

## Lecture 12

### Chapter 9

# Plots, Graphs, and Pictures

- Determining What Display is Appropriate
- Do's and Don'ts of Statistical Pictures
- Examples

## Choosing the Right Display

Display type depends on variable types:

- 1 measurement variable (students' heights):  
stemplot, boxplot, histogram, freq. curve (chs 7&8)
- 1 categorical + 1 measurement var. (sex + ht):  
multiple boxplots (ch 7, see p. 136)
- 2 measurement variables:
  - Time is expl (yr + cremation): time series (ch 15)
  - in general (age + wt): scatterplot (ch 10)
- 1 categorical var: (radio show type): piechart (ch 9)
- 2 or more cat vars (sex, smoke, on/off): barchart (ch 9)  
(for 2 cat vars, use two-way table to organize data)

## Do's and Don'ts of Statistical Pictures

Do:

- Make data stand out clearly from background
- Label clearly to indicate
  - Title or purpose
  - What each of the axes, bars, etc. denotes
  - Scale and starting point of each axis
- Give source of data
- Include only what's needed

## Do's and Don'ts of Statistical Pictures

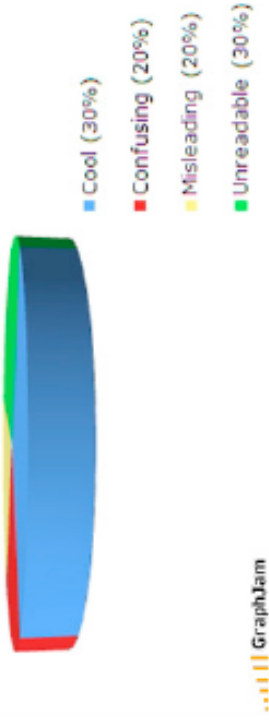
Don't:

- Fail to label axes. [Remember for homework]
- Exaggerate trends by not starting at 0.  
[or have too much dead space]
- Change labeling on axis.
- Use misleading units of measurement.
- Use poor information. [Remember Part I]



## Perception of 3D pie charts

Did the vast majority of respondents think 3D pie charts are cool?  
What's your visual impression?



### Example: #2 Deciding on Display Type

- ❑ **Background:** Consider how to display data on
- ❑ **Question:** students' predicted Exam 1 score?
- ❑ **Response:**

### Example: #3 Deciding on Display Type

- ❑ **Background:** Consider how to display data on
- ❑ **Question:** students' gender and earnings?
- ❑ **Response:**

### Example: #4 Deciding on Display Type

- ❑ **Background:** Consider how to display data on
- ❑ **Question:** students' heights and shoesizes?
- ❑ **Response:**

## Example: #5 Deciding on Display Type

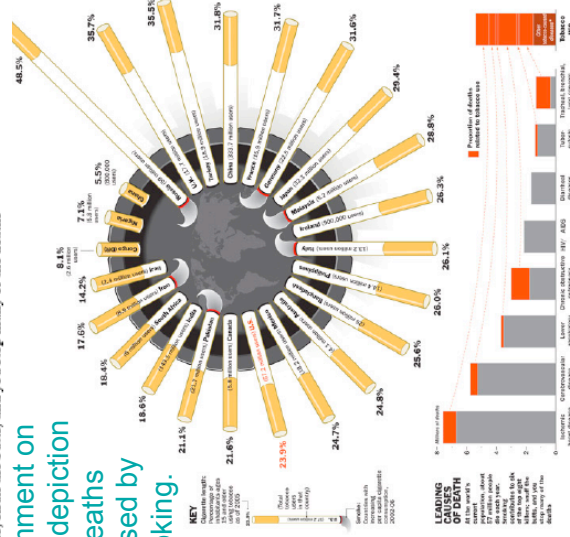
- ❑ **Background:** Consider how to display data on
- ❑ **Question:** year and major declared or not?
- ❑ **Response:**

## Example: #6 Deciding on Display Type

- ❑ **Background:** Consider how to display data on
- ❑ **Question:** year, major declared or not, sex?
- ❑ **Response:**

At the world's current population, about 57 million people die each year. Smoking contributes to six of the top eight killers; snuff the butts, and you stop many of the deaths

**Comment on this depiction of deaths caused by smoking.**



**EXTRA CREDIT** (Max. 5 pts.) From the internet or a newspaper or magazine, find a picture based on statistical information. Write a paragraph or two describing its strengths and weaknesses, referring to the Do's and Don'ts.