

## AS1 (Assignment 1, Unit 2): Central Tendency and Shapes of Distributions

1. What is the goal of central tendency?

\_To identify a single score that best represents all of the scores in a data set

---

---

---

2. Find the mean, median, and mode for the following sample of scores: 5, 4, 5, 2, 7, 1, 3, 5

Mean 4 Median 4.5 Mode 5

3. Find the mean, median, and mode for the following sample of scores: 3, 5, 7, 3, 9, 8, 3, 7, 5

Mean 5.5 Median 5 Mode 3

4. Find the mean, median, and mode for the scores in the following frequency table.

<u>X</u>	<u>f</u>
6	1
5	2
4	2
3	2
2	2
1	5

Mean 2.7 Median 3.5 Mode 3

5. Find the mean, median, and mode for the scores in the following frequency table.

<u>X</u>	<u>f</u>
8	1
7	1
6	2
5	5
4	2
3	2

Mean 5.07 Median 5 Mode 5

6. Explain why the median is often preferred to the mean as a measure of central tendency for a skewed distribution?

\_\_\_\_\_its preferred because the mean will be distorted because it will be pulled away from where the most of the score is at in a data set. It will be a distorted measure of the central tendency\_\_\_\_\_

---

---

---

7. A researcher conducts a study comparing two different treatments with a sample of participants divided into 2 treatments. The study produced the following data:

Treatment 1: 6, 7, 11, 4, 19, 17, 2, 5, 9, 13, 6, 23, 11, 4, 6

Treatment 2: 10, 9, 6, 6, 1, 11, 8, 6, 3, 2, 11, 1, 12, 7, 10

Calculate mean for treatment 1 and put your answer here \_\_\_\_\_9.53\_\_\_\_\_

Calculate mean treat treatment 2 and put your answer here \_\_\_\_\_6.86\_\_\_\_\_

Calculate the median for treatment 1 and put your answer here \_\_\_\_\_7\_\_\_\_\_

Calculate the median for treatment 2 and put your answer here \_\_\_\_\_7\_\_\_\_\_

Calculate the mode for treatment 1 and put your answer here \_\_\_\_\_6\_\_\_\_\_

Calculate the mode for treatment 2 and put your answer here \_\_\_\_\_6\_\_\_\_\_

8. Schmidt (1994) conducted a series of experiments examining the effects of humor on memory. In one study, participants were shown a list of sentences of which half were humorous and half were non-humorous. Schmidt then measured the number of each type of sentence recalled by each participant. The following scores are similar to the results obtained in the study:

Humorous	Non-humorous
4 5 2 4	5 2 4 2
6 6 6 6	2 3 1 6
2 5 4 3	3 2 3 3
1 3 5 5	4 1 5 3

Mean for humorous group: \_\_\_\_\_4.18\_\_\_\_\_ Mean for non-humorous group:  
\_\_\_\_\_3.25\_\_\_\_\_

Do the data suggest that humor helps memory? Answer “yes” or “no” and why:

Yes because the data shows that more students remember a s sentence because it was humorous and less for non-humorous. That’s if we base our facts off of these variables only.

---

---

---

9. A researcher measured the time that a sample of students selected from Caldwell University spent studying on a given week during a semester. Here are the data in hours:

4, 6, 5, 4, 5, 7, 8, 6, 5, 7, 8, 9, 9,1, 0, 2, 3, 5, 6, 4, 3, 7, 8, 4, 5, 6, 7, 8, 7, 6, 21, 7, 8, 9,2, 3, 2

ANSWER the following questions based on the information given in question #9

Name the population: Students

---

Name the sample: Students from Caldwell university.

---

How many participants are in the sample? 37

What is the scale of measurement? Ratio

---

Is the scale continuous or discrete? Continuous

9a. Use SPSS to compute the following (using the data from question 9):

- generate a frequency table
- the appropriate graph
- mean
- median
- mode

PASTE your SPSS results here:

