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36-303: Sampling, Surveys and Society

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Proposal II.5a

K)

We decided to use stratified random sampling without replacement for our sampling scheme. We will stratify faculties by department within each college. This method will be appropriate since stratifying faculties by departments within each college will reflect information on how attitudes toward +/- grading will be different for different groups of faculty. Since it is not feasible to sample the whole population of spring 2010 faculties at CMU, we will randomly select one third of the professors for each department listed on the 'Schedule of Classes'. We chose this method since we want to reflect the fact that there are different numbers of faculties in each department. For departments which have 3 or less professors, we will try to sample all the professors for that department. Randomly selecting certain number of professors for each department will not accurately reflect in different opinions as professors from different departments may have different opinions. ✓

L)

Demographic Questions

Name **you do not need name, and it suggests violation of confidentiality**

Job title (assistant professor, lecturer, etc.)

Age **gender? highest degree earned?**

College and department

Years teaching (including years at institutions other than CMU)

Years teaching at CMU

Number of courses currently teaching in spring 2010 and their course title(s) or number(s)

Research Related Questions

Have you ever taught at institutions with +/- grading system?

Did you attend schools that implemented +/- grading?

- If yes, do you think it affected you GPA?

Do you have teaching assistant(s) for the course(s) you are currently teaching?

- If yes, ~~how many~~ ^{what} percentage of grading do TAs do?

Do you think +/- grading system will create more work for you or TAs for grading?

Have you implemented +/- grading at CMU (for mid-semester grades or for students' reference, etc.)

Do you think it is fair that students with average of 82 and 87 receive the same letter grade?

Have you ever bumped letter grades for students who are on the borderline between two different grades?

- What are your criteria for bumping a student's grade up? (For example, students' participation in class, continuous improvement in exams or homeworks)

Do you think +/- grading will affect students' efforts that they put into classes?

Do you think +/- grading will increase or decrease students' average GPA?

Do you think +/- grading will increase ~~or decrease~~ students' chances of getting a job?

Do you prefer grading systems other than +/- grading system or current CMU grading scheme? (For example, a scheme which only top 10% of the students gets an A)

Do you think your students in your class will prefer +/- grading system?

Opinion of the current grading system at CMU (in scale of 1(strongly disapprove) to 5 (strongly approve))

Opinion of the +/- grading system (in scale of 1(strongly disapprove) to 5 (strongly approve))

In this survey you may also want to add one open-ended question at the end of the survey, for faculty who want to give a more extended/detailed view of +/- grading.
M)

Since we are calculating our sample size under the assumption of SRS without replacement, our sample

size n will be
$$n \geq \frac{Nn_0}{N + n_0}, \text{ where } n_0 = \frac{z_{\alpha/2}^2(SD)^2}{(ME)^2}$$

Asking *how* letter grades are assigned might be useful too. I imagine that for instructors that use numerical scores for everything there is less extra effort in giving +/- grades but for instructors who do qualitative grading, +/- is more work.

Rethink this question and try to ask it in a way that gets at what you really want to know here.

We have calculated N by counting the number of faculties who are teaching undergraduate course(s) for each department, and summed up all the numbers, which result in N = 1089 (see the attached Excel spreadsheet for information regarding number of faculties for different departments).

We set ME = 0.05 and SD = $\frac{1}{2}$

$$n_0 = (1.96^2)(.5^2)/(0.05^2) = 384.2$$

$n \geq (1089 \cdot 385)/(385 + 1089) = 284.4$, so we will need sample of at least 285 faculties.

If we assume our response rate to be 50%, we will need at least 570 faculties to get a sample size of 285. 

Department	Number of Faculties
Art	38
Biological Sciences	26
Architecture	35
Biomedical Engineering	39
Business Administration	53
CFA Interdisciplinary	32
Chemical Engineering	11
Chemistry	16
CIT Interdisciplinary	2
Civil Engineering	18
CMU wide studies	19
Computational Biology	1
Computer Science	50
Design	42
Drama	53
Economics	17
Electrical&Comp Engineering	29
Engineering Public Policy	17
English	75
H&SS Information Systems	13
History	50
Human-Computer Interaction	13
Language Technology Institute	3
Material Engineering	14
Mathematics	25
Mechanical Engineering	12
Modern Language	77
Music	158
Philosophy	27
Physics	45
Psychology	30
Public Mangement	1
Robotics	3
Social Deicsion Sciences	31
Statistics	14
Total	1089