

MODEL NUMBER 2
OF A
“PUBLIC AWARENESS ANALYZED EXAMPLE”

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WHERE: This is found at

<http://www.gallup.com/poll/4795/Bushs-Ratings-Little-Affected-Stem-Cell-Decision.aspx>

WHAT: It's a discussion of George W. Bush's approval ratings over the course of the first half year of his first term. In particular, notice the discussion in the first line of text after the end of the table at the top of page 6, explaining the standard deviation and why it is calculated for approval ratings during similar periods of the first terms of all presidents since World War II.

ANALYSIS: Apparently, surveys were taken approximately every week or two for the first half year of the first terms of presidents of the US since World War II. The **observational units** were American adults (for one value reported – the August 10-12, 2001, number – the data came from a telephone survey of 1017 adults, aged 18 years and older, selected randomly). The **variable** was their response to the question “Do you approve of the way the president is handling his job?”; it was **binary categorical**.

The table bridging pages 5 and 6 is based on the collections of these multiple survey results from each president. So each president yields a data set of these 18 (or so) values of the statistic (from the survey described above) “what percentage said they approve of the president's job performance?” The table reports the max, min and range of these data values for each president, and their **standard deviation**.

CRITICISM: The table bridging pages 5 and 6 show the *max*, *min*, and *range*. The range is a rather poor measure of the spread of data, as we have discussed in class. It would have been better to report the five-number summary (so, in addition to what was shown, also the median and quartiles $Q1$ and $Q3$) and the *IQR* – or, even, to have drawn a box-and-whisker plot for each president. All together on the same scale, these graphs would have allowed an accurate and insightful comparison of the approval ratings of these eight presidents.

Instead of the *IQR*, the *standard deviation* is reported (well, along with the *range*, which is almost entirely useless). It is described as “a statistical measure of the variance around the mean of the individual ratings went into each president's overall average.” This is a reasonable description.

It is also fundamentally a terrifically good idea to report standard deviations of data described in the popular press: there is a very different interpretation we would give to two presidents having approval ratings which were five percentage points apart in the case in which each president's approval ratings, over time, had a standard deviation of ten points, from the case where the SD was only one percentage point.

Of course, we still have to wonder about how the samples were chosen (“telephone” and “random” – but **how**, exactly?) and if these processes were the same for each of the surveys take, for each of the presidents. Other than this, this report seems carefully done and honestly reported.