### Statistics

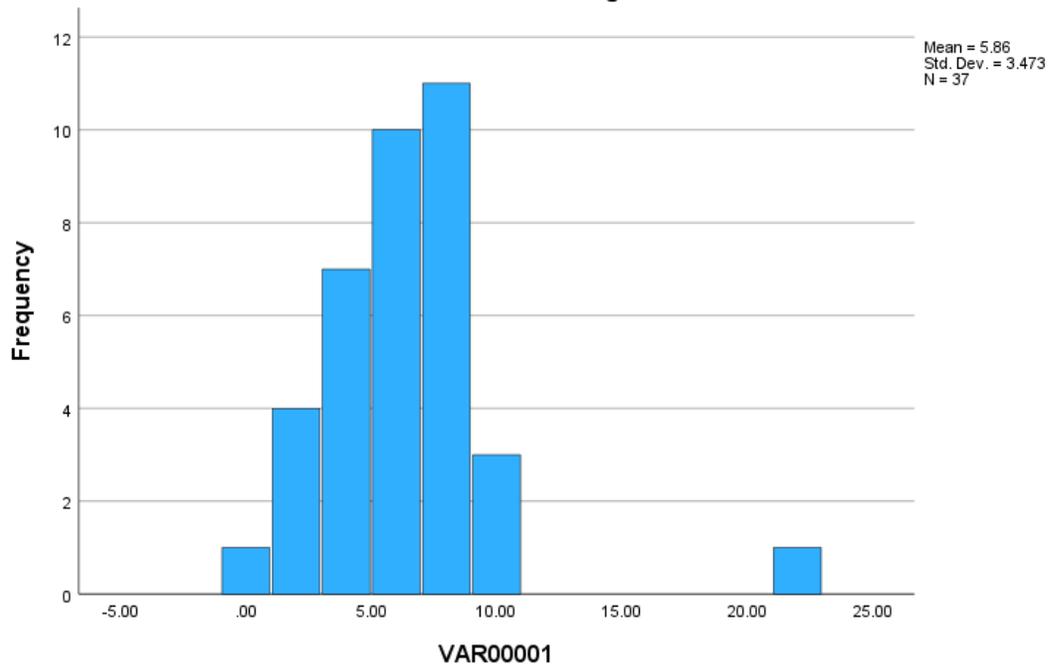
VAR00001

N	Valid	37
	Missing	0
Mean		5.8649
Median		6.0000
Mode		7.00
Std. Deviation		3.47341

### VAR00001

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	2.7	2.7	2.7
	1.00	1	2.7	2.7	5.4
	2.00	3	8.1	8.1	13.5
	3.00	3	8.1	8.1	21.6
	4.00	4	10.8	10.8	32.4
	5.00	5	13.5	13.5	45.9
	6.00	5	13.5	13.5	59.5
	7.00	6	16.2	16.2	75.7
	8.00	5	13.5	13.5	89.2
	9.00	3	8.1	8.1	97.3
	21.00	1	2.7	2.7	100.0
	Total		37	100.0	100.0

Histogram



based on your SPSS results, please answer the following questions:

What is the mean? 5.86 What is the mode? 7 What is the median?  
6

What is the shape of this distribution? Answer=skewed  
distribution\_\_\_\_\_

Which is the “best” measure of central tendency for these data? The best measure would be the median because the test score will be distorted by a outlier which is one score (21) that is extremely different from all the rest.

Why?

---

---

---

---

---

Going on to a different set of questions, which have nothing to do with any of the above questions:

10. Why are there three measures of central tendency rather than just one?

the mean the median and the mode

---

---

---

---

11. Name a situation where the mean would NOT be an appropriate measure of central tendency. Do not use an example from class lecture

an example if you calculated the amount of miles you run each day for a week to sum up a specific amount of miles for that week as you goal you had to meet. All week you ran 10 miles but the last day of the week you ran 1 mile

---

---

---

---

12. Name a situation where only the mode could be used as a measure of central tendency



- \_\_\_t\_\_\_ 20. In a sample of  $n = 3$  scores, if two scores are each below the mean by 2 points, then the third score is above the mean by 4 points.
- \_\_\_f\_\_\_ 21. A sample has  $n = 5$  scores: 2, 4, 5, 8, and 11. The median for the sample is 6.5.
- \_\_\_t\_\_\_ 22. There are situations for which it is either impossible to compute a mean or the mean does not provide a central, representative value.
- \_\_\_f\_\_\_ 23. A distribution of scores has a mean of 50, a median of 53, and a mode of 56. Based on this information, it appears that the distribution is negatively skewed.
- \_\_\_t\_\_\_ 24. If a negatively skewed distribution has a mean of 50, then the median and the mode are probably both greater than 50.
- \_\_\_f\_\_\_ 25. For a positively skewed distribution, the mean usually has a larger value than either the median or the mode.