with a wide assortment of caffeinated beverages to satisfy this demand, some options healthier than others. This research focuses on the perceptions of different types of caffeinated beverages among the college student demographic, main types including energy drinks, soft drinks, coffee, and tea. The research also covers the frequency of caffeine intake among UNH students, students' daily expenditures on caffeine, and the most popular circumstances in which college students consume caffeine. Another purpose of the study is to find the most popular type of caffeinated beverage on campus, and the most popular location to buy. This study will also report differences found among different genders, class years, and colleges.

To begin my research, I conducted a literature review on caffeine consumption in the United States; covering the history, current statistics on U.S. caffeine consumers, and the health benefits and concerns surrounding caffeine intake. Through my research on the U.S. population as a whole, I found that about 90 percent of the adult population ingests caffeine on a daily basis, and the average American ingests as much as 300 milligrams of caffeine a day, which can equal as much as four cups of coffee (Hruby, 2012). Forty percent of 18 to 24 year olds, the ages in which students typically attend college, drink coffee every day ("National coffee drinking," 2012). I also found that more 18 to 24 year olds are turning to coffee rather than caffeinated sodas (Aubrey, 2013). This shows a trend towards healthier choices in the college demographic. Contrary to that finding, a study of

college student consumption found that 50 percent of students drank at least one to four energy drinks per month (Sifferlin, 2013), which shows that college students are not looking for only healthy options in their caffeinated beverage choices. Through this research, I found information about the population as a whole as well as information specific to the University of New Hampshire campus. I learned the University of New Hampshire proposed to ban the sale of energy drinks in its retail and vending locations beginning in January 2012. This effort was put forth to further UNH's mission to be the healthiest campus community in the country by 2020. The demand from students for energy drinks on campus was the driving force behind stopping this ban, which shows how important caffeine is to UNH students.

In my research on caffeine consumption habits on campus, I will utilize focus groups and survey data to gather all relevant information. Using these sources, I will study UNH students' perceptions of caffeinated products and caffeine consumption habits. Using the data from the survey, I will identify and describe the different caffeine consumer segments within the University of New Hampshire student population through segmentation analysis. I will also create a positioning map of the four main types of caffeinated products available on campus: coffee, energy drinks, soft drinks, and tea. This positioning analysis will help me to understand the competition between the different product offerings on the UNH campus, and see how UNH students perceive each type of caffeinated beverage. I will use this information to determine which types of caffeinated products, brands, and stores are the most popular among UNH students. Furthermore, this research will allow me to figure out potential improvements that stores in the UNH community could make to their current marketing strategies.

The methodologies of this research consist of secondary data, two focus groups, and a survey distributed among UNH students. The first step was preliminary research, which consisted of

two focus groups of UNH students, held on the UNH campus. In these focus groups, I collected qualitative data in order to determine important attributes of caffeinated beverages, preferences for different types of caffeinated beverages, and situational use of caffeine among college students. I also used the focus group to test the relevance of my survey questions and responses. After this stage of research, I conducted a survey online using Qualtrics.com, and distributed that survey using email, Facebook, and Twitter. Quantitative and qualitative analysis was used for the survey results. I performed statistical analysis on the survey data, including frequencies, descriptive statistics, and cross tabulations. I also utilized Marketing Engineering for Excel software to perform a segmentation and positioning analysis of the data.

This research will provide a background for stores on campus to target the college demographic more effectively. In addition to being beneficial to myself, I believe this project could benefit other individuals in the University community who may be interested in doing further research on the subject. It could also be of interest to local stores in the area who sell caffeinated beverages. This study could benefit those stores in finding their target market among UNH college students or in understanding the college student demographic as a whole to more effectively market their products to the right consumers.

This paper will begin with a literature review on the topic, followed by a breakdown of the methodology, which includes the aims and objectives of the research as well as the study design and data collection procedures. The results will be presented in order of attainment; with the focus group findings presented first, followed by the overall descriptive statistics of the data, and lastly the segmentation and positioning analysis. The discussion section will summarize the main findings of the study. The study will conclude with recommendations and managerial implications of the study.

Literature Overview

History

The history of caffeine in America starts with the introduction of coffees and teas to the United States in 1670, when the first American coffee trader was granted a license to sell coffee in Boston. After the Boston Tea Party, coffee became the caffeinated beverage of choice, as tea was looked upon as unpatriotic (Lumin Interactive, How Coffee changed America). In 1820, German chemist Friedlieb Ferdinand Runge first isolated a drug in the coffee bean and named it "caffeine," meaning something found in coffee. American per capita coffee consumption rose from three pounds per year to eight pounds per year between 1830 and 1859 (Hruby, 2012). During the Civil War in the 1860s, coffee was a primary ration for soldiers (Lumin Interactive, How Coffee changed America). In 1886, the first widely known caffeinated soft drink debuted in Atlanta, Georgia by the name of Coca-Cola. Coca-Cola, originally invented as a cure to relieve headaches, was made with natural caffeine from the Kola nut ("The Coca Cola," 2011). Coffee still held the lead as the most popular beverage, especially with the invention of instant coffee and dehydrated coffee in the early 1900s (Lumin Interactive, How Coffee changed America). The 'coffee break' was made popular among both factory and office workers due to a clever advertising campaign by the Pan American Coffee Bureau in the 1950's, which featured slogans like "Give yourself a coffee-break" and "Get more out of life with coffee" ("NPR: The coffee break," 2002). Coffee surpassed beer as New York City's most popular breakfast drink in 1688. The iconic Starbucks brand was founded in 1971, originally selling beans and coffee brewing equipment). By 1995, Starbucks had become the most popular coffee shop in the United States, and still holds that title. From 1995 to 2000, coffee consumption in the U.S. increased by 700 percent (Lumin Interactive, How Coffee changed America).

Today, caffeine plays an integral role in not only the United States, but in various cultures around the world. In Japanese culture, it is common to have a tea ceremony daily, and the British have turned drinking tea into a luxurious affair, complete with fine china and scones (Reid). Finland was rated the most caffeinated country in 2010, and its citizens drink an average of four to five cups per day, preferring a lighter roast (Paranada, 2010). Americans, in general, prefer a more casual ritual involving a morning coffee and a doughnut at a local coffee shop, or a latte at a more upscale Starbucks-like location (Reid).

Consumption Habits

Ninety percent of North American adults consume some form of caffeine on a daily basis, making this substance the most commonly used drug in the world (Majithia, 2007). There are currently about 183 million coffee drinkers and about 173.5 million tea drinkers in the United States. According to an article in the Washington Times, the average American ingests as much as 300 milligrams of caffeine per day (Hruby, 2012). According to a study done by Gallup in July of 2012, coffee has become more popular than soda among adults, and is especially popular with whites, middle-aged, and older adults, while nonwhites and younger adults tend to consume more soda than coffee. Men and women are about equally likely to drink coffee, however, by 69 percent to 45 percent; whites are much more likely than nonwhites to drink it. Coffee drinking is also much more prevalent among middle-aged (70 percent) and older Americans (74 percent) than among those aged 18 to 34 (44 percent). The study indicates that 64 percent of American adults consume one cup of coffee on an average day, while only 48 percent of adults have at least one soda daily (Tuttle, 2012). Among those who drink soda, the average daily amount is 2.6 glasses, with 28 percent drinking one glass per day and 20 percent drinking two or more glasses. The 2012 Gallup study also revealed that the amount of coffee consumed per day has declined, as Americans consumed an average of 2.5 cups per day in 2012, compared with 2.9 cups in 1999. This same study found that coffee

consumption overall has remained relatively flat since 1999, with 64 percent of Americans drinking at least one cup of coffee per day, only 1 percent more than in 1999 (Saad, 2012). This lack of growth is surprising, given the introduction of upscale coffee shops and fast food chains offering specialty coffee drinks. The introduction of new types of caffeinated beverages to give Americans their caffeine "fix" could contribute to the lack of increase in overall coffee consumption. According to an article in TIME magazine, a study of college student consumption found that 50 percent of students drank at least one to four energy drinks per month (Sifferlin, 2013). Energy drink consumption has increasingly gained popularity beginning in 1997 with the debut of Red Bull, the current leader in the energy drink market (Reid). From 2010 to 2011, sales of energy drinks in the United States grew 15.4 percent, according to Mintel, a market research group (Johnson, 2011). Since its introduction, other forms of caffeinated products have made their way into the marketplace, those including caffeinated water, gum, pills, shots, snack foods, liquid caffeine water enhancers, and even caffeinated air in the form of an inhaler ("Serious warnings surrounding,"). The lack of growth in coffee consumption could also be due to the fact that Americans are drinking larger cups or stronger coffee than they did in the past (Saad, 2012). The Center for Science found that the caffeine content varies widely among different types of caffeinated beverages, and even among different types of coffee. A 12-ounce cup of coffee from Starbucks contains about 260 milligrams of caffeine, which is about five times more than a 12-ounce can of Diet Coke. Coffee sold at McDonald's only has about 100 milligrams and Dunkin' Donuts coffee is somewhere in the middle. Energy drinks have about as much caffeine as a strong cup of coffee, plus ingredients such as taurine, guarana, vitamin B, ginseng, and ginkgo, that boost energy and alertness more than just caffeine alone, making the effects of energy drinks difficult to measure (Aubrey, 2013).

Caffeine increases energy, alertness, attentiveness, and sociability for its users. College students today have a higher need for these types of benefits as they attempt to juggle classes, sports,

work, and a social life. The college-aged consumer has unique caffeine consumption habits given their hectic lifestyle. Their choice in caffeinated beverages, consumption amounts, and frequency of consumption vary from the average American consumer. The demand for caffeine has greatly increased among the college demographic in recent years. A survey conducted by the NPD Group, which tracks trends in what Americans eat and drink, found that more 18 to 24 year olds are turning to coffee rather than caffeinated sodas. The study found that between 2002 and 2012, the percentage of 18 to 24 year olds that reported drinking coffee within a two-week period increased from 25 percent to 39 percent (Aubrey, 2013). According to the latest National Coffee Drinking Study from the National Coffee Association, 40 percent of 18 to 24 year olds drink coffee every day ("National coffee drinking," 2012). In addition to drinking an increased amount of coffee, college aged consumers also out-drink adults in soda consumption. The 2012 Gallup study found that more than half of young adults ages 18 to 34 (56 percent) drink soda every day, compared to only 46 percent of adults ages 35 to 54, and 42 percent of adults ages 55 and older (Saad, 2012). Knowing this, energy drink companies have been aggressively marketing towards college students. Red Bull, the leader in the college market, hires campus representatives to hand out free Red Bull on college campuses and raise awareness of the product. One of the company's advertised slogans is "Nobody ever wishes they'd slept more during college" (Johnson, 2011).

Health Concerns

There have been more than 19,000 studies on caffeine and coffee in the past 30 years, most of which have aimed to uncover the drug's exact effects on the human body (Brain, Bryant & Cunningham, 2000). Although widely popular among the majority of people around the world, caffeine intake has been linked to a variety of health issues, both short and long term. Although moderate caffeine intake is not harmful to the majority of adults, too much can lead to some unpleasant effects. Caffeine, or *trimethylxanthine* (Brain, Bryant & Cunningham, 2000), is *analeptic*,

meaning that it stimulates the central nervous system, and *ergogenic*, meaning that it improves physical performance. It is also a *diuretic*, meaning that it causes dehydration (Reid). Consuming more than 500 to 600 milligrams a day may cause insomnia, nervousness, restlessness, irritability, stomach upset, fast heartbeat, and muscle tremors (Harms). Many studies have shown that people who consume caffeine have higher rates of kidney and bladder cancer, fibrocystic breast disease, pancreatic cancer, and osteoporosis. Caffeinated drinks also increase urine output and boost blood pressure, but this effect is temporary. Caffeine has also been linked to calcium loss, but the effect is very small and short-term. In a small minority of people, doses of 300 milligrams or more may prompt an increase in tension, anxiety, and even panic attacks (Reid).

Although there have been links made to these long-term health issues, only short-term effects of drinking caffeine can be studied and proven. Most short-term disadvantages to drinking caffeine are classified as withdrawal symptoms, as caffeine is considered a drug. According to an article published in the National Geographic, a day or so without caffeine can cause headaches, irritability, a lack of energy, and sleepiness. Compared to withdrawal from more serious drugs, such as cocaine, withdrawal symptoms from caffeine are much less intense and tend to disappear in two to four days. Even still, avoiding withdrawal symptoms may be why so many people consume caffeine each day. Ireland's Stimulant Drinks Committee report advised that consumption of highly caffeinated beverages should be discouraged in children to prevent possible increases in anxiety or nervousness (Reid). Some religious groups, such as the Mormon Latter-Day Saints, even advise its members against consuming caffeinated products, as they feel caffeine can do just as much harm to the body as other drugs (Stack, 2012). According to a study done by Mayo Clinic, people may experience different reactions to caffeine depending on regular caffeine consumption, body mass, age, medication use, and health conditions such as anxiety disorders. Their research also suggests that men are more susceptible to the effects of caffeine than women (Harms).

Caffeine can also have a major impact on sleeping habits. The half-life of caffeine in the human body can range from 2.5 to 12 hours. Because of genetic differences, some metabolize caffeine more quickly than others. The typical half-life among adults is about five hours, which means caffeine typically stays in the body for about 10 hours or longer. Amy Wolfson, of the College of the Holy Cross in Massachusetts, studied how caffeine influences sleep among adolescents, and found that high caffeine use is linked to decreased rapid eye movement (REM) sleep. Wolfson believes that if college students are getting too little or poor quality sleep, it will have negative implications on their academic performance (Aubrey, 2013). A major health hazard lies in the ingredients of energy drinks. Along with containing many unfamiliar ingredients, the amount of caffeine added to energy drinks is not regulated by the U.S. Food and Drug Administration (FDA). Energy drink companies avoid the FDA caffeine limit, 71 milligrams per twelve-ounce can, by not referring to their products as soda, and they can contain about 80 milligrams of caffeine per eight ounce serving (Brain, Bryant & Cunningham, 2000).

