

[36-303] A Study on Students' Change of Majors, What they Choose and Why.



Oliver Lam, Michael Len, Go
Okumura, Donyang Wang,
Wentian Zhu

Our study

- Many students have considered switching majors.
- What factors cause students to stay in their major? if not transfer?
- Reasons and concerns regarding switching/retaining majors.
 - Time
 - Financial Concerns
 - Future job opportunities
 - Social influences



Our Study

- Beneficial to prospective students
- Significant addition to school statistics.



Motivation/ Research Question

We hope to explore the factors that affect a student's decision to change or retain their majors and how prevalent these factors are in the decision making process.



Our Study

- Points of Study/Measured Variables
- Existing Research
- Sampling and Target Population Details
- Questionnaire
- Current Progress
- Next Steps

Points of Study/Measured Variables

- **Quantitative:**

- The distribution of majors across the our sample size (percentage/number of students in each major).
- The percentage of students who enjoy their current major.
- The percentage of students who have changed or wish to change their major..
- The retention rates within each major/field.



Points of Study/Measured Variables

- **Categorical:**

- The main motivations that drive a student to change major.
- What keeps students stay in their current majors.
- What are the factors that have possibly stopped students from changing majors even though they have thought about it.
- The type of majors people tend to/have switched to.

- **Data Analysis**

- Counting, pattern of distribution



Existing Research

- "Survey of Major Changers", Presented by Dr. Judy Shoemaker of UC Irvine
 - Survey conducted to determine why students change majors and how easy the process is
- "Freshmen Keen to Switch Majors" - Jia Jianyu (December 27, 2010)
 - Survey regarding the high volume Chinese University students wishing to change majors



Sampling and Target Population Details

- Target Population: Carnegie Mellon Undergraduate Population
- Sampling frame: Carnegie Mellon C-Book email list (may consider social networking sites such as Facebook)
- Sampling Scheme: Stratified Random Sample without replacement (if email lists are classified by class level)

It wasn't clear from your presentation whether you really settled on SRS or stratified sampling. Which did you settle on?



Sampling and Target Population Details

- Sample Size: 1765 students (more details later)
- Mode of Data Collection: Email invitation to the online survey link we created.
 - *Note: lack of resource for a random sample through phone calls and too much time and effort through interpersonal interview.*

Sampling Size

- Total Undergrad population: 5619
- Want just sophomores, juniors, and seniors.
- Simple random survey without replacement
$$n_0 = (z^2)(SD^2)/(ME^2) = (1.96^2)(.5^2)/(.05^2) = 384.16$$
$$n > (N \cdot n_0)/(N + n_0); n > (4214 \cdot 384)/(4214 + 384) = 352.06$$
- Minimum response sample size: 353 responses
- Standard deviation: 1/2 95% CI 5% ME
- Increase minimum response sample 5 times to account for 20% response rate
- Final sample size: 1765 Students
- Additional Sampling to fix representativeness issues

Probably not. you are better working with the sample you have, and using post-stratification to fix any egregious representativeness issues...

