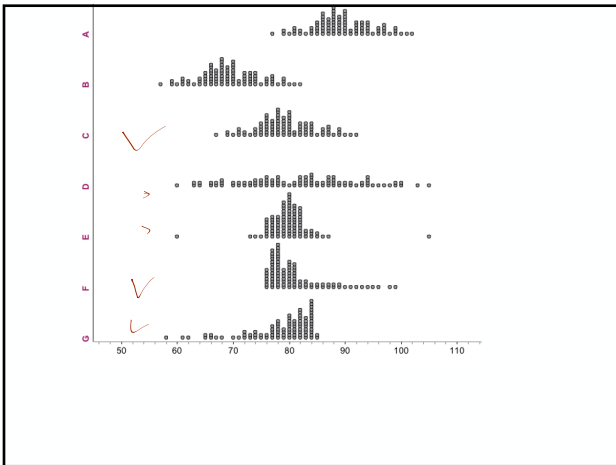
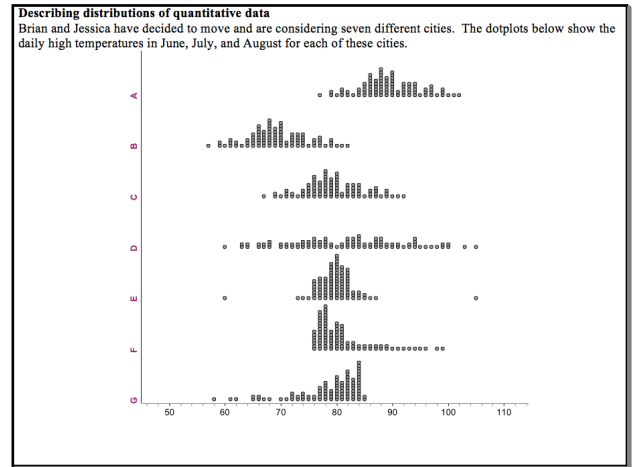


Good Morning
Pick Up The Warm Up



1. What is the most important difference between cities A, B, and C?
Center!
2. What is the most important difference between cities C and D?
Variability
3. What is the most important difference between cities D and E?
Variability (but not range)
4. What is the most important difference between cities C, F, and G?
Shape!

See Your LOQ

- They stay in class
- I'll give you solutions to look at
- No cell phones ☹️

Section 1.2
Learning Targets

last class →

- Make and interpret dotplots, stemplots, and histograms of quantitative data.
- Identify the shape of a distribution from a graph.

today →

- Describe the overall pattern (shape, center, and variability) of a distribution and identify any major departures from the pattern (outliers).
- Compare distributions of quantitative data using dotplots, stemplots, and histograms.

Describing Distributions

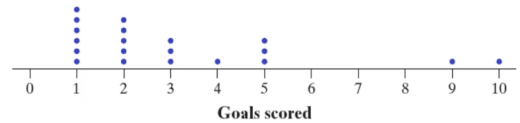
(pages 34-35)

1. How do we describe a distribution of a quantitative variable?

S O C V

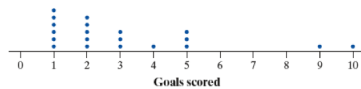
Shape
Outliers
Center
Variability

Textbook: Look at page 35 example or just watch

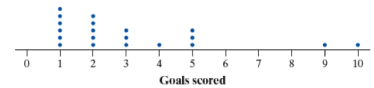


↑ does this look like a good team?

Describe the distribution of goals scored in 20 games played by the 2016 U.S. women's soccer team.



Shape: The distribution of goals scored is skewed to the right, with a single peak at 1 goal. There is a gap between 5 and 9 goals.



Shape: The distribution of goals scored is skewed to the right, with a single peak at 1 goal. There is a gap between 5 and 9 goals.

Outliers: The games when the team scored 9 and 10 goals appear to be outliers.

Shape: The distribution of goals scored is skewed to the right, with a single peak at 1 goal. There is a gap between 5 and 9 goals.

Outliers: The games when the team scored 9 and 10 goals appear to be outliers.

Center: The median is 2 goals scored.

Shape: The distribution of goals scored is skewed to the right, with a single peak at 1 goal. There is a gap between 5 and 9 goals.

Outliers: The games when the team scored 9 and 10 goals appear to be outliers.

Center: The median is 2 goals scored.

Variability: The number of goals varies from 1 to 10 goals scored.

Describe the distribution of goals scored in 20 games played by the 2016 U.S. women's soccer team.

Did we include context?