A recent trend in the college student demographic is mixing alcohol with energy drinks while partying, which can mask the effects of alcohol and give drinkers the impression that they have consumed less alcohol than they have (Sifferlin, 2013). In a study, *Caffeinated Cocktails: Energy Drink Consumption, High-risk Drinking, and Alcohol-related Consequences among College Students*, consumption of alcohol mixed with energy drinks was found to be correlated with higher prevalence of alcohol related consequences, including being taken advantage of sexually, taking advantage of another sexually, riding with an intoxicated driver, being physically hurt or injured, and requiring medical treatment. This study found that almost 25 percent of college student drinkers mix alcohol with energy drinks and are at increased risk for alcohol-related consequences (O'Brian, McCoy, Rhodes, Wagoner & Wolfson, 2008).

Health Benefits

In contrast to the many perceived disadvantages of consuming caffeine, there are also many advantages, which may explain why so many people consume the drug on a daily basis. For most healthy adults, consuming moderate doses of caffeine, or about 200 to 300 milligrams a day, equal to about two to four cups of brewed coffee, is not harmful (Harms). Studies have shown it can help relieve pain, thwart migraine headaches, reduce asthma symptoms, and elevate mood. As a mental stimulant, caffeine increases alertness, cognition, and reaction speed. Although caffeine can contribute to dehydration, recent studies show that it is not dehydrating in moderate amounts, even in athletes. Caffeine reduces fatigue, therefore improving performance on tasks like driving, homework, and playing sports (Reid). In a study was done by Harvard University, involving 126,000 people over an 18 year period, it was found that people who drink one to three cups of coffee per day are up to nine percent less likely to contract diabetes than those who do not. The same study also found that people who drank six or more cups of coffee per day decreased their chances of contracting diabetes by 30-54 percent. The Harvard study also found that regular coffee drinkers were 80 percent less likely to develop Parkinson's disease, 20 percent less likely to get colon cancer, 80 percent less likely to develop cirrhosis, and 50 percent less likely to develop gallstones compared with those who did not consume caffeine. Caffeine is being studied further for its potential benefits in battling Parkinson's disease, Alzheimer's and cancer (Brain, Bryant & Cunningham, 2000). Recent studies link coffee consumption to a range of good health effects, including decreased risk of dementia and decreased risk of depression among women (Aubrey, 2013). Studies have also suggested that caffeine is beneficial in treating asthma and preventing cavities (Brain, Bryant & Cunningham, 2000).

Unlike many other drugs, caffeine has rarely been abused. Jack Bergman, a behavioral pharmacologist in the department of psychiatry at Harvard Medical School, reported that caffeine

overuse tends to stop itself. He found that the user typically stops consumption after getting jittery and uncomfortable from consuming too much caffeine. Although it advised to prevent children from consuming caffeinated products, there is no conclusive evidence about whether caffeine is harmful to children in small amounts. A report from the Australia New Zealand Food Authority concluded that children metabolize caffeine more quickly and there was no reason to suspect that they are more sensitive to its effects than adults. Studies have shown that pregnant women can consume 300 milligrams of caffeine per day without harming the child. After decades of testing, caffeine remains on the FDA's list of food additives that are "generally recognized as safe" (Reid). Looking at all of the studies on caffeine and its effects, it is very hard to argue that moderate consumption harmful. Although some issues have been linked to caffeine consumption, no long-term health issues have been proven to be the direct result of moderate caffeine consumption. It is also important to note that many of the health concerns stem from other additional ingredients added to caffeinated beverages, such as sugar, taurine, and guarana, which boost energy more than one could measure and contribute to other health problems such as diabetes.

Methodology

Aims and Objectives

The objectives of this study are to research the perceptions of different types of caffeine intake among the college student demographic, main types including energy drinks, soft drinks, coffee, and tea. The study will focus on the frequency and amount of caffeine intake among University of New Hampshire students for each type of caffeine, and then compare that to how college students view each caffeine type. It will also research the circumstances in which college students drink each type of caffeine, such as for insufficient sleep, to increase energy, while studying, driving long periods of

time, drinking with alcohol while partying, and to treat a hangover (Heidel). The perceived benefits

and disadvantages of drinking each type of caffeine are also of interest in this research study. For

each type and for each circumstance, the study will research the frequency of consumption and also

report differences in gender, class year, college, and age. The specific aims of the study are as

follows:

- To measure frequency of caffeine consumption among college students at the University of New Hampshire and among different segments of the college demographic.
- To determine situations and reasons in which college students consume caffeine and reasons for doing so.
- To identify the types of caffeine consumed on campus and most popular caffeine intake for UNH students.
- To determine the leaders in the caffeine industry among college students, including the most popular type of caffeine, the most popular distribution channel, and the most popular brands for each type of caffeine.
- To examine the student perceptions of different forms of caffeine and the perceived advantages and disadvantages of the different types of caffeinated products.
- To segment the UNH consumer market into different groups and pick a target segment for each type of caffeine.
- To examine trends in caffeine consumption among college students in the community and throughout the U.S. and use those trends to make predictions for the future.
- To make recommendations to businesses in the local community on their marketing strategies.

Study Design and Data Collection

On March 14, 2013, I received written approval from the Institutional Review Board (IRB)

to pursue my research on caffeine consumption habits among UNH students. Please see Appendix

A to view the official letter of approval. Two focus groups consisting of 5-6 UNH students were

conducted and participants were asked open-ended questions regarding situations in which they

consume caffeinated products, the factors that cause students to consume caffeine, the most

common caffeinated products college students were using, frequency patterns, and the advantages

and disadvantages of consuming caffeine. Participants were also asked questions particular to the

UNH campus, such as the most popular place to buy caffeinated products on campus, and what advertisements or promotions were effective in getting college students to purchase caffeine (see Appendix C). This was done to allow test research questions, edit the online survey, and ensure its relevance among UNH students. A 32-question online survey was developed using Qualtrics.com that assessed consumption patterns of caffeinated products among college students (see Appendix B).

Estimated total enrollment at the University of New Hampshire is currently 15,000 students, including undergraduate and graduate students. The survey distribution goal was to obtain an estimated 100 responses. The survey was distributed using email and social media, such as Facebook and Twitter. The survey was sent through email to every student on the Paul College email list through Paul College Directed Communications. In order to get an unbiased number of responses from all of the colleges within the University of New Hampshire, the survey was emailed to professors in other colleges who were currently teaching a course at UNH on the Durham campus. With this distribution strategy, the survey returned an initial 342 responses, which surpassed the initial goal. Of those respondents who took the survey, 335 attended the University of New Hampshire, Durham campus. Those who did not attend were not included in the research study, as the focus was on those who attended the Durham campus. Of those who attended the University of New Hampshire, 251 students consumed caffeine, which was equal to 74.93 percent. All subsequent analyses are restricted to those UNH students who consume caffeine.

Results

Focus Group Results

Two focus groups were conducted on campus to learn more about advantages and disadvantages of consuming caffeine, situations in which college students consume caffeinated products, the factors that cause students to consume caffeine, the most common caffeinated products college students were using, and frequency patterns. To find out more about UNH students, participants were asked about the most popular place to buy caffeinated products on campus, and what advertisements or promotions were effective in getting college students to purchase caffeine. Only one person from both focus groups did not consume caffeine, and this was due to her religious beliefs. Of the remaining participants, the average caffeine consumption frequency ranged from 2-6 times per week, depending on their schedule, amount of work they had to do, and their mood.

Participants found caffeine to be advantageous for its effects on staying awake, getting good grades, being able to focus, being better able to socialize. Some participants noted that caffeine is a safer alternative to using Adderall or other drugs for these purposes. Participants said that most people consider caffeine as a drink, not a drug, and that students do not realize how easy it is to become addicted. They also stated that instead of being an alternative, it could act as a gateway drug to other drugs or behaviors. Focus groups participants said that caffeine helps them to wake up in the morning, even noting that they "wouldn't do anything all day without it."

Although most participants found caffeine to be very helpful in their day-to-day lives, they were also very aware of some disadvantages of using the drug. Most participants agreed that purchasing caffeinated beverages every day is expensive, especially when college students do not make much discretionary income. They also noted that the cost of driving to purchase caffeinated

products every day adds up, and the time spent purchasing is a hassle and inconvenience. Addiction was a main disadvantage found among both groups, and participants focused on the withdrawal symptoms as being some of the most important disadvantages. Some of these symptoms include headaches, crankiness, and tiredness. One participant who admitted to be addicted to caffeine, stated, "Coffee runs my life." Of lesser importance were the long-term health concerns of the drug, as only one participant noted that caffeine could be bad for the heart. One participant said she perceived alcoholic beverages as being healthier than caffeinated beverages, stating that one can of soda changes her mood more than one can of beer. On the contrary, one participant said that consuming caffeine is just about a mindset, and sometimes just buying it will make them feel more awake.

The top three situations in which focus groups participants consumed caffeine were to wake up, to accomplish things throughout the day, and for the taste. The type of caffeinated products that performed best in those situations were Red Bull and coffee. The top three occasions or situations where focus group participants consume caffeinated products were the night before an exam, at their job to be more productive, and to be social when going out. Other circumstances include going to class, spending time with friends while getting coffee, and while doing homework.

The caffeinated products that participants said they consumed were coffee (all types), espresso (in cappuccinos or lattes), soda, iced and hot tea, energy drinks (Red Bull, Amp Energy, and Starbucks Refreshers), ice cream (coffee flavor), and chocolate. When asked what they thought was the most popular place to buy caffeinated products on the University of New Hampshire campus, participants thought it was either Dunkin' Donuts in the MUB or Aroma Joe's. They thought that before Aroma Joe's opened, which was last year, Breaking New Grounds was the leader in coffee sales on campus. Among the participants of one group, the Coffee Station (The

Hut) was very popular, and most participants purchased coffee there at least three times per week. Philbrook café, the coffee carts on campus, and the grocery store were also popular places they though students went to buy caffeinated beverages.

When asked about promotions on campus that may have affected their caffeine purchase decision, many participants said that the UNH Dining promotion for the free flavor shot with the purchase of Red Bull was very effective in getting them to buy. They also noted that they may have bought a caffeinated beverage anyways, but they chose Red Bull because they felt they were getting a better value. Contrary to this, one participant said that she would never buy Red Bull because it is unhealthy and too expensive. When asked what discount would convince them to buy any caffeinated beverage, most said that a 50 percent off coupon would be an attractive offer. Free coffee is also a very effective promotion for college students, one participant recalling the promotion to give blood and get a free coffee at Union Court in the MUB. The participants said coupon books, which are distributed around campus every semester, are an effective way to raise awareness of new stores as well as to entice students to purchase for a percentage off. A few participants said that they were so dependent on coffee, their decision of whether to buy or not was not affected by promotions. However, they may be more apt to try a new product if they were offered free samples or at least a 10 percent discount. A 50 percent off discount may persuade participants to buy if they were not planning on buying previously. Many students did agree that when they want or need caffeine, they are going to get it, discount or not. The decision that could be influenced is what type of caffeine, and furthermore what brand, they decide to purchase.

Descriptive Statistics

Of the 251 students who both attended the University of New Hampshire in Durham and consumed caffeine, 26 percent were male and 74 percent were female. The gender ratio at the

University of New Hampshire is 46 percent male and 54 percent female, but the discrepancy may have been due to the fact that females are more likely to take surveys than males. The majority of participants, 66 percent, were between 18 and 21 years old. Thirty-two percent of participants were between 22 and 34 years old. The highest percentage of respondents, 33 percent, were in their senior year at the University of New Hampshire. Juniors (25 percent), sophomores (19 percent), freshmen (13 percent), and graduate students (10 percent) also contributed to the results. As seen in Figure 1, the highest number of responses were from students enrolled in the College of Liberal Arts (24 percent) and Paul College (23 percent). Eighty-one respondents (32 percent) started drinking caffeinated products between the ages of 12 and 16, and 64 respondents (25 percent) started to drink caffeine between ages 16 and 18. The majority of respondents (51 percent) spent less than $2.00 on caffeinated products per day (see Figure 2).

Survey respondents rated the importance of fourteen attributes on a scale of 1 to 6, with 1 being "Not at all important" and 6 being "Extremely important". The attributes were *caffeine content (how much caffeine)*, *freshness of the product*, *health benefits*, *taste*, *popularity among friends*, *convenient location*, *brand name*, *price*, *quality of product*, *and whether you have plans for the night*, *whether you have an exam*, *and the time of day (morning, night, etc.)*. Of these attributes, *taste* had the highest average rating, 5.36, meaning *taste* was the most important attribute to college students when buying caffeinated products. The second most important attribute was *quality of product*, with an average rating of 5.00. Surprisingly, *price* was of third importance, with an average rating of 4.66. *Freshness* and *convenient location* were of equal importance among UNH students, with an average rating of 4.56. The two least important attributes among survey respondents were *popularity among friends* (2.03) and *packaging* (2.79).