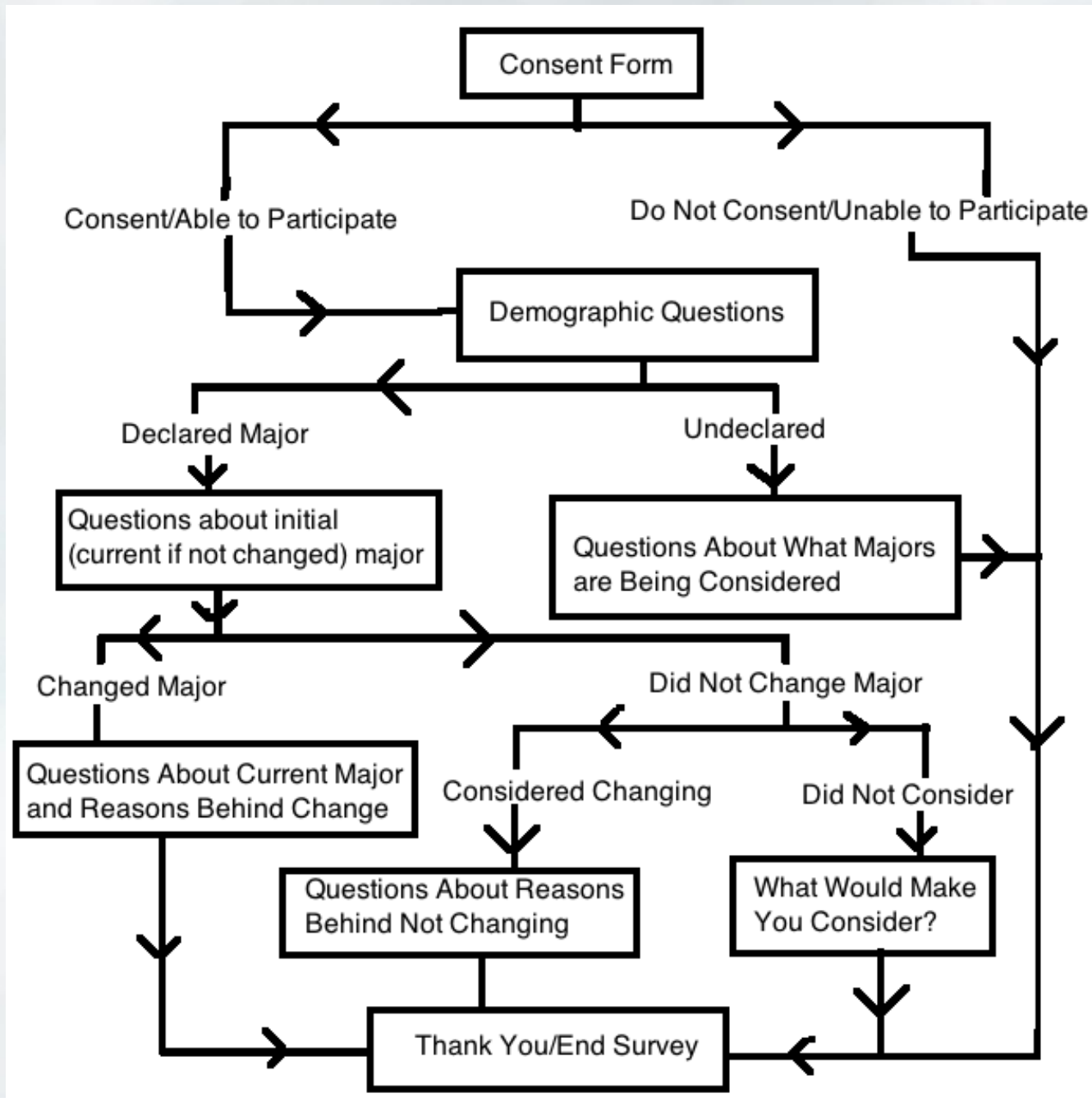


Sample Questions

- What led you to choose your current major?
- Would you pursue the field of your major in future professional career?
- Why did you leave your first major?
- Why did you choose your original major?
- What factors influenced your choice to change majors?
- Why didn't you change?
- Do you think the University should put more emphasis on major selection counseling?



Questionnaire Flowchart



Current Progress

Please indicate in your final paper that you directed survey respondents to this google forms site for the actual questionnaire

<https://spreadsheets0.google.com/formResponse?hl=en&formkey=dGJISHR5TIBKNzdHOEZKVmh5a1JLV2c6MQ&ptok=9103034>

Major Satisfaction Survey - Consent Form

* Required

Major Satisfaction Survey

What is your gender? *

- ☐ Male
- ☐ Female

What year are you? *

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior
- ☐ 5th Year Undergraduate
- ☐ Other:

What college are you in? *

- ☐ CIT
- ☐ CFA

Current Progress

- In the process of sending emails to our sample.
- Taking a longer to randomly sample than expected
 - C-Book is sorted by name, not by department or year, although that information is available
- Not enough time has elapsed to make an accurate conclusion for non-response rate.
- Some questions have been re-phrased

Next Steps

**Finish sampling &
Gathering data!**



Next Steps

- We will cut off collection near April 1, or later if we have too few responses (send one more reminder)
- Stratify our results by year after our simple random sample.
- Compare our results between year

Any Questions?

Thank you!

