

<http://www.learner.org/courses/againstalldds/unitpages/unit15.html>

Mar 4-7:54 AM

Warm-Up

In order to estimate the percentage of American residents who favor the death penalty, 800 residents are chosen randomly. These 800 people are asked, "Do you favor the death penalty?" and it turns out that 32% of them said yes.

Population:

All American residents

Parameter: % of Americans who favor the death penalty

Sample: 800 American residents

Statistic: 32% in favor of death penalty

Margin of Error:

$\pm 3.5\%$

$$\pm \frac{1}{\sqrt{800}}$$

Confidence Interval:

28.5% - 35.5%

Confidence Statement:

We are 95% confident that the true proportion of American residents who favor the death penalty is between 28.5% and 35.5%.

Dec 18-11:24 AM

Good Sampling Methods

The goal is to truly estimate the
population parameter.

Sampling frame is the list of the population.

Oct 8-10:29 PM

How do you choose a good sample?

Make it random

Every individual has the same chance of
getting chosen

Use a random number table

Low bias and Low Variability

Nov 16-10:03 PM

Simple Random Sample (SRS)

Selecting individuals from one big list (give every individual its own number) using a random number table.

Every single member of the population has an equal chance of being selected.

Oct 8-10:29 PM

Simple Random Sample (SRS)

Step 1: Label

Step 2: Table

I am going to choose 5 students to give a piece of candy to. 01-21

ignore 00, 22-99

Assign a number to each student.

Use a line on the random number table and keep going until I have chosen 5 students.

117 38167 98532 62183 70632
23417 26185 41418 75532
19, 3

Nov 16-10:08 PM

Practice: I want to choose an SRS (Simple Random Sample) of 7 employees for a drug test. Use line 141 on the random number table. Describe your process.

01 Al	08 Fiona	15 Mike	22 Sara
02 Andrew	09 Phil	16 Matt	23 Sam
03 Bob	10 Gary	17 Maddie	24 Stan
04 Barry	11 Harry	18 Patty	25 Wesley
05 Betty	12 Haley	19 Patrick	
06 Chaz	13 Lee	20 Robert	
07 Frank	14 Leslie	21 Rick	

ignore 00
+ 26-99

Nov 17-8:25 PM

Bad
Sampling
Methods

Oct 8-10:53 PM

1. Voluntary Response -

When the sample chooses themselves by responding to a general appeal.

2. Convenience Sampling -

Choosing individuals because they are the easiest to reach.

Points About Bad Sampling Methods:

- the word random is nowhere to be found.
- most of the results published in the media use these methods

Nov 18-11:06 PM

ERRORS IN SAMPLING

1. Sampling Errors

- bad sampling methods
- too small of a sample
- undercoverage (groups are missing)
- random sampling error (no way to avoid)

2. Nonsampling Errors

- non response bias (people refuse to answer or are unavailable)
- wording of the question
- response bias (people are untruthful or memory isn't great)
- processing errors

Nov 18-11:40 PM

The poll is based on a landline, random-digit dial survey. From a randomly selected sample of active Minnesota telephone exchanges, random digits were added to form a complete telephone number, thus permitting access to both listed and unlisted numbers. Within each household, one adult was selected to be the respondent for the survey.

The survey data has also been weighted to accommodate for factors such as the number of telephone lines, cell phone usage, gender, age, race and ethnicity to approximate the demographic characteristics of the state's population according to the Census.

Why type of error, if any, is there in this survey?

undercoverage

Nov 18-11:09 PM

What type of error, if any, is there here?

Survey Question: "Given these difficult economic times, how likely are you to continue shopping at Lund's?"

"Do you think women and children should be given the first available flushots?"

"Don't you think that suffering terminal cancer patients should be allowed to be released from their pain?"

Nov 18-11:07 PM

Principles of Good Experimental Design

1. **Randomization**--randomly assign subjects to treatment groups
2. **Control**--there should be a control group (a group that does not receive the treatment)
3. **Replication**--there should be a large enough number of subjects so that the results seem believable and the experiment should be able to be replicated (repeated with similar results) on a different group of subjects

Nov 22-9:22 PM

More Experiment Vocabulary


Control Group: A group that receives a placebo, no treatment or a different treatment than the one being studied. Results of the "real" treatment are compared to this group to see if the results are significant.


Single Blind Experiment: When the subject doesn't know which treatment they are receiving.

Double Blind Experiment: When neither the subjects nor the people working with them (the people running the experiment) know which treatment the subjects are receiving.

BLIND EXPERIMENTS HELP REDUCE BIAS!!!!

Nov 21-6:55 PM

 http://www.youtube.com/watch?v=xNvvL9j_SIs&feature=related

 <http://www.youtube.com/watch?v=yfBPDdnqfy4&feature=related>

Mar 4-7:47 AM

Sec. 4.2 #4

Sec. 4.3 #1

Sec. 4.6 #4, 6, 15

Nov 20-8:16 AM