Student Consumption of Caffeine on Campus

Presented by: Bassem Mikhael, Christopher Loncke, Abigail Daughtrey, Prerna Agarwal, & Yong-Gyun Choi

Agenda

- Overview
- Research Questions
- Sample Size and Construction
- Survey Methodology
- Preliminary Data
- Future Work

Introduction - Research Question

- Caffeine consumption patterns at Carnegie Mellon University?
- Correlation to various factors such as GPA/activity level, etc.?
- Student perception of consumption

Reason for Survey

- Damaging health effects of excessive caffeine consumption
- Concern that students today consume large amounts of caffeine
  - Keeping up with academic workload or athletics

Our Goal

- Convince campus administrators to reconsider offering healthier drinks
- Achieve better health => hinder unnecessary motivations for caffeine consumption.

- **<u>Conclusive Goal:</u>** Provide data on patterns of caffeine consumption among undergraduates

Goal of Survey Questions

- Demographic Information
  - Year; College
  - Gender
- Academic Performance
  - Major & Minor
  - GPA and Units taken this semester
  - Time spent on class work
- Extracurricular Involvement
  - Activities
  - Part-time work
  - Leisure Time

Some more questions

- General Well-being:
  - Sleeping patterns.
  - Exercise schedule
  - What caffeine products are consumed and in what quantity?
- Student Perception:
  - Reason for consumption
  - Comfort with amount currently consumed

Sample Construction

Sample Size

- Initially we considered a 500 student non stratified sample
- Switched to stratified by year (including 5th)
- Wanted a ME of 0.1
- ME formula for stratified sample:

$$ME = 1.96 \times \sum_{h=1}^{H} W_h^2 (1 - f) \frac{S_h^2}{n_h}$$

Sample Size

- Modified the formula to include only info. we know/can estimate.

$$ME = 1.96 \times \sum_{h=1}^{H} \frac{N_n}{N}(1-f)\frac{s_h^2}{(N_n \times f)}$$

- ME = 0.1
- N_n= Population size of the strata
- N = overall population
- S_h= 2 for the question "How many servings of caffeine?" based on our group and pretesting
- f = proportion of the strata we need to sample (what we don't know)

Selecting the Sample

- When we plug the strata and overall population numbers into the equation we need

Year	Number Needed	Number Selected
Freshmen	20	120
Sophomores	18	108
Juniors	18	108
Seniors	17	102
5th Years	3	18
Total	**76**	**456**

- Assuming a (conservative) 15% response rate
- Students were randomly selected from C-Book

Survey Methodology

Google Form

- Used a Google Form to create the survey
- Responses are automatically entered into a spreadsheet for easy processing
- Modifications:
  - Changing question type to allow for multiple responses

Sample Selection

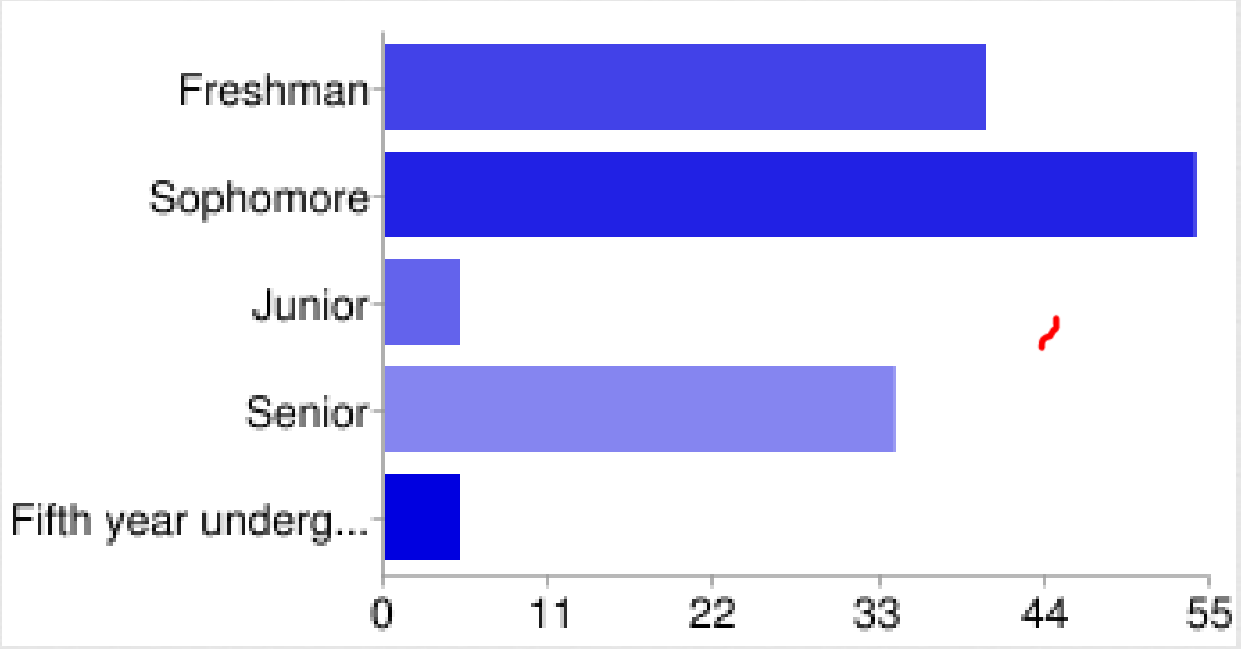
- Random Number Generator
  - First number: Page number
  - Second number: Line number on that page