Survey respondents also ranked different caffeinated products' performance on certain attributes on a scale of 1 to 5, with 1 being "Poor" and 5 being "Excellent". These attributes were

caffeine content (how much caffeine the product contains), *freshness of the product*, *health benefits*, *taste*, *popularity among friends*, *convenient location*, *brand name*, *availability of product in stores*, *price*, *quality of product, and packaging*. Individual ratings were done for four types of caffeinated products: coffee, caffeinated tea, soft drinks, and energy drinks. Of all attributes of coffee, the attribute that respondents felt coffee performed best on was *convenient location*, with an average performance rating of 3.92. Of all attributes compared on coffee, coffee performed worst on the attribute *health benefits*, with an average rating of 2.52. The attribute that respondents felt caffeinated tea performed best on, among all attributes of caffeinated tea, was *health benefits*, with an average performance rating of 3.76. Of all attributes of caffeinated tea, caffeinated tea performed worst on the attribute *popularity among friends*, with an average rating of 2.66. The attribute that respondents felt that soft drinks performed best on was *availability of product in stores*, with an average performance rating of 3.89. Of all attributes, soft drinks performed worst on *health benefits*, with an average rating of 1.58. The attribute that respondents felt that energy drinks performed best on was *caffeine content*, with an average performance rating of 3.79. Of all attributes compared on energy drinks, energy drinks performed worst on *health benefits*, with an average rating of 1.30.

Discrimination questions were used to learn more about the University of New Hampshire caffeine consumers as a whole. Respondents were asked to rank questions on how much they agreed with them. The rank was from 1 to 5, with 1 being "Strongly Disagree" and 5 being "Strongly Agree." The questions helped to understand buying habits and feelings about caffeinated products. Key findings include questions that were ranked very low or very high among all UNH students. Overall, the media and celebrities do not influence University of New Hampshire caffeine consumers when purchasing caffeinated products, as shown by the low mean (1.45) and therefore disagreement with the statement *the media and celebrity endorsers influence which type of caffeine you prefer*. Peers are not influential in UNH students' decision making when purchasing caffeine, as shown by

the mean rating of 1.59. TV advertisements are also not effective in persuading UNH students to buy certain caffeinated products (1.65). Most students disagreed with the statement *you drink caffeinated products mostly at night*, as shown by an average rating of 1.88. Students do agree that consuming too much caffeine is unhealthy (4.20) and mixing caffeine with alcohol is very dangerous (3.84). Most students disagreed somewhat (2.02) when asked if they were addicted to caffeine.

Among the University of New Hampshire caffeine consumers, coffee is the caffeinated product of choice, with 77.3 percent of students consuming coffee (see Figure 3). About 81 percent of UNH females consume coffee versus 66.67% of males. Sixty-one percent of students consume caffeinated tea, 43.8 percent consume caffeinated soft drinks, and 31.9 percent consume energy drinks. The less popular caffeinated products were those that were not typical caffeinated beverages. Only 4 percent of the University of New Hampshire caffeine consumers purchase energy shots, 2.4 percent consume caffeine pills, and only 0.8 percent of students consume caffeinated gum. Other products consumed included espresso beans and Clif Shot Blok Energy Chews, which are chewable cubes with 50 milligrams of caffeine ("Clif bar & company,").

Of those students who consume coffee (194 respondents), 74.2 percent purchase and consume made-at-home coffee, such as coffee grounds and K-cups. Almost all coffee drinkers on the University of New Hampshire campus, 94 percent, purchase coffee at coffee shops. 24.7 percent purchase pre-made coffee drinks at stores, and less than 1 percent of students consume coffee somewhere else, such as the dining hall. The largest percentage of coffee drinkers on the University of New Hampshire campus, 61.9 percent, purchase coffee from the Dunkin' Donuts at the Memorial Union Building (MUB). 40.7 percent of the University of New Hampshire coffee drinkers purchase coffee at Breaking New Grounds and 39.2 percent of coffee consumers have purchased coffee at Aroma Joe's, both on Main Street. 31.4 percent of students who drink coffee purchase it at

Dunkin' Donuts inside Irving, 20.1 percent at Zeke's Café, and 14.4 percent purchase it at the Hut. The less popular stores on campus to purchase coffee include Philbrook Café (13.4 percent), Union Court (12.3 percent), the Works (11.3 percent), Albert's Café (10.3 percent), Wildcattessen (9.7 percent), the Dairy Bar (7.7 percent), and Gables Café (6.2 percent). Overall, 79.9 percent of the University of New Hampshire coffee drinkers (155 out of 194) purchase coffee at the University of New Hampshire Dining establishments, which consists of Zeke's Café, Philbrook Café, Union Court, Albert's Café, the Dairy Bar, and Gables Café, but not counting the new Peter T. Paul College café, Cornerstone 1926. Of coffee drinkers on the UNH campus, 4.6 percent purchased coffee at somewhere other than the places listed above, including the new café, Cornerstone 1926. Five percent of the University of New Hampshire coffee drinkers do not purchase coffee on campus. 61.9 percent of coffee drinkers purchase coffee at the food and coffee carts around campus. Higher Grounds is the most popular among students who purchase coffee at coffee carts; 42.5 percent of the total 120 students who purchase coffee at coffee carts purchase it here. RRRamon's Food and Coffee attracts 30 percent of student coffee carts buyers, and Wild Child Express attracts 27.5 percent of coffee drinkers who purchase coffee at coffee carts on campus. Dunkin' Donuts in the MUB is also most popular among Peter T. Paul College of Business and Economics students, as shown in a crosstab of *What college or school are you enrolled in?* by *Where do you buy coffee on campus?* (Appendix A). The majority of Peter T. Paul College of Business and Economics students, 66.67 percent, purchase coffee from this location. Aroma Joe's (53.33 percent) and Breaking New Grounds (42.22 percent) are also popular among Paul College students. Dunkin' Donuts in the MUB is also the most popular location to buy coffee among College of Health and Human Services students (57.78 percent), College of Liberal Arts students (76.19 percent), and College of Life Sciences and Agriculture students (79.17 percent). Albert's Café was most popular (56.92 percent) among College of Engineering and Physical Sciences students, as that café is located

in Kingsbury, the engineering building on campus. Breaking New Grounds was the most popular location to buy coffee among Graduate School students (42.86 percent), and Thompson School of Applied Science students prefer Aroma Joe's to any other location on campus (50 percent).

Of those students who consume caffeinated tea (153 respondents), 89.5 percent purchase and consume made-at-home tea, such as tea bags and mixes. 48.4 percent of tea drinkers on the University of New Hampshire campus purchase caffeinated tea at coffee shops. 35.3 percent of tea drinkers purchase store-bought, pre-made tea drinks at stores, and 2 percent of students purchase tea somewhere else, such as the dining hall or make their own from loose leaves. A large percentage of student tea drinkers, 39.2 percent, do not purchase caffeinated tea products on campus. 18.3 percent of tea drinkers said they purchased tea products at somewhere other than what was listed, and specified that Dunkin' Donuts, Breaking New Grounds, and the new Paul College café, Cornerstone, were where they bought caffeinated tea. They also mentioned that the University of New Hampshire dining halls provided them with tea so that they did not have to purchase it. 22.2 percent of caffeinated tea drinkers at the University of New Hampshire purchased tea at the Durham Marketplace, 16.3 percent purchased tea at Zeke's Café in the library, 13.1 percent purchased tea products at Union Court, and 7.2 percent purchased tea at Aroma Joe's. 9.2 percent purchased tea at Philbrook café, 7.2 percent purchased tea at Wildcattessen, and 5.2 percent of the University of New Hampshire tea drinkers purchased caffeinated tea at Campus Convenience. Less than 5 percent of student tea consumers purchased tea products at each of the following: the Hut, Gables Café, Albert's Café, the Dairy Bar, The Works, Tedeschi's (Store-24), and Circle K (at Irving).

Lipton is the most popular brand among students who consume and purchase caffeinated tea on campus, with 53.7 percent of the University of New Hampshire tea drinkers purchasing this

brand of tea. Tazo Tea (50.54 percent), AriZona (44.1 percent), Snapple (38.7 percent), Arnold

Palmer (36.6 percent), and Honest Tea (31.2 percent) are among the most popular brand on campus

among those who consume caffeinated tea. Other tea brands that UNH students consume include

Nestea (22.6 percent), FUZE (12.9 percent), SoBe (5.4 percent), and Sweet Leaf (4.3 percent). The

students who buy other brands than those listed (11.83 percent) purchase Twinings, Bigelow, Yogi,

Celestial Seasonings, and Stash.

Of the students that consume energy drinks (80 respondents), 42.5 percent purchase from

Zeke's Café in the University of New Hampshire's Dimond Library. Union Court, in the Memorial

Union Building, is another popular place to buy energy drinks on campus, with 35 percent of all the

University of New Hampshire energy drink consumers purchasing their energy drinks at that

location. Other popular locations to purchase energy drinks on campus include Wildcattessen (31.25

percent), Durham Marketplace (28.75 percent), Circle K at Irving (27.5 percent), and Tedeschi's

(27.5 percent). Philbrook Café and Aroma Joe's seem to be equally as popular among the University

of New Hampshire energy drink consumers, with 23.75 percent of students purchasing from both

of these locations. Campus Convenience, referred to as "CampCo" among UNH students, is the

next in popularity, with 21.25 percent of students purchasing energy drinks here. Less common

locations to buy energy drinks include Gables Café (16.25 percent), Albert's Café (7.5 percent), the

Hut (5 percent), the Dairy Bar, and the Works (both 1.25 percent). Ten percent of energy drink

consumers do not purchase energy drinks on campus, and 6.25 percent purchase at a location not

listed, such as Rite Aid, RRRamon's, Phillip's 66, and Breaking New Grounds. Of all energy drink

brands on the University of New Hampshire campus, Red Bull is the clear winner, with 94.44

percent of energy drink consumers at the University of New Hampshire purchasing this brand. The

next most popular brand on campus is Monster, but still only 15.28 percent of the University of

New Hampshire energy drinkers consume this brand. Other brands consumed include Rockstar

(13.89 percent), Starbucks Refreshers (8.33 percent), Amp Energy (5.56 percent), Full Throttle (5.56 percent), Moxie Energy (4.16 percent), and NOS (2.78 percent). The least popular energy drink brand on campus is SoBe Lifewater B-Energy, with only one respondent purchasing this brand. This could be due to the lack of availability of this product on campus or due to strong competition from the Red Bull brand.

Of the students that consume caffeinated soft drinks (110 respondents), 40.91 percent purchase soft drinks at Union Court in the Memorial Union Building. Wildcattessen and the Durham Marketplace are also popular locations to purchase energy drinks, with 32.73 percent of soft drink consumers purchasing at each of these locations. Next in popularity is Tedeschi's (24.55 percent) and Philbrook Café (22.73 percent). Less popular locations include Circle K at Irving (18.18 percent), Zeke's Café (15.45 percent), and Campus Convenience (15.45 percent). The least popular locations for soft drinks purchases include Gables Café (10 percent), Albert's Café (7.27 percent), the Dairy Bar (4.55 percent), and The Works (2.73 percent). 7.27 percent of soft drink consumers on the University of New Hampshire campus purchase soft drinks at locations other than those listed, including vending machines around campus, Phillip's 66, Rite Aid, and for free at the dining halls. Of the different types of soft drinks, cola soft drinks were the most popular among UNH students, with 88.76 percent of soft drink consumers favoring cola soft drinks like Coca-Cola, Pepsi, and Dr. Pepper. Fruit-flavored soda is the next in popularity, with 47.19 percent of caffeinated soda drinkers consuming this type. 39.33 percent consume root beer and 24.72 consume caffeine and flavor enhanced water, such as caffeinated Glacéau Vitaminwater. Coca Cola and Diet Coke are the most popular brands purchased on campus, with 48.18 and 31.82 percent of soda drinkers purchasing these brands, respectively (See Figure 4). Next in popularity are Dr. Pepper (21.82 percent), Mountain Dew (21.82 percent), and Sunkist (20 percent). Pepsi is much less popular among UNH students than Coca Cola, with only 18.18 percent of soda drinkers on campus purchasing Pepsi and

8.18 percent purchasing Diet Pepsi. Other less popular caffeinated soda brands at the University of New Hampshire include Fanta (10.91 percent), 7 Up (8.18 percent), Diet Dr. Pepper (8.18 percent). Diet sodas overall seem to be less popular than their non-diet counterparts, as seen in Appendix B. Caffeinated Vitaminwater was somewhat popular among UNH students, with 19.09 percent of UNH students consuming this product. Other (6.36 percent) soda brands purchased include Pepsi Max and Coke Zero, which were not listed in the survey responses. 13.64 percent of respondents did not purchase any soda brands on campus.

Ten respondents in total consumed energy shots, with 5 Hour Energy being the most popular brand among those respondents (70 percent). Red Bull Shots were the next most popular among respondents (40 percent). 6 Hour Power, Nitro 2 Go, and Redline were equally popular with one respondent consuming each of these brands. 20 percent said that they did not consume any energy shot brands. None of the survey respondents consumed any caffeinated gum brands. Of those who consumed caffeine pills (6 respondents in total), Xenadrine was the most popular, with 66.67 percent of respondents consuming this pill brand. Prolab, Natrol High and Jet Alert were all equally as popular, with one respondent consuming each of these brands (16.67 percent each).

The highest percentage of the University of New Hampshire caffeine drinkers (45 percent) consumed one caffeinated product per day (see Figure 5). Thirty-six percent of UNH students surveyed consume 2-3 caffeinated products per day, and only 7.6 percent consume no caffeinated products on a typical day. 8.4 percent of students on the University of New Hampshire campus consume more than three caffeinated products in a typical day.

