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## **Info 271B Lab 1: Can we be friends?**

1) UC Berkeley prides itself on the diversity of its community and its research, and we want to know whether diversity is shown through Cal students' friendship pattern: Are students interacting with people outside their departments? Through the survey, we wanted to examine how students across different departments at Cal interact outside of class. This led us to the following question as the focus of our survey: do outgoing students have more friends in other departments?

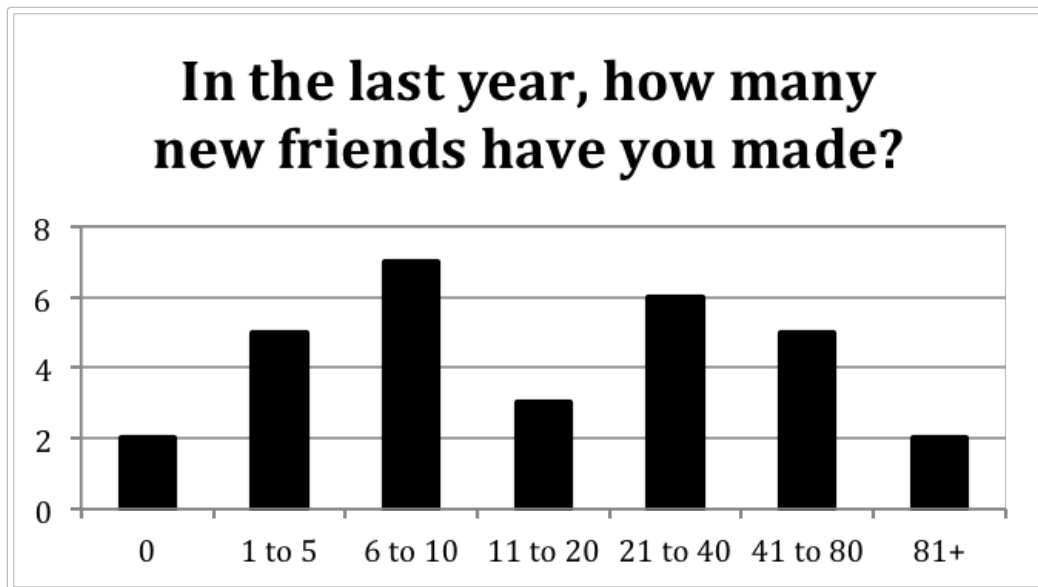
Such a question is important and interesting to understand for a number of reasons. For instance, if cross-departmental friendships and collaborations do not happen organically, then the school should make more of an effort to foster these sorts of relationships and the benefits they provide, particularly diversity of experiences and perspectives. We also found it an interesting question as a first step in understanding how student friendships form at Cal.

2) With the exception of question 3 below, we mostly used the nominal and categorical questions to learn some basic background facts about our respondents to compare with their responses to other questions. The four questions in this category that we asked were:

1. Are you an undergraduate, masters, or PhD student?
2. What year are you in your program?
3. In the last year, how many new friends have you made at Cal?
4. Do you have any friends in other departments besides your own?

We wrote questions 1 and 2 with the objective of obtaining basic background information about our respondents. In addition, we expected that friendships and social interaction might be different at different education levels and departments, and so wanted to have that information on hand to reference our other questions against. Given that all our respondents were from a graduate-level course in the School of Information, we expected to find that the majority of students would be masters students at I-School from questions 1 and 2. Indeed this was the case; of our 30 respondents, 23 were masters students from the School of Information. Five respondents were PhD students; two from I-School, one from Sociology, one from Mechanical Engineering, and one from Computer Science. Two respondents were undergraduates; one was from the Industrial Engineering Operations Research department, and the other was from the Mechanical Engineering department.

For question 3, we wanted to use a nominal question to ask about the number of friends respondents made at Cal both to explicitly assess their self-reported degree of outgoing-ness and also to implicitly look at their definition of a friend. We decided that to provide buckets (with buckets having a shorter range for smaller values) because we decided that the subjective definition of friendship would make it too complicated to distinguish between the gregariousness associated with extremely small differences in the number of new friends. However, we made our buckets smaller through the lower end of the spectrum because we expected that because of time limitations associated with student life people who had made over 20 new friends in the past year either just defined friendship more casually than others. When we wrote the question, we expected answer selections to be more biased towards the lower options, since we assumed people would define a friend in a more rigid and limiting way (and/or, that respondents wouldn't be huge social butterflies). However, the responses were actually in a somewhat bimodal distribution but overall fairly varied:



Though it is somewhat outside the scope of this question topic, the wide variety of responses to the open-ended question, “What is your definition of a friend?” fits with the distribution of the data. So, because of the subjective nature of how friendship is defined, it makes sense that the number of new friends respondents made in the past year varied. Of course, the number of new friends is also related to other factors, like how outgoing the respondent is and also their stage of life and education. For example, while the masters students varied widely in their responses and there were too few undergraduate respondents to make much of a conclusion, four out of five PhD students reported making 1-5 new friends in the past year, and one reported making 6-10 new friends in the past year.

We used question 4 mostly as a way to make our survey shorter (and, hopefully reduce satisficing in our respondents). If a respondent checked “no” in response to the question, we built our survey so that they would not be asked to list the departments in which they have friends. If a

respondent checked “yes,” we then asked an open-ended question about departments in which they have friends. So, question 4 did not provide us with any information we would not have found otherwise. We expected some respondents might not interact outside their department but the majority would, and indeed found that only 20% of our 30 respondents stated they did not have any friends outside the department. All respondents who said they did not have friends outside the department were graduate students of some variety, but considering we only had two undergraduate respondents this is not a particularly important finding.

