# Me, Mean, or Median: Which Is More Accurate at Determining Solutions to Questions that Can Only Be Quantified Empirically?

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The purpose of this project is to investigate whether it is more accurate to predict an unknown amount of items in a container using the mean, median, or individual guess, and to analyze how these measures change when the sample size increases. Two tests were conducted. The first test, with a sample size of (n=60), was asked to independently guess the amount of M&M's in 3 different sized containers. The second test (n=624) repeated the first test substituting a larger jar. Means were calculated for sub sample group sizes, (n=10-300), and then compared for variability. The guesses were sorted by frequency to determine how the mean and median compared to the actual amount and to see if there was a pattern related to how the population estimated. Findings showed the mean of the largest sample group (n=624) was the most accurate; the mean was more accurate than the median; and that there was no way to statistically predict an accurate guess from the individual guesses. The data indicated that the larger the sample size, the variability decreased. The distribution of the graph skewed to the right, showing the guesses were more often underestimated. The information from this project is important because the data shows that the larger the sample size, the more accurate the mean is. The data also supports the idea that it is in human nature to underestimate. Increasing the awareness of this factor will improve decision making processes in society.

**Awards Won:**