When asked for what purpose they consume caffeine, 82.1 percent of the University of New Hampshire caffeine consumers answered that they consume caffeine to feel more awake. Of UNH students that do consume caffeine, most students do so for seemingly school-related purposes, such

as for increased energy throughout the day (62.2 percent), to be more alert (60.6 percent), to be more productive (61.8 percent), to stay up late (47.4 percent), and to help with concentration (39.8 percent). A low percentage of students consume caffeine to enhance the effects of alcohol (6.8 percent), and to lessen the effects of a hangover (13.5 percent). 14.3 percent of students consume caffeine in order to be more social, but only 1.6 percent of students do so in order to fit in with peers. 24.7 percent of UNH students turn to caffeine to cure a headache, which may be caused by an addiction to caffeine. 39.8 percent of UNH students consume caffeinated products in order to satisfy a craving, which implies that about the same amount of students are addicted to caffeine. A low percentage (9.2 percent) of students consume caffeine for increased physical performance. 11.2 percent responded that they consume caffeine for other reasons, some reasons including for the taste, as a comfort, for the health benefits (of tea), because of their mood, and to aid in weight loss. 6.4 percent of caffeine consumers on the University of New Hampshire campus say that they do not consume caffeine for a specific purpose.

Respondents were also asked which circumstances or situations they would consume a caffeinated beverage. While the previous question was to find out reasons why students consume caffeine, this question was asked to find out where and when college students choose to consume caffeine. A large majority of students, 79.7 percent, consume caffeine when they did not get enough sleep the night before. 69.7 percent of UNH students consume caffeine before driving long distances. Schoolwork was a major circumstance in which students consumed caffeine, with 65.7 percent of students consuming caffeine while studying for an exam and 68.5 percent consuming caffeine while doing homework. 59.8 percent of students say they consume caffeine while in class, and 64.9 percent consume caffeine while at work. Since caffeine is used to help students perform at their very best, this shows that UNH students hold schoolwork and work at a high priority. In contrast, only 17.9 percent of students consume caffeine while partying, and 19.9 percent consume it

when they have a hangover. About half (49.8 percent) will consume caffeine while out with friends, and 35.9 percent will while out at a restaurant. About 29 percent of UNH caffeine drinkers will use caffeine to cure a headache. 32.3 percent of students will consume caffeine while running errands, while only 19.5 percent of students feel the need to consume caffeine on a date. Exercising or playing sports was the least common circumstance in which students consume caffeine, with only 5.6 percent of students consuming caffeine for this purpose. Other (5.2 percent) reasons students consume caffeine include during meals, in the dining halls, and just to taste it. 3.2 percent of students said they consume caffeine for no particular reason at all.

Segmentation and Positioning Analysis

A segmentation analysis was performed to separate the consumers of caffeine on the University of New Hampshire campus into different segments. These segments were grouped based on their similar perceptions of, and preferences for, caffeinated products. In order to perform a segmentation analysis, the segmentation data from the online survey was imported into Microsoft Excel. Fourteen attributes that college students may find important when purchasing caffeinated products were developed. Survey respondents were asked to rate importance of each attribute on a scale of 1 to 6, with 1 being "Not at all important" and 6 being "Extremely important". The attributes chosen were: *caffeine content (how much caffeine)*, *freshness of the product*, *health benefits*, *taste*, *popularity among friends*, *convenient location*, *brand name*, *price*, *quality of product*, *and whether you have plans for the night*, *whether you have an exam*, *and the time of day (morning, night, etc.)*. Respondents also answered discrimination questions to aid in learning more about the consumers in each segment. Survey respondents ranked discrimination questions on how much they agreed with them. The rank was from 1 to 5, with 1 being "Strongly Disagree" and 5 being "Strongly Agree." The questions asked helped to get to know buying habits and feelings about caffeinated products. Respondents also answered demographic questions such as gender, age, class year, college/school within the

University of New Hampshire, age consumer started consuming caffeine, and their average daily spend on caffeinated products.

A segmentation template was created by using a tool called Marketing Engineering for Excel (ME->Excel). This template was used to perform a segmentation analysis within Excel. This analysis created a dendogram, which was analyzed to find segments within the survey data. The dendogram was cut it in half at the biggest jump, and five segments were found (see Figure 6). The largest segment found had 79 respondents, and the smallest segment had 26 respondents (see Figure 7). Overall, the attributes *taste* and *quality of product* were the most important among all segments, and *popularity among friends* was the least important (see Figure 8)

As seen in Figure 8, the first segment, "Best of the Best Drinkers", included mostly females and very few males. All respondents in this segment were within the age range of 18 to 34, and this segment was the youngest group of the five segments. This segment found all attributes to be important, and look for caffeinated products that provide them with the 'best of the best'. This group found *taste*, *convenient location*, and *quality of product* to be the most important attributes when purchasing a caffeinated product. This group also found the factors of *whether they have an exam*, and the *time of day (i.e. morning or night)* to be important in their purchase decisions. The attribute found to be the least important within this segment was *popularity among friends*, but this group still found popularity to be more important than any of the other segments. As seen in the discrimination output (Figure 9), promotions and discounts are important to this segment when choosing a caffeinated beverage, but they consider themselves brand loyal to specific caffeinated beverages, and almost always consume the same type of caffeinated product. They also believe that consuming too much caffeine is unhealthy, and that mixing caffeine with alcohol is very dangerous. This segment does not drink caffeinated products at nighttime. TV advertisements, as well as celebrity endorsers,

are not effective in persuading this group to buy certain caffeinated products, which makes sense because they are very brand loyal. People in this segment are unlikely to be avid energy drink consumers, as they believe too much caffeine is dangerous and do not mix caffeine with energy drinks, as many energy drink users do.

The second segment, "Value Seekers," was made up of mostly females between 18-34 years old. This segment found the attributes *popularity among friends* and *whether they had plans for the night* to be very unimportant in their caffeine purchase decision. They cared a lot about *taste*, *price*, and *quality of product*, and look for the best product at the lowest price (see Figure 8). If they are in need of caffeine, they will not buy a caffeinated product at any price. This group does not pay attention to how much caffeine is in the drinks that they consume, but does think that consuming too much caffeine is unhealthy, and that mixing caffeine with alcohol is very dangerous. Much like the "Best of the Best Drinkers", TV advertisements, as well as celebrity endorsers, are not effective in persuading this group to buy certain caffeinated products. They do not need caffeine to function throughout the day, and do not consider themselves addicted to caffeine (see Figure 9).

The third segment, labeled "Individualists", includes about half males and half females, between the ages of 18-32. The people in this segment found most attributes to be extremely unimportant, the most unimportant attributes being *popularity among friends*, *brand name*, *packaging*, *caffeine content*, and *whether they had plans for the night*. The few attributes this group did find important were *taste* and *quality of product*. This group is looking for a good product, but does not pay attention to what their peers are drinking or brand names of products. This segment found *caffeine content* of the product to be the least important of all the segments (see Figure 8). This group looks for something that tastes good, not something that wakes them up. This group is the least influenced by peers in their caffeinated beverage choice, as well as the least influenced by TV advertisements and

celebrity endorsers. They will not purchase a caffeinated product at any price, even if they need caffeine. This group does not buy products with caffeine strictly for the effects of caffeine. They are the least likely of any group to drink caffeine late at night, and also the least likely to need caffeine to function throughout the day. Holding true to their name, "Individualists" tend to not be influenced by anyone or anything when purchasing caffeinated products, and are only looking for something tasty and satisfying (see Figure 9).

"Health Nuts", the fourth segment, consists of more females than any other group. This group also fell within the age range 18-34, but was on the younger side when calculating the average age of the group. The attributes rated very important by this group were *heath benefits*, *taste*, *quality of product*, and *time of day*. *Popularity among friends* and *brand name* are very unimportant to this group (see Figure 8). This segment is looking for a caffeinated product that tastes good and provides them with some sort of health benefits, not a caffeine kick. This group would be the most likely to consume tea or coffee. This group believes that consuming too much caffeine is very unhealthy, and mixing caffeine with alcohol has dangerous effects. They pay attention to how much caffeine is in the drinks that they consume more than any other segment. TV advertisements, peers, and celebrity endorsements are the very ineffective on this group. Like the other segments, "Health Nuts" are very unlikely to drink caffeine at night, which makes sense because they are not drinking these products in order to stay up late (see Figure 9).

The fifth segment, the "Caffeine Fiends", included slightly more females than males and was the oldest segment found. *Caffeine content* was more important in this segment than in any other segment. *Taste* and *quality of product* were also rated very important in this segment, much like the other segments. The attributes rated least important were *popularity among friends* and *packaging*. This group seems to purchase caffeinated beverage strictly for the caffeine content, and would be more

likely to purchase energy drinks or coffee, as those drinks contain the most caffeine. This group also said *whether they had an exam* was very important in their decision to purchase caffeine, emphasizing that the group drinks caffeine strictly for the benefits it provides to late-night studiers (Figure 8). When asked if they were addicted to caffeine, this group was neutral overall, while other groups disagreed strongly. While this group may be addicted, they believe that consuming too much caffeine can be unhealthy. This group was also less opposed to mixing caffeine with alcohol than most of the other segments. Promotions and discounts are the least important to this group, and price is not an important factor for this group. This segment was also the most likely of all segments to purchase products with caffeine strictly for the effects of caffeine (see Figure 9).

A positioning analysis was used to analyze how different caffeinated products are perceived among University of New Hampshire students. This analysis is useful when coming up with decisions with how to fix products and how to market to consumers. To perform a positioning analysis of caffeinated products on the University of New Hampshire campus, consumers were asked to rank how they felt different caffeinated products performed on certain attributes on a scale of 1 to 5, with 1 being "Poor" and 5 being "Excellent". These attributes were *caffeine content (how much caffeine the product contains)*, *freshness of the product*, *health benefits*, *taste*, *popularity among friends*, *convenient location*, *brand name*, *availability of product in stores*, *price*, *quality of product*, and *packaging.* This was done for four types of caffeinated products: coffee, caffeinated tea, soft drinks, and energy drinks. The positioning analysis shows how different caffeinated products compare to their competitors in the category on the above attributes.

As seen in the positioning map in Figure 10, the caffeine types that are perceived as the most similar overall are coffee and soft drinks, because they are the closest distance from each other on the map. The most dissimilar types of caffeinated products are soft drinks and tea, because they are

the greatest distance from each other than any other type on the map and are in opposite vectors. The most important attributes are shown on the map as the longest vectors, and these are *brand name*, *availability of product in stores*, *price*, *taste*, and *health benefits*. The least important attributes, the shortest vectors on the map, are *popularity among friends* and *packaging*. The horizontal axis is labeled "Health Benefits" because the *health benefits* attribute was the longest vector closest to the axis, and because *freshness of the product*, *quality of product*, and *caffeine content* pertain to the health benefits of caffeine, and all fall close to the vector. Coffee and tea perform best on this axis. The vertical axis is labeled "Price" because the attribute *price* is the longest vector close to that axis. Coffee and soft drinks perform better on this axis than tea and energy drinks. The total variance explained by the horizontal axis on the map is 31.5 percent. 50.3 percent of the variance is explained by the vertical axis, with 81.8 percent total variance explained.

Soft drinks are perceived as performing best on the attributes *convenient location*, *availability of product in stores*, *brand name*, and *packaging*. This is determined by drawing a perpendicular line from the brands to the attribute vectors on the perceptual chart. In these instances, soft drinks were further along the line on these specific vectors as compared to all competitors, meaning soft drinks are perceived as being stronger than competitors who are closer to the origin on certain attributes. Soft drinks are perceived as performing worse than coffee and tea on the attributes *price*, *taste*, *quality of product*, *freshness of the product*, and *health benefits*. Soft drinks perform worse than energy drinks on *caffeine content*, and about the same as energy drinks on *popularity among friends*.

Tea performs the best on *health benefits*, *freshness of the product*, and *quality of product*. Coffee and tea perform about the same on price and taste, but tea performs worse on packaging, availability of product in stores, convenient location, brand name, popularity among friends, and caffeine content. Energy drinks perform best on caffeine content, and better than coffee on popularity among friends

and brand name. Energy drinks perform worse than coffee on all other attributes, and worse than

tea on *packaging*, *price*, *taste*, *quality of product*, *freshness of the product*, and *health benefits*.

Discussion

Overall, University of New Hampshire students seem to understand the health benefits and

concerns of caffeine, and are not influenced by the media or their peers when making caffeine

purchase decisions. Students are very price-sensitive when it comes to purchasing caffeinated

beverages, and the majority of students spend $2.00 or less on caffeinated products daily. According

to the positioning map, the most important attributes for UNH students when buying caffeinated

products are *brand name*, *availability of product in stores*, *price*, *taste*, and *health benefits*. The findings suggest

that coffee is the most popular caffeinated beverage on the UNH campus because it performs well

on the attributes *price*, *taste*, and *quality*, which were found to be important attributes overall among

all the University of New Hampshire student population. Coffee is also one of the most readily

available products on campus, and is a health-conscious decision. Dunkin' Donuts in the MUB was

found to be the most popular location on campus to purchase coffee, and this makes sense because

it is a very convenient location on campus, and University of New Hampshire students find the

attribute *convenient location* important. About 80 percent of UNH coffee drinkers purchase coffee at

UNH Dining establishments (Zeke's Café, Philbrook Café, Union Court, Albert's Café, the Dairy

Bar, and Gables Café), which shows that UNH retail locations are doing well overall in attracting

students to their products. I believe this is due to their convenient location, reasonable prices, and

the fact that many students have Dining Dollars that can be spent at these locations. Surprisingly,

coffee did not perform best on any attribute in the positioning analysis as compared to other types

of caffeine, which is an interesting finding for such a popular beverage on campus.