- Problem of Duplication
- Master d-list created
- Composed email with link to survey
  - Included incentive description

Preliminary Data

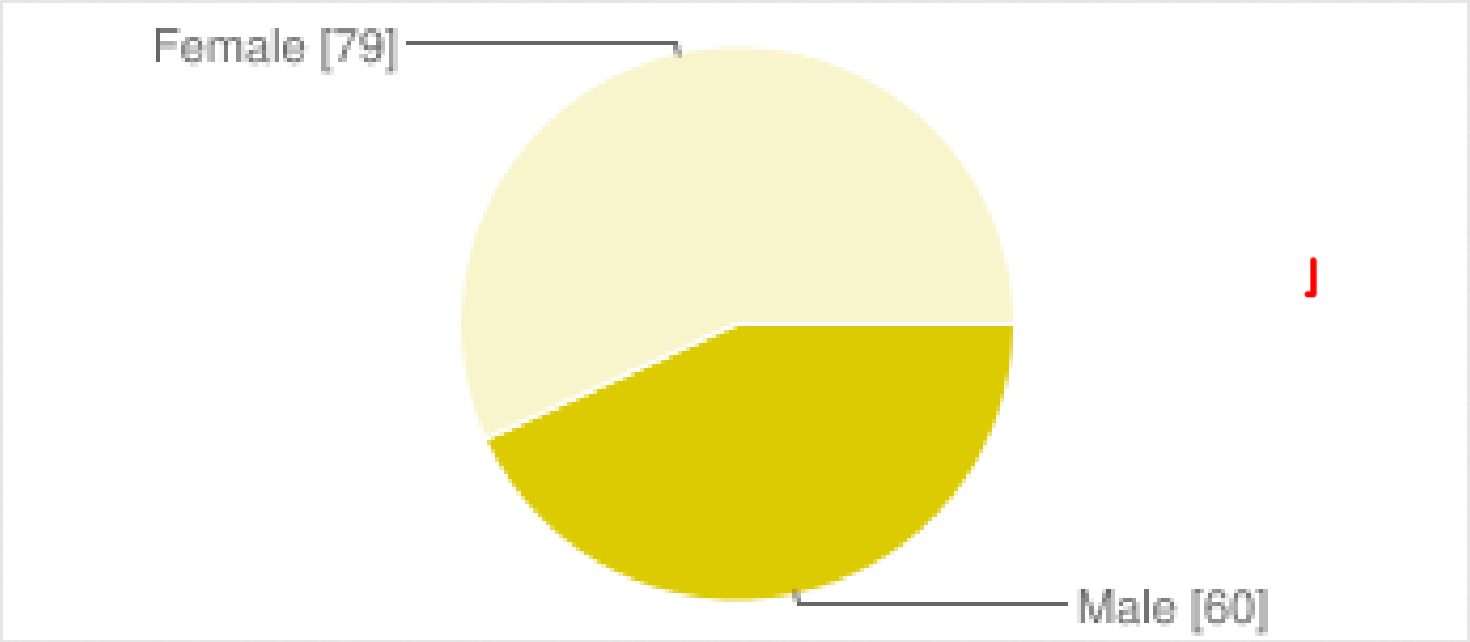
Responses So Far

- 138 Responses
- Response rate:
- **30.26%**
- $50 Incentive



- Junior Underepresentation--Redo
- Reminder Email this Week

Respondent Attributes



- Opposite of campus population
- Busy people bias

Future Work

Variables Being Measured

- Busy-ness Score
- Perception of Caffeine

- Underlying Assumptions:
  - People who are busier consume more caffeine
  - People who believe caffeine enhances performance consume caffeine

Question to be Answered:

- Is there an underlying correlation between Caffeine Consumption and Performance Enhancement?
- Do students who consume significant amounts of caffeine believe they have a problem?

Survey Analysis

great - looking forward to this in final paper

- Regression analysis
  - On caffeine consumption level
  - Determine if factors can predict caffeine consumption
- ANOVA
  - To compare classes on consumption, busy-ness, etc.
- Post-stratification
  - We did pre-stratification by classes so we will not be performing post-stratification
- Weighting
  - Considering weighting underrepresented scores
    - Sophomores negatively; Juniorspositively

Questions?