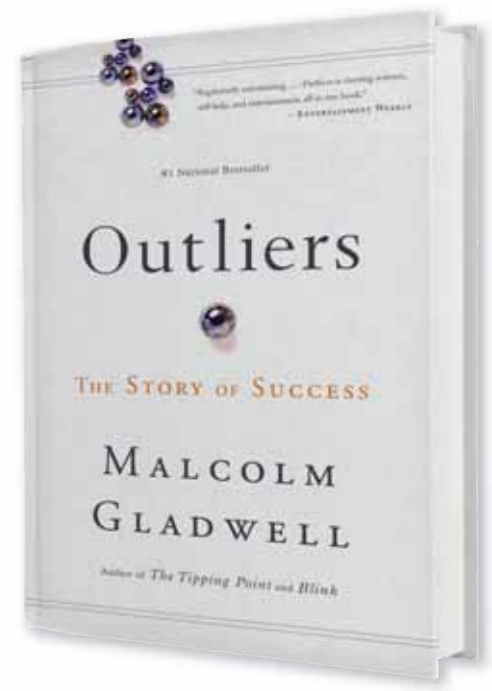


In Malcolm Gladwell's book *Outliers: The Story of Success*, the position of being an "outlier" is enviable. When using the mean as an average, however, outliers can cause undesired effects.

EXAMPLE 6 Analyzing Data

The following gives the estimated IQs of 12 recent presidents of the United States. It also gives their placements in the 2010 Siena College Research Institute Presidential Ranking Survey (with 43 being the lowest and 1 being the highest).

President	IQ	Poll Rating
Franklin Roosevelt	140	1
Harry Truman	128	9
Dwight Eisenhower	132	10
John Kennedy	151	11
Lyndon Johnson	128	16
Richard Nixon	131	30
Gerald Ford	127	28
Jimmy Carter	145	32
Ronald Reagan	130	18
George H. Bush	130	22
William Clinton	149	13
George W. Bush	125	39

Assuming these data are valid, which of the following statements are valid?

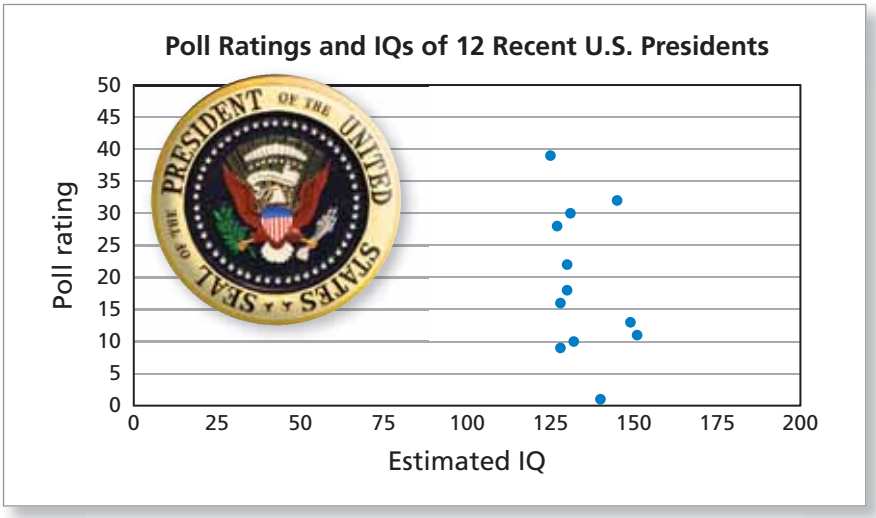
a. On average, U.S. presidents have above average IQs.

b. As president, the higher your IQ, the more popular you will be.

SOLUTION

a. This statement is certainly valid. Standardized IQ scores follow a distribution with an average IQ of 100. The median of the above IQs is about 131. The mean is about 135.

b. The scatter plot compares estimated IQs with poll ratings. If the statement were true, the scatter plot would show a pattern that moved from the lower left to the upper right. So, according to the above list, this conclusion is not valid.



Checkpoint

Help at Math.andYOU.com

Suppose a president with an IQ of 200 is elected. How does this affect the mean and the median of the data?