Convenient location seems to play an important role in where different colleges purchase caffeine, as seen in the crosstab of *What college or school are you enrolled in?* by *Where do you buy coffee on campus?* (see Figure 11). For example, Albert's Café, located in Kingsbury (the engineering building), is most popular among Engineering and Physical Sciences students. Health benefits also seem to be an important factor in caffeine choice among UNH students, as sixty-one percent of all UNH caffeine consumers purchase tea, which performs best on the attribute *health benefits*.

Caffeine intake seems to be more closely correlated with performing school-related tasks than with socializing and partying. Forty-five percent of UNH caffeine drinkers consume one caffeinated product per day, and about 82 percent of students do so in order to feel more awake. Of UNH students that do consume caffeine, most students do so for seemingly school-related purposes, such as for increased energy throughout the day, to be more alert, to be more productive, to stay up late, and to help with concentration. Surprisingly, less than ten percent of students consume caffeine to enhance the effects of alcohol, and less than 15 percent use it to lessen the effects of a hangover. In regards to caffeine addiction on campus, less than half of UNH students surveyed consume caffeine in order to satisfy a craving, which implies that about the same amount of students are addicted to caffeine. Overall, UNH students disagreed somewhat when asked if they were addicted to caffeine.

Of the students that consume energy drinks, most purchase from Zeke's Café in the University of New Hampshire's Dimond Library. This emphasizes the linkage between caffeine usage and studying, which is a popular trend among UNH students. Union Court, in the MUB, is another popular place to buy energy drinks on campus, and this is also a popular study area on campus. Of all energy drink brands on the University of New Hampshire campus, Red Bull is the clear winner, with only 5 percent of UNH energy drink consumers not purchasing this brand. This is

most likely due to Red Bull's brand recognition and campus marketing efforts, but also in large part due to the availability of Red Bull on the UNH campus. Along with being offered at most convenience stores and coffee shops in Durham, Red Bull is offered at almost all UNH Dining locations, where students are given the option to mix their Red Bull drink with various flavor shots, making it more appealing to those students who would otherwise not consume energy drinks. A participant in one focus group conducted on the University of New Hampshire campus stated that she "is more apt to buy Red Bull from UNH Dining locations because of the promotions offered there, like a free flavor shot with any Red Bull purchase." Although more costly than its energy drinks competitors, Red Bull has been given the advantage on campus with its availability, as the University of New Hampshire has responded to the demand for this product with promotions and advertisements.

Another key finding in the study was that caffeinated products that were not typically classified as beverages were significantly less popular among UNH students than those caffeinated products that were classified as beverages. Energy shots, caffeine pills, and caffeinated gum were the three least popular caffeinated products on campus. I believe that caffeinated beverages (energy drinks, coffee, tea, and soft drinks) perform better on the attributes *convenient location*, *taste*, and *popularity*, and that is what UNH students are looking for in their purchases. Students also may be more cautious when consuming something that is not as popular with the majority of their peers, and may feel more comfortable consuming beverages because they know their effects and fell that they are safe. College students also seem to enjoy drinking caffeinated beverages because it can more of social thing and is not too expensive, which may not apply for the products that are not beverages.

The positioning and segmentation analyses can be used to match segments of consumers to types of caffeinated products offered on campus. "Best of the Best Drinkers" find *convenient location*, *quality of product*, and *taste* important in their caffeinated product choice. This segment would prefer soft drinks for their convenience, but also coffee for its better performance on *quality of product* and *taste*. "Value Seekers" look for *price* when choosing a caffeinated beverage. Coffee and tea perform best on the *price* attribute, so this segment would prefer either coffee or tea. "Individualists" find only *taste* and *quality of product* very important, and find the attributes *popularity*, *brand name*, *packaging*, and *caffeine content* unimportant in their purchase decision. This segment would most likely favor coffee or tea over soft drinks and energy drinks, as tea and coffee perform better on *taste* and *quality of product*, and worse on all of the attributes "Individualists" find less important. "Health Nuts" would definitely favor tea over all other caffeine types, as they find *health benefits* very important and tea performs best on that attribute. "Health Nuts" also found *taste* and *quality of product* important in their caffeine choice, and tea performs best on both of those as well. The last segment, "Caffeine Fiends" found *caffeine content* more important than any other segment, so energy drinks would be a good choice for this group. This segment also found *taste* and *quality of product* important, as did all of the other segments, so it would be likely that this group enjoys coffee and tea as well.

Conclusion and Recommendations

The research findings suggest that students' decision of whether to buy caffeine is not affected by promotions. When students want or need caffeine, they are going to get it, discount or not. The decision that is more likely to be influenced is what type of caffeine, and furthermore what brand, students decide to purchase. According to my the findings of the study, stores on campus can influence students' decision of what type of caffeine to buy by offering at least a 50 percent discount on new products to attract students who would otherwise stick to the same type or brand of

caffeine. Coupon books, which are distributed around campus every semester, are an effective way to raise awareness of new stores as well as to entice students to purchase for a percentage off. This would be especially effective for new stores on campus, who may not have as much brand recognition as the leader, Dunkin' Donuts. Free samples and coupons may help energy drink brands to compete with the current leader in the energy drink market, Red Bull. Red Bull has a very strong brand name, and students are familiar with its taste and caffeine content. Other energy drinks brands should offer coupons or free samples of the product, as students will be more likely to buy after they have tried it, or have an incentive to buy.

Less than half of the tea drinkers on the UNH campus purchase caffeinated tea at coffee shops, and a large percentage of student tea drinkers do not purchase caffeinated tea products on campus at all. I feel that this is an untapped market for retail locations on campus, as the trend toward health conscious products is growing. Stores on campus can take advantage of this by advertising their tea products as caffeinated, healthy, and tasty and persuading students into buying by giving out free samples. Advertising tea as containing caffeine while being healthy may convince students to choose tea as alternative to coffee or energy drinks when studying.

Retail locations on campus can also market their products towards specific segments on campus, whose preferences align with their product offerings. Coffee stores on campus should focus their marketing efforts on ""Best of the Best Drinkers", "Value Seekers", and "Individualists", who find *quality of product* and *taste* the most important attributes in caffeinated product choice. "Best of the Best Drinkers" respond well to promotions and discounts, but they consider themselves brand loyal to specific caffeinated beverages, and typically consume the same type of caffeinated product. The media is not effective in persuading this group to buy certain caffeinated products, so TV commercials and celebrity endorsements could not be effective. This segment would be likely to be

the daily Starbucks customer, who wants the taste and quality, but responds well to the promotions and rewards program that Starbucks has for its loyal customers. "Value Seekers" will not buy a caffeinated product at any price, and therefore will respond well to discounts. This group does not pay attention to how much caffeine is in the drinks that they consume, and do not consider themselves to be addicted to caffeine. Stores should promote low prices and advertise specials to this segment. "Individualists" are focused on taste, but also want a good deal when purchasing a caffeinated beverage. This group is the least influenced by the media, peers, and TV ads. To effectively target this segment, stores need to advertise a tasty product and offer free samples or discounts in-store. Those stores who sell tea should target the "Health Nuts" segment, who look strictly for *health benefits* in caffeinated products. "Health Nuts" drink caffeinated products for these benefits, so advertising the health benefits of tea products available would be very effective. This segment is not purchasing caffeine in order to stay up late and is not affected by the media in their caffeine purchase decisions. Tea brands should also try to capture the "Value Seekers" and "Individualists" segments, who find *price*, *taste*, and *quality of product* to be important in their purchase decision. Energy drink retailers should focus on advertising to "Caffeine Fiends", who find *caffeine content* more important than any other segment. This group would respond well to promotions around exam weeks, as they purchase caffeinated beverages in order to stay up late and study. Promotions and discounts are the least important to this group, and price is not an important factor for this group. Instead of offering discounts, energy drinks should market new products to this segment with advertisements focusing caffeine and how it affects the life of college students. Stores who sell soft drinks should direct their promotions towards "Best of the Best Drinkers", who look for convenient location, quality of product, and taste in their caffeinated product choice.

Lastly, the major situations in which UNH students feel the need for a caffeinated products include when they did not get enough sleep the night before, before driving long distances, before

studying for an exam, and while doing homework. Retail locations in the Durham area should focus on these occasions in their advertising messages and promotions. Some ideas for this include promotions during midterm and finals week, as well as before students make the long trip home at the end of the semester. Retail locations need to understand the different segments within the UNH campus in order to more effectively market their products to UNH students.

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Figures

Figure 1

Respondents grouped by college.
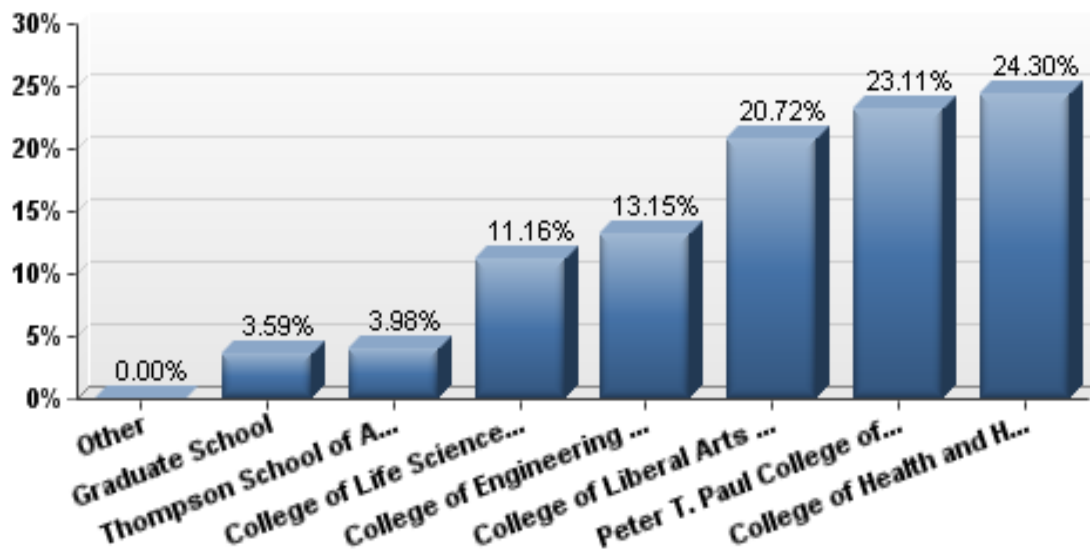
Figure 2

Graph of *On average, how much do you spend per day on caffeinated products?*
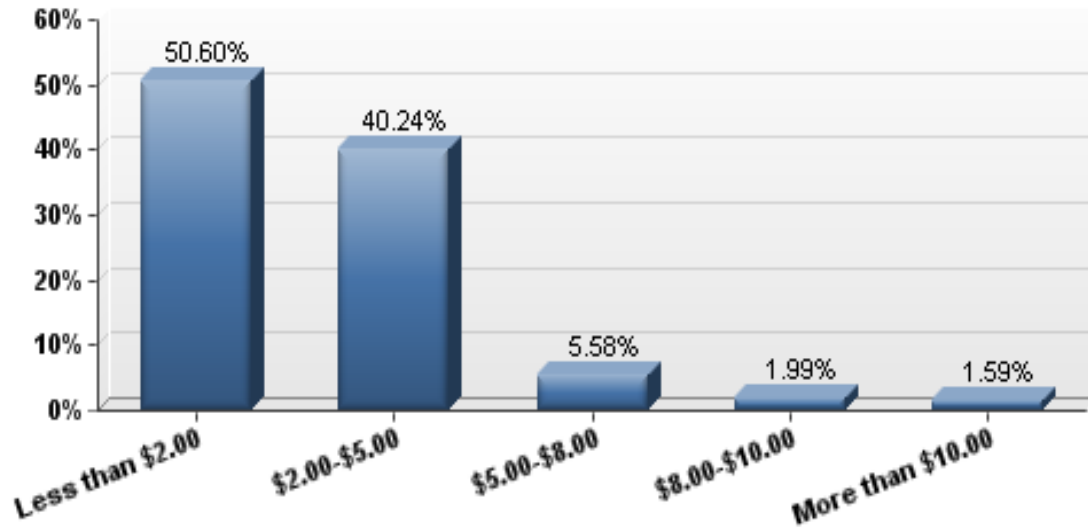
Figure 3

Graph of *Which of the following caffeinated products do you consume? (Check all that apply)*
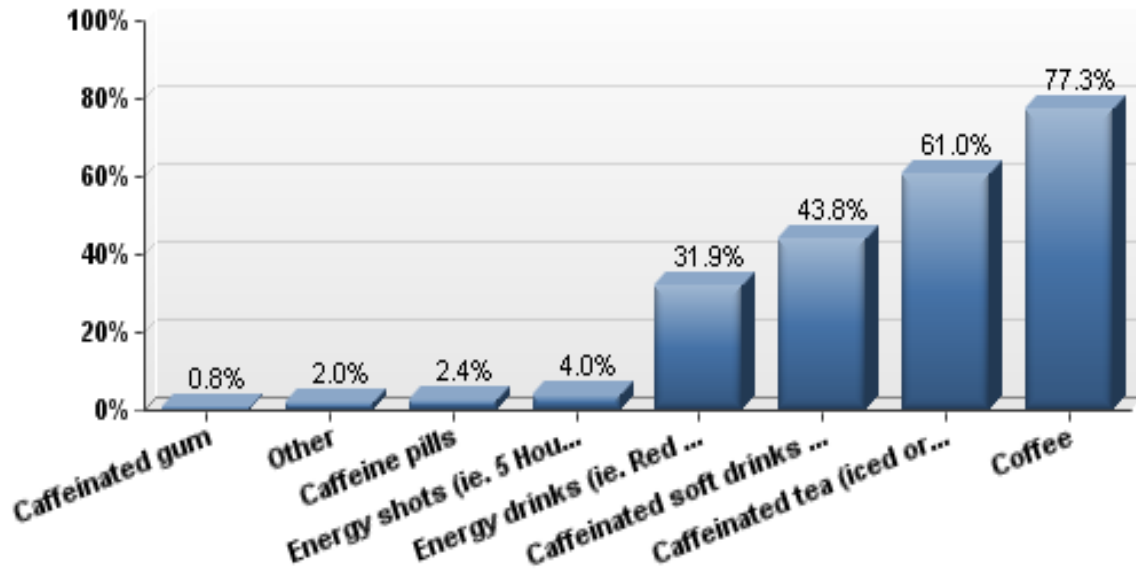
Figure 4