**3)** Of the 31 total participants who took our survey, 24 had friends in departments besides their own. Taking into account different nicknames/acronyms that various participants used, there were 27 unique departments in the responses for our categorical open-ended question: engineering, business, statistics, mechanical engineering, computer science, information sciences, public policy, film studies, electrical engineering, material science, public health, optometry, biostatistics, architecture, bio-engineering, law, music, molecular biology, english, environmental design, nuclear engineering, IEOR, sociology, anthropology, math, linguistics, and economics. The average number of departments was 2.74, with the minimum = 1, maximum = 6, and standard deviation 1.45. We did not have any previous expectations for these responses; the purpose of asking the question was to discover the range and variety of departments in which people had friends.

We learned from our open, free-response question that people have a definite variety of what they consider a “friend” to be. We suspected this might be the case, which is why we included the question. Answers ranged from the very simple, such as “someone I like” to the much more complex, e.g. a detailed analysis of different categories of friends. A future version of this same survey could be improved by specifying our definition of a friend before asking the participants questions about their friends, e.g. stating that for the purposes of this study, a “friend” is pre-defined as someone you spend between 1 to two hours every week with. We could build this definition of a “friend” based on the provided free-response forms, perhaps by finding the most common response, or the most detailed response, depending on what direction we wanted to take the survey.

**4) a.** The single concept that we are trying to capture through the likert-type questions is the outgoingness of students. Using the questions, we are trying to define the concept and aspects of the concept that we care about.

b. Rationale for the response format: We chose a 7 point scale with variations from strongly disagree to strongly agree. We did not want to force the respondents to take a stand on the concepts, hence we chose a scale with odd number of response choices, allowing the users to take a neutral stand.

c.

Pair 1		Difference	Pair 2		Difference	Pair 3		Difference
Ques1 Score	Ques2 Score		Ques1 Score	Ques3 Scores		Ques2 Score	Ques3 Scores	
5	4	1	5	3	2	4	3	1
6	1	5	6	2	4	1	2	1
1	3	2	1	2	1	3	2	1
7	5	2	7	3	4	5	3	2
6	2	4	6	1	5	2	1	1
6	2	4	6	6	0	2	6	4
6	5	1	6	6	0	5	6	1
6	5	1	6	3	3	5	3	2
7	6	1	7	4	3	6	4	2
6	2	4	6	4	2	2	4	2
7	3	4	7	2	5	3	2	1
4	5	1	4	2	2	5	2	3
6	2	4	6	6	0	2	6	4
6	4	2	6	3	3	4	3	1
6	2	4	6	3	3	2	3	1
5	2	3	5	5	0	2	5	3
3	2	1	3	7	4	2	7	5
5	4	1	5	7	2	4	7	3
5	3	2	5	5	0	3	5	2
6	4	2	6	2	4	4	2	2
7	6	1	7	7	0	6	7	1
3	3	0	3	6	3	3	6	3
6	2	4	6	3	3	2	3	1
6	4	2	6	5	1	4	5	1
7	5	2	7	6	1	5	6	1
6	2	4	6	7	1	2	7	5
6	2	4	6	7	1	2	7	5
6	2	4	6	3	3	2	3	1
6	6	0	6	7	1	6	7	1
6	2	4	6	5	1	2	5	3
	Sum of differenc e	74		Sum of differenc e	62		Sum of differenc e	64
	Sum of differenc e/Maxd	0.411111111		Sum of differenc e/Maxd	0.3444444444		Sum of differenc e/Maxd	0.3555555556

	1-Sigma	0.5888888888		1-Sigma	0.6555555556		1-Sigma	0.6444444444
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d. We expected (q1) "I enjoy meeting new people" and (Q2) "I enjoy spending leisure time alone" to have the strongest interitem correlation. But it only has a score of 0.59, which means the questions are 0.59 alike. This shows positive covariance but at the same time not a very strong relationship that we were hoping for. This could be because the two questions do not measure the concept as closely as we thought. Another reason could be the sample bias introduced because of having a small sample set.

Q1 and (Q3) "In the last 4 months, I have mostly met people through friends" has a stronger interitem correlation of 0.66. This could be because people who enjoy meeting new people, probably stay friends with these new people and when they go out with their friends, they meet more new people.

Similarly, q2 and q3 hang well together too with a score of 0.64. This result maybe is due to that they are not that outgoing so that they tend to enjoy time alone, and therefore they are less likely to actively meet people, which cause them to make new friends through existing friends instead of making friends on their own.

**5)** Based on the low interitem correlation of Questions 1 and 2 of the likert-type questions, we would rephrase those questions to better measure outgoingness. Since both questions were phrased with the word "enjoy", this might have biased the responders to agree to the statement. Additionally, there people might enjoy both meeting new people and spending leisure time alone. We may rephrase the question to be directed more toward actual behavior rather than enjoyment. For example, "I often initiate conversations with others." vs. "I generally keep to myself."

Since there was a large variation in the way people defined friendship, we might define friendship more specifically next time or hone in on a specific type of interaction such as eating a meal or engaging in a non-school/work related activity.

An interesting finding was that out of the 24 students who responded the departments of their friends, 14 were in EECS and 13 were in Haas. It would be an interesting follow-up research topic to compare the inter-departmental friendships of students in EECS and Haas versus their outgoingness, to see whether outgoingness is correlated with inter-departmental friendships.

