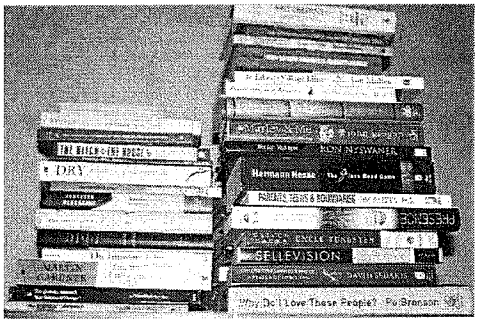
8.2 Data Distribution

A Practice Understanding Task



A lot of information can be obtained from looking at data plots and their distributions. It is important when describing data that we use context to communicate the **shape, center,** and **spread.**

Shape and spread:

- Modes: uniform (evenly spread- no obvious mode), unimodal (one main peak), bimodal (two main peaks), or multimodal (multi locations where the data is relatively higher than others).
- Skewed distribution: when most data is to one side leaving the other with a 'tail'. Data is skewed to side of tail. (if tail is on left side of data, then it is skewed left).
- Outliers: values that stand away from body of distribution.
- Normal distribution: curve is unimodal and symmetric.
- Variability: values that are close together have low variability; values that are spread apart have high variability.

Center:

- Analyze the data and see if one value can be used to describe the data set. Normal distributions make this easy. If not a normal distribution, determine if there is a 'center' value that best describes the data. Bimodal or multimodal data may not have a center that would provide useful data.

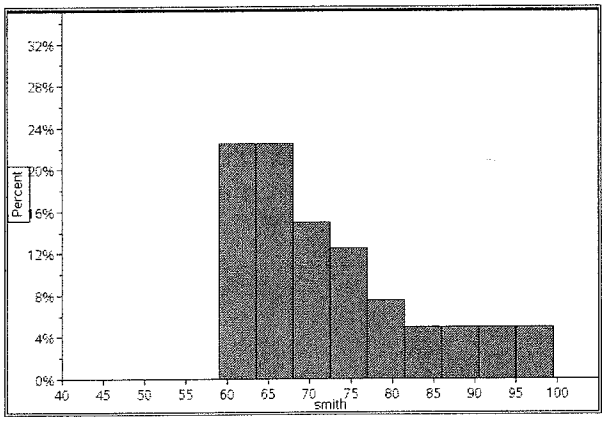
Part I: Use the *Texting By the Numbers* task to describe the shape, center, and spread.

1. Describe the distribution of the histogram that represents the data collected from Rachel and her mom (part I of *Texting by the Numbers Task*).
2. Describe the distribution of the box plot that represents the data collected from Rachel only (part II of *Texting by the Numbers Task*).

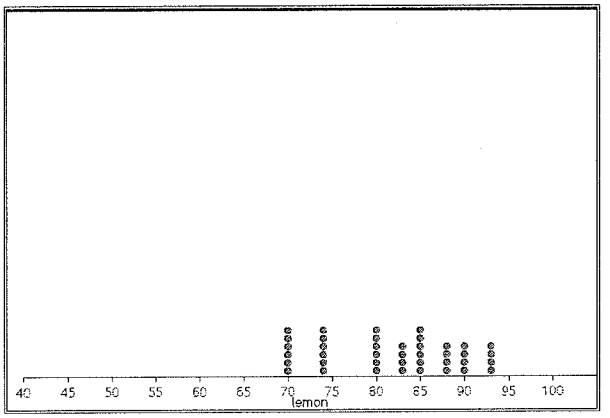
Part II: The following represents test scores from six different classes.

1. Describe the data distribution of each.
2. Compare data distributions between Adams and Smith.
3. Compare data distributions between Smith and Lemon.
4. Compare data distributions between Croft and Hurlea.
5. Compare data distributions between Jones, Adams, and Hurlea.

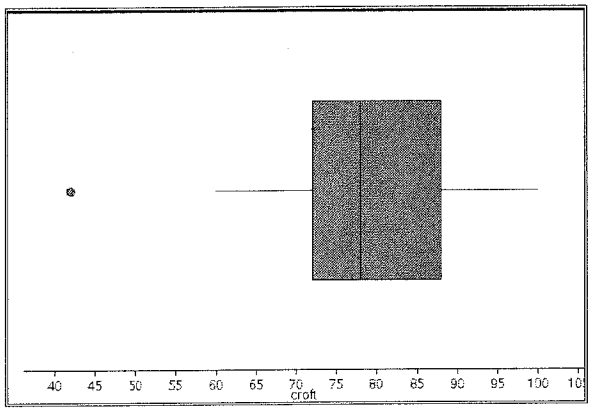
Data set I: Smith's class



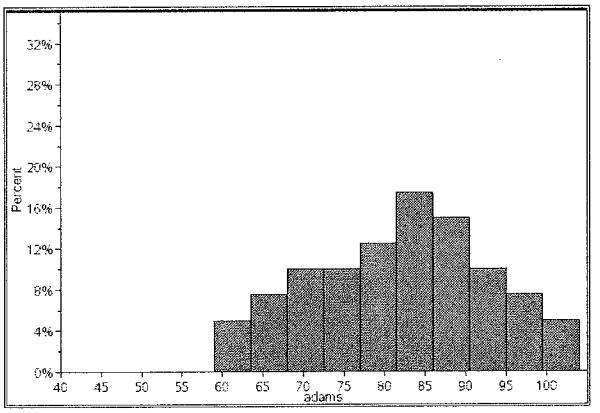
Data set II: Lemon's class



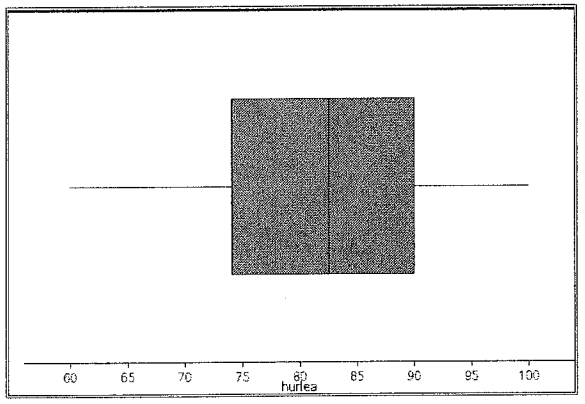
Data set III: Croft's Class



Data set IV: Adam's Class



Data set V: Hurlea's class



Data set VI: Jones' class