Graph of *Which caffeinated soft drink brands do you purchase on campus?*
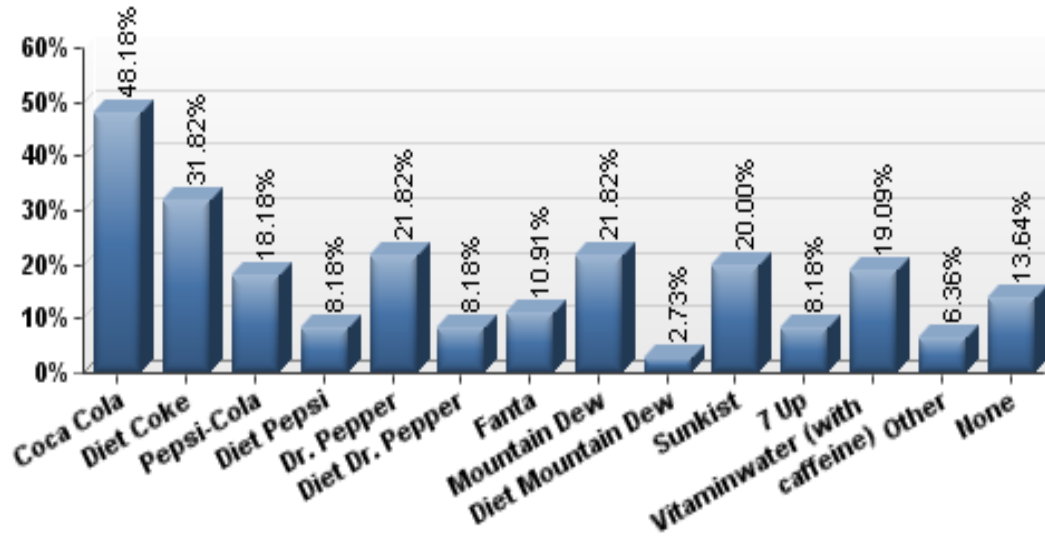
Figure 5

Graph of *How many caffeinated products do you consume in a typical day?*
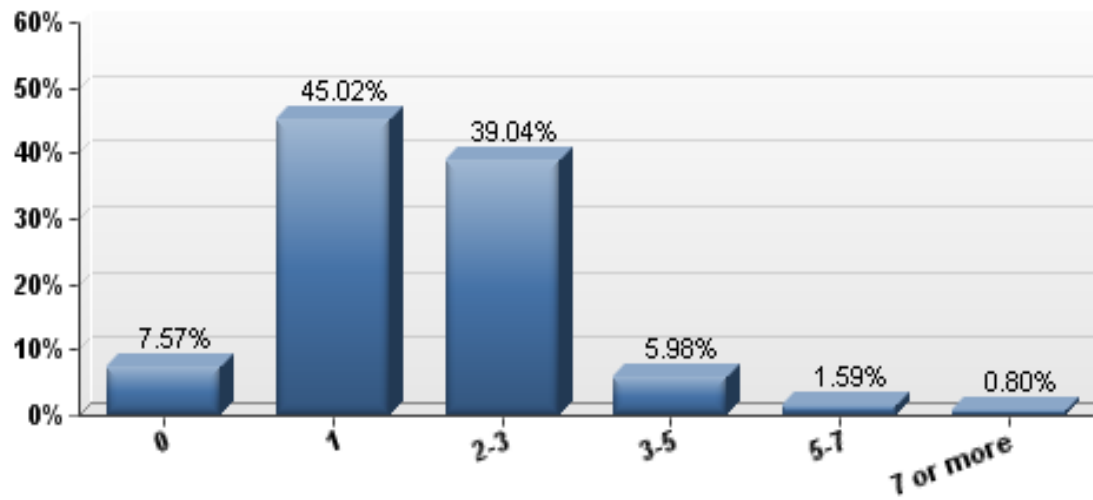
Figure 5

Figure 6

Dendogram from Segmentation Analysis.
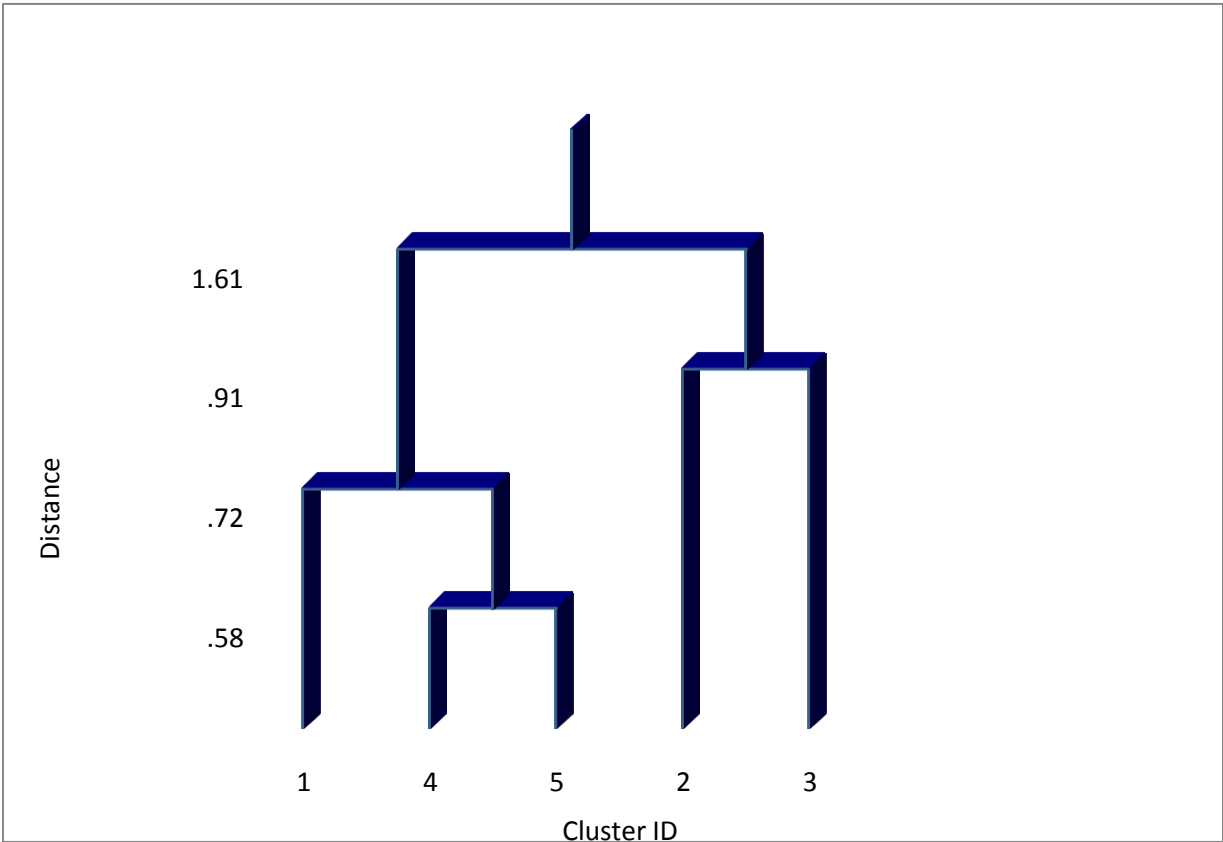
Figure 7

Cluster Sizes of segments found in Segmentation Analysis.

Cluster Sizes						
The following table lists the size of the population and of each segment, in both absolute and relative terms.						
Size / Cluster	Overall	Best of the Best Drinkers	Value Seekers	Individualists	Health Nuts	Caffeine Fiends
Number of observations	251	47	52	26	79	47
Proportion	1	0.187	0.207	0.104	0.315	0.187

Figure 9

Segmentation analysis output, showing means of each discrimination variable for each segment.

Discriminant variable / Cluster	Overall	Best of the Best Drinkers	Value Seekers	Individualists	Health Nuts	Caffeine Fiends
Discriminant Variables						
Means of each discriminant variable for each segment.						
Observations / Discrimination Variables	126	*69.66*	99.538	148.846	151	156.957
Your peers influence which type of caffeine you consume	1.586	2.085	1.615	1.115	1.481	1.489
Promotions and discounts are important to you when choosing a caffeinated beverage	2.908	3.404	2.885	2.654	2.937	2.532
You consider yourself brand loyal to specific caffeinated beverages	3.203	3.702	3.269	2.885	2.962	3.213
TV advertisements are effective in persuading you to buy certain caffeinated products	1.649	1.957	1.788	1.077	1.532	1.702
The media and celebrity endorsers influence which type of caffeine you prefer	1.45	1.766	1.442	1.192	1.291	1.553
If you need caffeine, you will buy a caffeinated product at any price	2.414	2.851	2.385	2.192	2.203	2.489
You will go out of your way to purchase your favorite brand of caffeinated product	2.701	3.128	2.673	2.538	2.582	2.596
You drink caffeinated products mostly late at night	1.884	1.957	2	1.615	1.709	2.128
You buy products with caffeine strictly for the effects of caffeine	2.853	3.17	2.462	2.192	2.861	3.319
The benefits of consuming caffeine outweigh the risks	2.972	3.106	2.577	2.692	3.025	3.34
You need caffeine to function throughout the day	2.454	2.681	2.192	1.885	2.481	2.787
You are addicted to caffeine	2.59	2.745	2.135	2.308	2.646	3
You always go to the same store to get caffeinated products	2.857	3.319	2.615	2.615	2.823	2.851
Price is the most important factor for you in caffeine product choice	2.697	2.787	2.5	2.462	2.899	2.617
You don't pay attention to how much caffeine is in the drinks you consume	3.032	3.043	3.288	3.231	2.747	3.106
Consuming too much caffeine is unhealthy	4.195	4.149	4.192	3.923	4.354	4.128
Mixing caffeine with alcohol is very dangerous	3.841	3.83	3.846	3.577	4.025	3.681
You always consume the same type of caffeine	3.51	3.681	3.365	3.615	3.519	3.426
On average, how much do you spend per day on caffeinated products?	1.637	1.66	1.654	1.538	1.532	1.83
What college or school are you enrolled in?	3.721	4.809	4.288	3	3.139	3.383
Class Year	3.116	2.702	2.769	3.385	3.203	3.617
Age Range	2.367	2.17	2.25	2.538	2.392	2.553
At what age did you start consuming caffeine?	3.347	3.553	2.808	2.923	3.633	3.489
Gender	1.737	1.745	1.712	1.577	1.835	1.681

Figure 10

Positioning map created from Positioning Analysis.
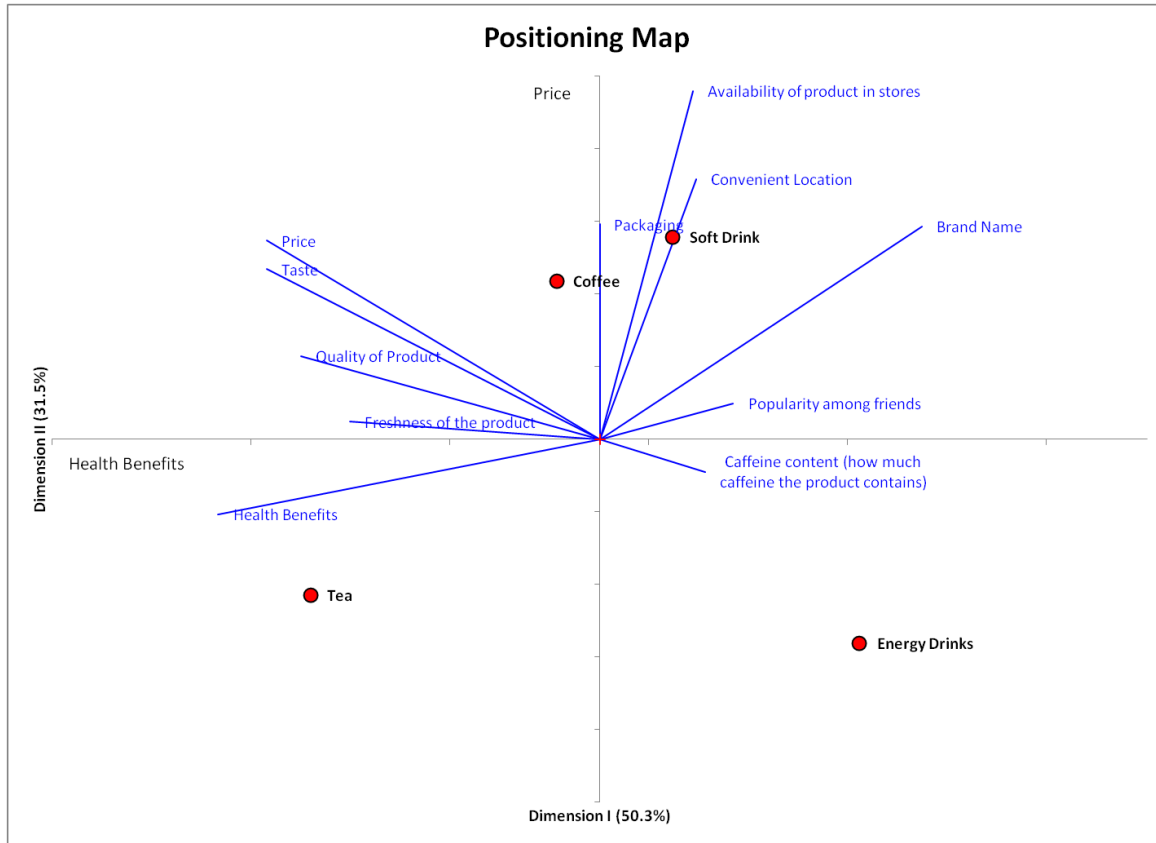
Figure 11