Shape: The distribution of goals scored is skewed to the right, with a single peak at 1 goal. There is a gap between 5 and 9 goals.

Outliers: The games when the team scored 9 and 10 goals appear to be outliers.

Center: The median is 2 goals scored.

Variability: The number of goals varies from 1 to 10 goals scored.

Now an example
on your notes

2. How many calories in that slice of pizza?

Here are the calories per serving for 16 brands of frozen cheese pizza, along with a dotplot of the data.

Describe the distribution.

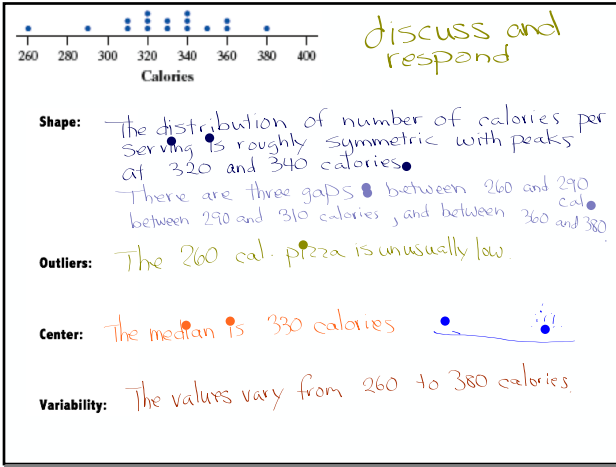
discuss and respond

Shape:

Outliers:

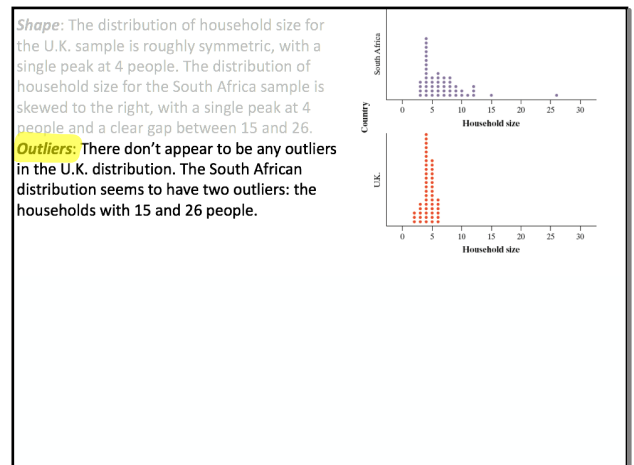
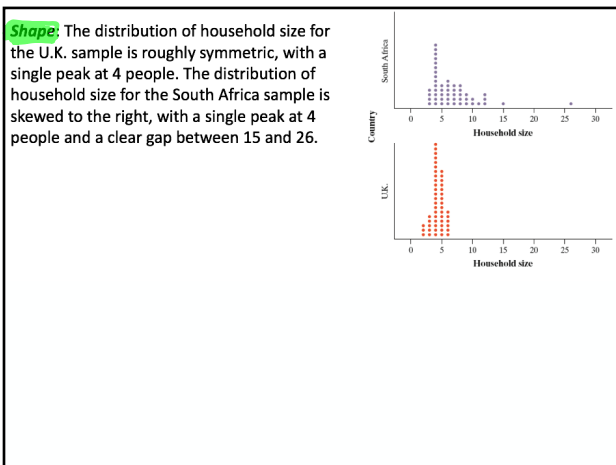
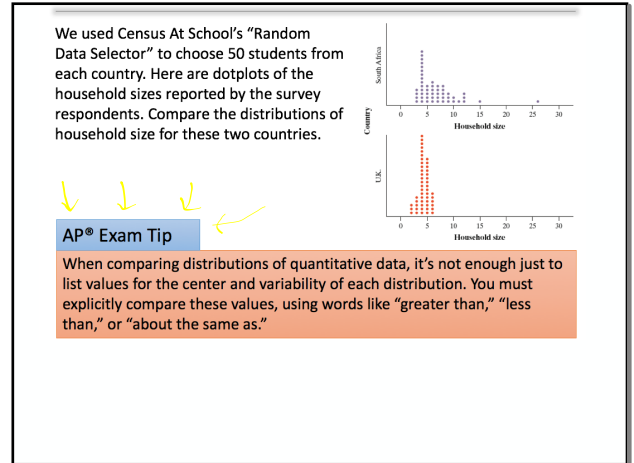
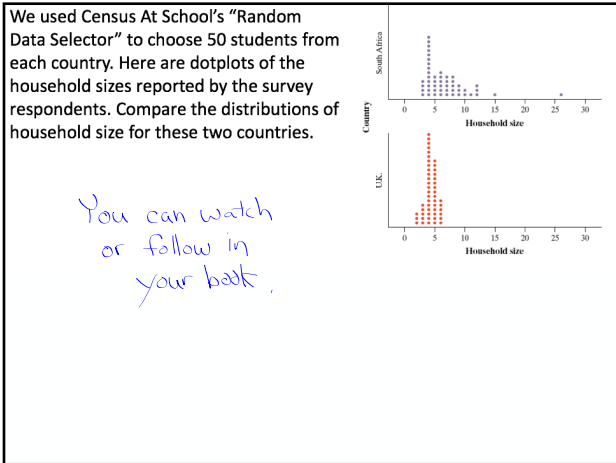
Center:

Variability:



Comparing Distributions
(pages 36-37)

Look at the diagram on your paper



Shape: The distribution of household size for the U.K. sample is roughly symmetric, with a single peak at 4 people. The distribution of household size for the South Africa sample is skewed to the right, with a single peak at 4 people and a clear gap between 15 and 26.

Outliers: There don't appear to be any outliers in the U.K. distribution. The South African distribution seems to have two outliers: the households with 15 and 26 people.

Center: Household sizes for the South African students tend to be larger (median 56 people) than for the U.K. students (median 54 people).

single peak at 4 people. The distribution of household size for the South Africa sample is skewed to the right, with a single peak at 4 people and a clear gap between 15 and 26.

Outliers: There don't appear to be any outliers in the U.K. distribution. The South African distribution seems to have two outliers: the households with 15 and 26 people.

Center: Household sizes for the South African students tend to be larger (median 56 people) than for the U.K. students (median 54 people).

Variability: The household sizes for the South African students vary more (from 3 to 26 people) than for the U.K. students (from 2 to 6 people).

the U.K. sample is roughly symmetric, with a single peak at 4 people. The distribution of household size for the South Africa sample is skewed to the right, with a single peak at 4 people and a clear gap between 15 and 26.

Outliers: There don't appear to be any outliers in the U.K. distribution. The South African distribution seems to have two outliers: the households with 15 and 26 people.

Center: Household sizes for the South African students tend to be larger (median 56 people) than for the U.K. students (median 54 people).

Variability: The household sizes for the South African students vary more (from 3 to 26 people) than for the U.K. students (from 2 to 6 people).

✓ Context

✓ Comparative language

With a Partner

3. **How many shoes are too many shoes?**

How many pairs of shoes does a typical teenager own? To find out, a group of statistics students surveyed separate random samples of 20 female students and 20 male students from their large high school. Here are dotplots of the number of pairs of shoes owned reported by the survey respondents. Compare the distributions of number of pairs of shoes for females and males.

Shape: The distribution of number of pairs of shoes for the female students is slightly skewed right, with a single peak at 13 pairs of shoes. The distrib. of no. of pairs of shoes for the males is also skewed to the right, with peaks at 7 and 10 pairs.

Outliers: For females, there do not appear to be any outliers. The male distribution seems to have three outliers with 22, 35 and 38 pairs of shoes.

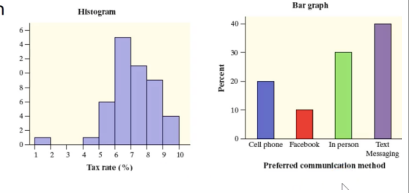
Center: The number of pairs of shoes for female students tend to be greater (median = 26 pairs) than for the males (median = 9 pairs).

Variability: The number of pairs of shoes for female students vary more (from 13 to 57 pairs) than for males (from 4 to 38 pairs).

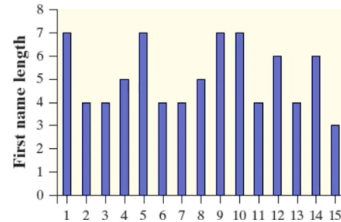
Using Histograms Wisely

(pages 45-46)

Histogram vs. bar graph



- Use percents not counts when comparing distributions with different numbers of data values.



too many bars on a histogram

is meaningless ;)

Assignment

1.2....55, 65, 69,
77, 80-85

LEARNING TARGETS

After this section, you should be able to:

- ✓MAKE and INTERPRET dotplots, stemplots, and histograms of quantitative data.
- ✓IDENTIFY the shape of a distribution from a graph.
- ✓DESCRIBE the overall pattern (shape, center, and variability) of a distribution and IDENTIFY any major departures from the pattern (outliers).
- ✓COMPARE distributions of quantitative data using dotplots, stemplots, and histograms.

