

# Homework: week 7, chapter 7

[Science](#), [Statistics](#)



Homework: Week 7, Chapter 7 The scope of statistics involves collection and analysis of data for “ decision-making”, with its application in monitoring and evaluation particularly identifying its essence in research and industrial application. This paper seeks to respond to a case and to offer a reflection on descriptive statistics.

### Case

A reporter randomly sampled 725 votes from a population of 12, 457. Out of the sample, 338 votes were in favor of an issue on the ballot.

### Confidence Interval

The 95 % confidence interval for the proportion that favored the issue is the set of values within the interval, 0. 4299-0. 5025.

This interval defines the estimated range of the population proportion with a probability of 0. 95.

The reporter can say that the issue on the ballot is popular among a range of between 42. 99 % and 50. 25 % of the population. He must be precise to state the confidence interval within which the claim is made. However, he cannot be specific as regards a particular value within the range, because a significant level of variance is expected in the population (Triola, 2011).

### Questions

If I were an editor of a newspaper reporting the results, I would seek to determine the validity of the result before printing the story. I would ask the reporter the following questions. What was your sampling criterion? What was your opinion on the issue prior to the research? What was your source of data?

### Reflection: Descriptive statistics

Descriptive statistics demonstrates characteristics of sets of data. The statistics are divided into measures of central tendencies and measures of dispersion. While the measures of central tendencies include mean, mode, and median, measures of dispersion are majorly expressed through either variance or standard deviation (Triola, 2011).

Mean: Mean defines the average of a set of data and is obtained by dividing the sum of the considered values by the number of items.

Median: Median of a set of data is the middle placed quantity when the data set is arranged in either ascending or descending order.

Mode: The mode, on the other hand, is the value or a class of values that has the highest frequency in a set of data.

Standard deviation: Standard deviation defines the average deviation of each value in a set of data from the mean and is the square root of variance.

Manual computation of these quantities, whether as statistics or as parameters, has a lot of challenges such as computational errors, especially if large sets of data are involved. Application of statistical software has, however, made the computations easy through designed programs.

Descriptive statistics are applicable in many real life fields. An academic institution may, for example, use the statistics to understand the performance of students in a class for evaluation. Similarly, descriptive statistics such as the mean can be used to compare two sets of data. The same applications can be adopted in industrial setups for evaluating processes and comparing either time series periodic performance of an item or the performance between two subjects over a period (Triola, 2011).

Reference

Triola, M. (2011). Elementary statistics using the TI-83/84 plus calculator.

New York, NY: Addison-Wesley, Pearson Education