Crosstab of *What college or school are you enrolled in?* by *Where do you buy coffee on campus?*

| | What college or school are you enrolled in? | | | | | | | | |
Where do you buy coffee on campus? (Check all that apply)	College of Engineering and Physical Sciences (CEPS)	College of Health and Human Services (CHHS)	College of Liberal Arts (COLA)	College of Life Sciences and Agriculture (COLSA)	Graduate School	Thompson School of Applied Science	Peter T. Paul College of Business and Economics	Other	Total
Dunkin' Donuts (at Irving)	8 / 34.78%	16 / 35.56%	15 / 35.71%	7 / 29.17%	1 / 14.29%	0 / 0.00%	14 / 31.11%	0 / 0.00%	61 / 31.44%
Dunkin' Donuts (in the MUB)	10 / 43.48%	26 / 57.78%	32 / 76.19%	19 / 79.17%	0 / 0.00%	3 / 37.50%	30 / 66.67%	0 / 0.00%	120 / 61.86%
Aroma Joe's	7 / 30.43%	18 / 40.00%	14 / 33.33%	9 / 37.50%	0 / 0.00%	4 / 50.00%	24 / 53.33%	0 / 0.00%	76 / 39.18%
The Coffee Station (The Hut)	2 / 8.70%	6 / 13.33%	9 / 21.43%	2 / 8.33%	0 / 0.00%	0 / 0.00%	9 / 20.00%	0 / 0.00%	28 / 14.43%
Breaking New Grounds	7 / 30.43%	22 / 48.89%	18 / 42.86%	7 / 29.17%	3 / 42.86%	3 / 37.50%	19 / 42.22%	0 / 0.00%	79 / 40.72%
Union Court	4 / 17.39%	6 / 13.33%	5 / 11.90%	3 / 12.50%	1 / 14.29%	1 / 12.50%	4 / 8.89%	0 / 0.00%	24 / 12.37%
Gables Cafe	0 / 0.00%	2 / 4.44%	4 / 9.52%	2 / 8.33%	0 / 0.00%	0 / 0.00%	4 / 8.89%	0 / 0.00%	12 / 6.19%
Albert's Cafe	13 / 56.52%	1 / 2.22%	1 / 2.38%	1 / 4.17%	1 / 14.29%	0 / 0.00%	3 / 6.67%	0 / 0.00%	20 / 10.31%
Philbrook Cafe	5 / 21.74%	5 / 11.11%	9 / 21.43%	3 / 12.50%	0 / 0.00%	0 / 0.00%	4 / 8.89%	0 / 0.00%	26 / 13.40%
Zeke's Cafe	4 / 17.39%	12 / 26.67%	8 / 19.05%	7 / 29.17%	0 / 0.00%	1 / 12.50%	7 / 15.56%	0 / 0.00%	39 / 20.10%
Wildcattessen	1 / 4.35%	6 / 13.33%	5 / 11.90%	1 / 4.17%	0 / 0.00%	0 / 0.00%	6 / 13.33%	0 / 0.00%	19 / 9.79%
The Dairy Bar	1 / 4.35%	5 / 11.11%	2 / 4.76%	1 / 4.17%	1 / 14.29%	3 / 37.50%	2 / 4.44%	0 / 0.00%	15 / 7.73%
The Works	1 / 4.35%	8 / 17.78%	3 / 7.14%	3 / 12.50%	2 / 28.57%	2 / 25.00%	3 / 6.67%	0 / 0.00%	22 / 11.34%
Wild Child Express (outside of Horton)	9 / 39.13%	1 / 2.22%	7 / 16.67%	5 / 20.83%	2 / 28.57%	0 / 0.00%	9 / 20.00%	0 / 0.00%	33 / 17.01%
Higher Grounds coffee cart (near Spaulding)	5 / 21.74%	17 / 37.78%	10 / 23.81%	10 / 41.67%	4 / 57.14%	1 / 12.50%	4 / 8.89%	0 / 0.00%	51 / 26.29%
RRRamon's Food & Coffee cart (outside of Horton)	4 / 17.39%	5 / 11.11%	9 / 21.43%	3 / 12.50%	0 / 0.00%	0 / 0.00%	15 / 33.33%	0 / 0.00%	36 / 18.56%
Other	1 / 4.35%	2 / 4.44%	1 / 2.38%	1 / 4.17%	0 / 0.00%	1 / 12.50%	3 / 6.67%	0 / 0.00%	9 / 4.64%
I do not purchase coffee on campus	1 / 4.35%	2 / 4.44%	1 / 2.38%	1 / 4.17%	2 / 28.57%	2 / 25.00%	1 / 2.22%	0 / 0.00%	10 / 5.15%
Total	23 / 100.00%	45 / 100.00%	42 / 100.00%	24 / 100.00%	7 / 100.00%	8 / 100.00%	45 / 100.00%	0 / 100.00%	194 / 100.00%

Appendix

Appendix A

IRB Approval

University *of* New Hampshire

Research Integrity Services, Service Building
51 College Road, Durham, NH 03824-3585
Fax: 603-862-3564

14-Mar-2013

Olsen, Nicole
Marketing, Paul College
Gables Bin 1341
80 Old Farm Road
Bridgewater, MA 02324

IRB #: 5694
Study: Caffeine Consumption Habits and Perceptions Among UNH Students
Approval Date: 11-Mar-2013
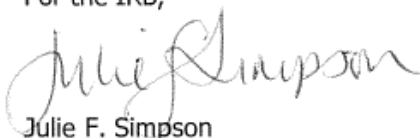
The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Expedited as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 110.

Approval is granted to conduct your study as described in your protocol for one year from the approval date above. At the end of the approval period, you will be asked to submit a report with regard to the involvement of human subjects in this study. If your study is still active, you may request an extension of IRB approval.

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.

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. 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
    Talay, Melike

Appendix B

Caffeine Consumption Habits & Perceptions Among UNH Students

Q1   This survey is a research component for the honors thesis being done by Nicole Olsen, who is a student at the University of New Hampshire. This study will present minimal risk to you, as all research presents some degree of risk. The purpose of this research is to understand and analyze the caffeine consumption habits and perceptions among UNH students. Although you are not anticipated to receive any direct benefits from participating in this study, the benefits of the knowledge gained are expected to be for the UNH community as a whole if as this study could benefit local stores in finding their target market among UNH college students, or in understanding the college student demographic to better market their products to the right consumers.   The survey will reach about 100 participants. Only the researcher and her advisor will have access to the data and the data will be reported in an aggregate format without using any names; in other words, participants will remain anonymous. The following survey should take about ten minutes to complete. If you would prefer not to participate, you may simply exit the web browser. You may stop participating at any time. Your responses are anonymous; therefore, you should not include any identifying information on this survey. We ask that you try to answer all questions. However, if there are any questions that you would prefer to skip, simply leave the answer blank. You must be at least 18 years old to participate. If you are not 18 or older, please do not complete the survey. Contact Information: Research Director Nicole Olsen 508-631-9978 nln28@unh.edu   Research Advisor Dr. Billur Akdeniz 603-862-0751 billur.akdeniz@unh.edu   The University of New Hampshire's Institutional Review Board for the Protection of Human Subjects in Research has approved the use of human subjects in this study. If you have questions about your rights as a research subject you can contact Dr. Julie Simpson in UNH Research Integrity Services, 603-862-2003 or Julie.simpson@unh.edu to discuss them.

Q2 Do you attend the University of New Hampshire (Durham campus)?
○   Yes (1)
○   No (2)
If No Is Selected, Then Skip To End of Survey

Q3 Do you consume caffeine?
○   Yes (1)
○   No (2)
If No Is Selected, Then Skip To End of Survey

Q4 When buying caffeinated products (ie. coffee, tea, soft drinks, energy drinks), how important are each of the following factors?

	Not at all Important (1)	Very Unimportant (2)	Somewhat Unimportant (3)	Somewhat Important (4)	Very Important (5)	Extremely Important (6)
Caffeine content (how much caffeine the product contains) (1)	○	○	○	○	○	○
Freshness of the product (2)	○	○	○	○	○	○
Health benefits (3)	○	○	○	○	○	○
Taste (4)	○	○	○	○	○	○
Popularity among friends (5)	○	○	○	○	○	○
Convenient location (6)	○	○	○	○	○	○
Brand name (7)	○	○	○	○	○	○
Availability of product in stores (8)	○	○	○	○	○	○
Price (9)	○	○	○	○	○	○
Quality of product (10)	○	○	○	○	○	○
Packaging (11)	○	○	○	○	○	○
Whether you have plans for the night (12)	○	○	○	○	○	○
Whether you have an exam (13)	○	○	○	○	○	○
The time of day (ie. morning or night) (14)	○	○	○	○	○	○

Q5 In your opinion, how does coffee rate on the following attributes?

	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Caffeine content (how much caffeine the product contains) (1)	❍	❍	❍	❍	❍
Freshness of the product (2)	❍	❍	❍	❍	❍
Health benefits (3)	❍	❍	❍	❍	❍
Taste (4)	❍	❍	❍	❍	❍
Popularity among friends (5)	❍	❍	❍	❍	❍
Convenient location (6)	❍	❍	❍	❍	❍
Brand name (7)	❍	❍	❍	❍	❍
Availability of product in stores (8)	❍	❍	❍	❍	❍
Price (9)	❍	❍	❍	❍	❍
Quality of product (10)	❍	❍	❍	❍	❍
Packaging (11)	❍	❍	❍	❍	❍

Q6 In your opinion, how do caffeinated tea products rate on the following attributes?

	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Caffeine content (how much caffeine the product contains) (1)	❍	❍	❍	❍	❍
Freshness of the product (2)	❍	❍	❍	❍	❍
Health benefits (3)	❍	❍	❍	❍	❍
Taste (4)	❍	❍	❍	❍	❍
Popularity among friends (5)	❍	❍	❍	❍	❍
Convenient location (6)	❍	❍	❍	❍	❍
Brand name (7)	❍	❍	❍	❍	❍
Availability of product in stores (8)	❍	❍	❍	❍	❍
Price (9)	❍	❍	❍	❍	❍
Quality of product (10)	❍	❍	❍	❍	❍
Packaging (11)	❍	❍	❍	❍	❍

Q7 In your opinion, how do caffeinated soft drinks (ie. Pepsi, vitamin and caffeine enhanced water) rate on the following attributes?

	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Caffeine content (how much caffeine the product contains) (1)	❍	❍	❍	❍	❍
Freshness of the product (2)	❍	❍	❍	❍	❍
Health benefits (3)	❍	❍	❍	❍	❍
Taste (4)	❍	❍	❍	❍	❍
Popularity among friends (5)	❍	❍	❍	❍	❍
Convenient location (6)	❍	❍	❍	❍	❍
Brand name (7)	❍	❍	❍	❍	❍
Availability of product in stores (8)	❍	❍	❍	❍	❍
Price (9)	❍	❍	❍	❍	❍
Quality of product (10)	❍	❍	❍	❍	❍
Packaging (11)	❍	❍	❍	❍	❍

Q8 In your opinion, how do energy drinks (ie. Red Bull, Monster, Rockstar) rate on the following attributes?

	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Caffeine content (how much caffeine the product contains) (1)	❍	❍	❍	❍	❍
Freshness of the product (2)	❍	❍	❍	❍	❍
Health benefits (3)	❍	❍	❍	❍	❍
Taste (4)	❍	❍	❍	❍	❍
Popularity among friends (5)	❍	❍	❍	❍	❍
Convenient location (6)	❍	❍	❍	❍	❍
Brand name (7)	❍	❍	❍	❍	❍
Availability of product in stores (8)	❍	❍	❍	❍	❍
Price (9)	❍	❍	❍	❍	❍
Quality of product (10)	❍	❍	❍	❍	❍
Packaging (11)	❍	❍	❍	❍	❍

Q9 How many caffeinated products do you consume in a typical day?
- ❍ 0 (1)
- ❍ 1 (2)
- ❍ 2-3 (3)
- ❍ 3-5 (4)
- ❍ 5-7 (5)
- ❍ 7 or more (6)

Q10 Which of the following caffeinated products do you consume? (Check all that apply)
- ❑ Coffee (1)
- ❑ Caffeinated tea (iced or hot) (2)
- ❑ Energy drinks (ie. Red Bull, Monster, Rockstar) (3)
- ❑ Caffeinated soft drinks (ie. Pepsi, Coke, caffeine and vitamin enhanced water) (4)
- ❑ Energy shots (ie. 5 Hour Energy) (5)
- ❑ Caffeinated gum (6)

❑ Caffeine pills (7)
❑ Other (8) _____

Q11 For what purpose would you consume caffeine? (Choose all that apply)
❑ To feel more awake (1)
❑ For increased energy throughout the day (2)
❑ To stay up late (3)
❑ To be more social (4)
❑ To enhance the effects of alcohol (5)
❑ To lessen the effects of a hangover (6)
❑ To cure a headache (7)
❑ To satisfy a craving (8)
❑ For increased physical performance (9)
❑ To be more alert (10)
❑ To be more productive (11)
❑ To fit in with peers (12)
❑ To help with concentration or focus (13)
❑ Other (14) _____
❑ I don't consume caffeine for a specific purpose (15)

Q12 Which of the following describes a circumstance or situation in which you would consume caffeinated products?
(Choose all that apply)
❑ When you didn't get enough sleep (1)
❑ Studying for an exam (2)
❑ Driving long distances (3)
❑ Drinking with alcohol while partying (4)
❑ When hungover (5)
❑ When you have a headache (6)
❑ At work (7)
❑ Exercising or playing sports (8)
❑ Doing homework (9)
❑ On a date (10)
❑ Running errands (11)
❑ Out with friends (12)
❑ At a restaurant (13)
❑ In class (14)
❑ Other (15) _____
❑ I don't consume caffeine in any particular circumstance (16)

Answer If Which of the following caffeinated products do you consum... Coffee Is Selected

Q13 What form(s) of coffee do you purchase and consume? (Check all that apply)
- ❑ Made at home (coffee grounds, K-cups) (1)
- ❑ Coffee Shop (fresh hot coffee, iced coffee) (2)
- ❑ Store bought (pre-made coffee drinks) (3)
- ❑ Other (4) _____

Answer If Which of the following caffeinated products do you consum... Coffee Is Selected
Q14 Where do you buy coffee on campus? (Check all that apply)
- ❑ Dunkin' Donuts (at Irving) (1)
- ❑ Dunkin' Donuts (in the MUB) (2)
- ❑ Aroma Joe's (3)
- ❑ The Coffee Station (The Hut) (4)
- ❑ Breaking New Grounds (5)
- ❑ Union Court (6)
- ❑ Gables Cafe (7)
- ❑ Albert's Cafe (8)
- ❑ Philbrook Cafe (9)
- ❑ Zeke's Cafe (10)
- ❑ Wildcattessen (11)
- ❑ The Dairy Bar (12)
- ❑ The Works (13)
- ❑ Wild Child Express (outside of Horton) (14)
- ❑ Higher Grounds coffee cart (near Spaulding) (15)
- ❑ RRRamon's Food & Coffee cart (outside of Horton) (16)
- ❑ Other (17) _____
- ❑ I do not purchase coffee on campus (18)

Answer If Which of the following caffeinated products do you consum... Caffeinated tea Is Selected
Q15 What form(s) of caffeinated tea do you purchase and consume? (Check all that apply)
- ❑ Made at home (tea bags, tea mixes) (1)
- ❑ Coffee Shop (freshly made hot and iced tea) (2)
- ❑ Store bought (pre-made caffeinated tea drinks) (3)
- ❑ Other (4) _____

Answer If Which of the following caffeinated products do you consum... Caffeinated tea Is Selected
Q16 Where do you buy caffeinated tea drinks on campus? (Check all that apply)
- ❑ Aroma Joe's (1)
- ❑ The Coffee Station (The Hut) (2)
- ❑ Union Court (3)
- ❑ Gables Cafe (4)
- ❑ Albert's Cafe (5)
- ❑ Philbrook Cafe (6)
- ❑ Zeke's Cafe (7)
- ❑ Wildcattessen (8)
- ❑ The Dairy Bar (9)
- ❑ The Works (10)
- ❑ Tedeschi's (Store 24) (11)
- ❑ Campus Convenience (CampCo) (12)
- ❑ Durham Marketplace (the DUMP) (16)
- ❑ Circle K (at Irving) (13)
- ❑ Other (14) _____
- ❑ I do not purchase caffeinated tea on campus (15)

Answer If Which of the following caffeinated products do you consum... Caffeinated tea Is Selected And Where do you buy caffeinated tea drinks on campus? (Check... I do not purchase caffeinated tea on campus Is Not Selected

Q17 Which of the following caffeinated tea drink brands do you purchase on campus? (Check all that apply)
- ❑ Tazo Tea (1)
- ❑ Lipton (2)
- ❑ Nestea (3)
- ❑ Honest Tea (4)
- ❑ FUZE Iced Tea (5)
- ❑ Snapple (6)
- ❑ AriZona (7)
- ❑ Sweet Leaf (8)
- ❑ SoBe Iced Tea (9)
- ❑ Arnold Palmer (10)
- ❑ Other (11) _____

Answer If Which of the following caffeinated products do you consum... Energy drinks (ie. Red Bull, Monster, Rockstar) Is Selected
Q18 Where do you buy energy drinks on campus? (Check all that apply)
- ❑ Aroma Joe's (1)
- ❑ The Coffee Station (The Hut) (2)
- ❑ Union Court (3)
- ❑ Gables Cafe (4)
- ❑ Albert's Cafe (5)
- ❑ Philbrook Cafe (6)
- ❑ Zeke's Cafe (7)
- ❑ Wildcattessen (8)
- ❑ The Dairy Bar (9)
- ❑ The Works (10)
- ❑ Tedeschi's (Store 24) (11)
- ❑ Campus Convenience (CampCo) (12)
- ❑ Durham Marketplace (the DUMP) (16)
- ❑ Circle K (at Irving) (13)
- ❑ Other (14) _____
- ❑ I do not purchase energy drinks on campus (15)

Answer If Which of the following caffeinated products do you consum... Energy drinks (ie. Red Bull, Monster, Rockstar) Is Selected And Where do you buy energy drinks on campus? (Check all that... I do not purchase energy drinks on campus Is Not Selected
Q19 Which of the following energy drink brands do you purchase on campus? (Check all that apply)
- ❑ Monster (1)
- ❑ Red Bull (2)
- ❑ Rockstar (3)
- ❑ Amp Energy (4)
- ❑ SoBe Lifewater B-Energy (5)
- ❑ Full Throttle (6)
- ❑ NOS (7)
- ❑ Starbucks Refreshers (8)
- ❑ Other (9) _____
- ❑ I do not purchase energy drinks on campus (10)

Answer If Which of the following caffeinated products do you consum... Caffeinated soft drinks (ie. Pepsi, Coke, caffeine and vitamin enhanced water) Is Selected

Q20 Where do you buy caffeinated soft drinks (ie. Pepsi, vitamin and caffeine enhanced water) on campus? (Check all that apply)
- ❑ Union Court (1)
- ❑ Gables Cafe (2)
- ❑ Albert's Cafe (3)
- ❑ Philbrook Cafe (4)
- ❑ Zeke's Cafe (5)
- ❑ Wildcattessen (6)
- ❑ The Dairy Bar (7)
- ❑ The Works (8)
- ❑ Tedeschi's (Store 24) (9)
- ❑ Campus Convenience (CampCo) (10)
- ❑ Durham Marketplace (the DUMP) (14)
- ❑ Circle K (at Irving) (11)
- ❑ Other (12) _____
- ❑ I do not purchase caffeinated soft drinks on campus (13)

Answer If Which of the following caffeinated products do you consum... Caffeinated soft drinks (ie. Pepsi, Coke, caffeine and vitamin enhanced water) Is Selected And Where do you buy caffeinated soft drinks (ie. Pepsi, vita... I do not purchase caffeinated soft drinks on campus Is Not Selected
Q21 What type of caffeinated soft drink do you consume? (Check all that apply)
- ❑ Cola (Coca- Cola, Pepsi, etc.) (1)
- ❑ Fruit-flavored soda (Mountain Dew, orange soda, etc.) (2)
- ❑ Root beer (3)
- ❑ Caffeine enhanced water (ie. Vitaminwater) (4)
- ❑ Other (5) _____

Answer If Which of the following caffeinated products do you consum... Caffeinated soft drinks (ie. Pepsi, Coke, caffeine and vitamin enhanced water) Is Selected
Q22 Which caffeinated soft drink brands do you purchase on campus? (Check all that apply)
- ❑ Coca Cola (1)
- ❑ Diet Coke (2)
- ❑ Pepsi-Cola (3)
- ❑ Diet Pepsi (4)
- ❑ Dr. Pepper (5)
- ❑ Diet Dr. Pepper (6)
- ❑ Fanta (7)
- ❑ Mountain Dew (8)
- ❑ Diet Mountain Dew (9)
- ❑ Sunkist (10)
- ❑ 7 Up (11)
- ❑ Vitaminwater (with caffeine) (12)
- ❑ Other (13) _____
- ❑ None (14)

Answer If Which of the following caffeinated products do you consum... Energy shots (ie. 5 Hour Energy) Is Selected

Q23 Which of the following energy drink shots do you purchase on campus? (Check all that apply)
- ❑ 5 Hour Energy (1)
- ❑ 6 Hour Power (2)
- ❑ Red Bull Shot (3)
- ❑ Monster Hitman (4)
- ❑ Stacker 2 (5)
- ❑ Nitro 2 Go (6)
- ❑ Redline (7)
- ❑ Vital 4U (8)
- ❑ Other (9) _____
- ❑ None (10)

Answer If Which of the following caffeinated products do you consum... Caffeinated gum Is Selected
Q24 Which of the following caffeine gum brands do you purchase?
- ❑ Jolt Gum (1)
- ❑ Amp Energy Gum (2)
- ❑ RockStar Gum (3)
- ❑ Stay Alert Gum (4)
- ❑ GoFast! Gum (5)
- ❑ Blitz Energy Gum (6)
- ❑ Vibe Energy Gum (7)
- ❑ Other (8) _____

Answer If Which of the following caffeinated products do you consum... Caffeine pills Is Selected
Q25 Which of the following caffeine pill brands do you purchase? (Check all that apply)
- ❑ Prolab (1)
- ❑ Vivarin (2)
- ❑ Natrol High (3)
- ❑ Jet Alert (4)
- ❑ Other (5) _____

CAFFEINE CONSUMPTION HABITS AND PERCEPTIONS

Q26 Choose whether you agree or disagree with each of the statements below.

	Strongly Disagree (1)	Disag ree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
You always consume the same type of caffeine (1)	❍	❍	❍	❍	❍
Price is the most important factor for you in caffeine product choice (2)	❍	❍	❍	❍	❍
You consider yourself brand loyal to specific caffeinated beverages (3)	❍	❍	❍	❍	❍
You are addicted to caffeine (4)	❍	❍	❍	❍	❍
You always go to the same store to get caffeinated products (5)	❍	❍	❍	❍	❍
Promotions and discounts are important to you when choosing a caffeinated beverage (6)	❍	❍	❍	❍	❍
You buy products with caffeine strictly for the effects of caffeine (7)	❍	❍	❍	❍	❍
You need caffeine to function throughout the day (8)	❍	❍	❍	❍	❍
Your peers influence which type of caffeine you consume (9)	❍	❍	❍	❍	❍
You will go out of your way to purchase your favorite brand of caffeinated product (10)	❍	❍	❍	❍	❍
The media and celebrity endorsers influence which type of caffeine you prefer (11)	❍	❍	❍	❍	❍
TV advertisements are effective in persuading you to buy certain caffeinated products (12)	❍	❍	❍	❍	❍
Consuming too much caffeine is unhealthy (13)	❍	❍	❍	❍	❍
The benefits of consuming caffeine outweigh the risks (14)	❍	❍	❍	❍	❍
You drink caffeinated products mostly late at night (15)	❍	❍	❍	❍	❍
You don't pay attention to how much caffeine is in the drinks you consume (16)	❍	❍	❍	❍	❍
Mixing caffeine with alcohol is very dangerous (17)	❍	❍	❍	❍	❍
If you need caffeine, you will buy a caffeinated product at any price (18)	❍	❍	❍	❍	❍

Q27 Please indicate your gender
❍   Male (1)
❍   Female (2)

Q28 What age range do you fall into?
❍   18 and Younger (1)
❍   18 to 21 (2)
❍   22 to 34 (3)
❍   35 to 44 (4)
❍   45 to 54 (5)
❍   55 to 64 (6)
❍   65 and Over (7)

Q29 What is your current class year?
- ⭕ Freshman (1)
- ⭕ Sophomore (2)
- ⭕ Junior (3)
- ⭕ Senior (4)
- ⭕ Graduate student (5)
- ⭕ Other (6) _____

Q30 At what age did you start consuming caffeine?
- ⭕ Under 8 years old (1)
- ⭕ 8-12 years old (2)
- ⭕ 12-16 years old (3)
- ⭕ 16-18 years old (4)
- ⭕ 18-20 years old (5)
- ⭕ Over 20 years old (6)

Q31 On average, how much do you spend per day on caffeinated products?
- ⭕ Less than $2.00 (1)
- ⭕ $2.00-$5.00 (2)
- ⭕ $5.00-$8.00 (3)
- ⭕ $8.00-$10.00 (4)
- ⭕ More than $10.00 (5)

Q32 What college or school are you enrolled in?
- ⭕ College of Engineering and Physical Sciences (CEPS) (1)
- ⭕ College of Health and Human Services (CHHS) (2)
- ⭕ College of Liberal Arts (COLA) (3)
- ⭕ College of Life Sciences and Agriculture (COLSA) (4)
- ⭕ Graduate School (5)
- ⭕ Thompson School of Applied Science (6)
- ⭕ Peter T. Paul College of Business and Economics (7)
- ⭕ Other (8) _____

Appendix C

Focus Group Questions

1. What are the advantages and disadvantages of college students consuming caffeine?

2. What do you think are the three most important factors that cause you to consume caffeine?

3. Which type of caffeinated product performs best on those attributes?

4. What are the top three occasions/situations where you consume caffeinated products?

5. Which caffeinated products do you consume?

6. Where do you think is the most popular place to buy caffeinated products the UNH campus?

7. What advertisements or promotions for caffeinated products on campus affect your decision to purchase caffeine?