



# Interpreting Data

**Dr. Asheesh Srivastava**

Professor, Head & Dean

Department of Educational Studies

School of Education,

Mahatma Gandhi Central University,

Motihari, East Champaran, Bihar-845401

[profasheesh@mgcub.ac.in](mailto:profasheesh@mgcub.ac.in)

# Expected Outcomes

- ◆ Understand the terms mean, median, mode, standard deviation
- ◆ Use these terms to interpret data supplied

# Measures of Central Tendency

◆ **Mean** ... the average score

◆ **Median** ... the value that lies in the middle after ranking all the scores

◆ **Mode** ... the most frequently occurring score

# Measures of Central Tendency

The measure you choose should give you a **good indication of the typical score** in the sample or population.

# Measures of Central Tendency

**Mean** ... the most frequently used but is sensitive to extreme scores

e.g. 1 2 3 4 5 6 7 8 9 10

**Mean = 5.5 (median = 5.5)**

e.g. 1 2 3 4 5 6 7 8 9 20

**Mean = 6.5 (median = 5.5)**

e.g. 1 2 3 4 5 6 7 8 9 100

**Mean = 14.5 (median = 5.5)**

# Measures of Central Tendency

## Median

... is not sensitive to extreme scores

... use it when you are unable to use the **mean** because of extreme scores

# Measures of Central Tendency

## Mode

... does not involve any calculation or ordering of data

... use it when you have categories (e.g. occupation)

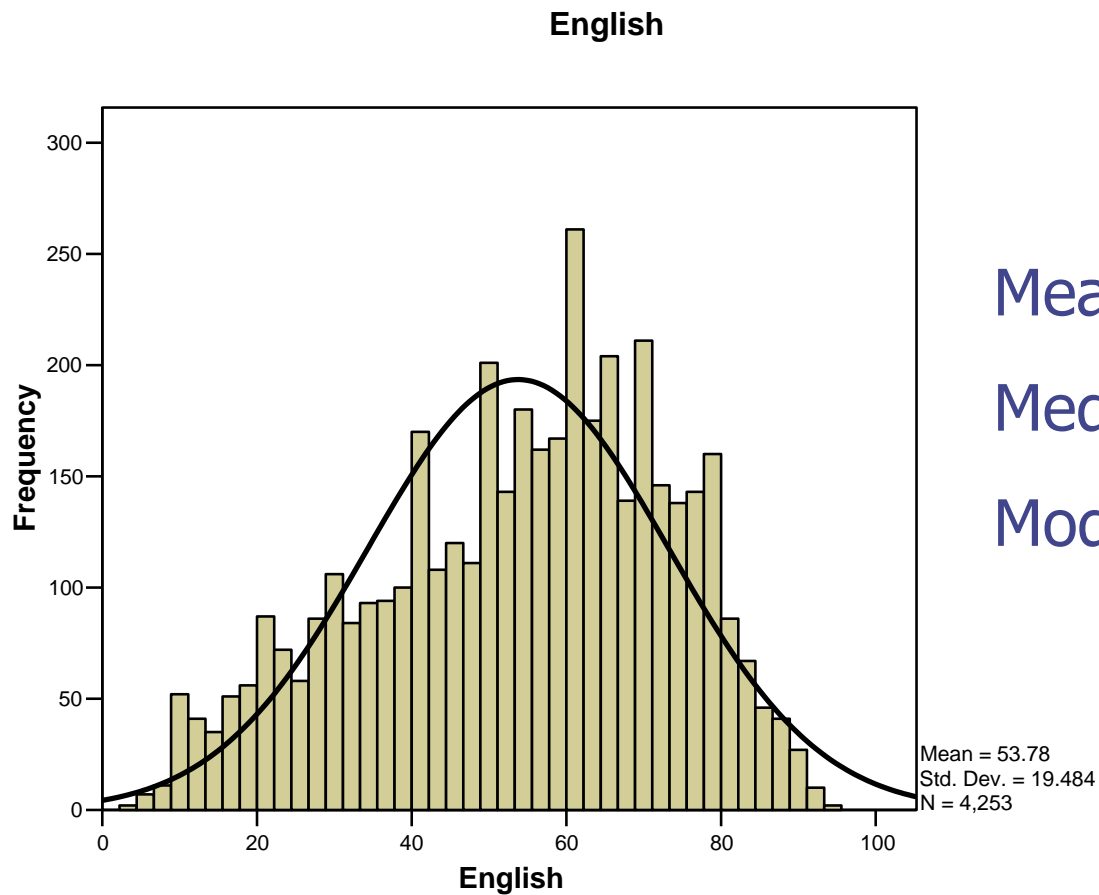
# Variation or Spread of Distributions

## Standard Deviation

- ◆ It tells us what is happening between the minimum and maximum scores
- ◆ It tells us how much the scores in the data set vary around the mean
- ◆ It is useful when we need to compare groups using the same scale



# A Distribution Curve



Mean: 54

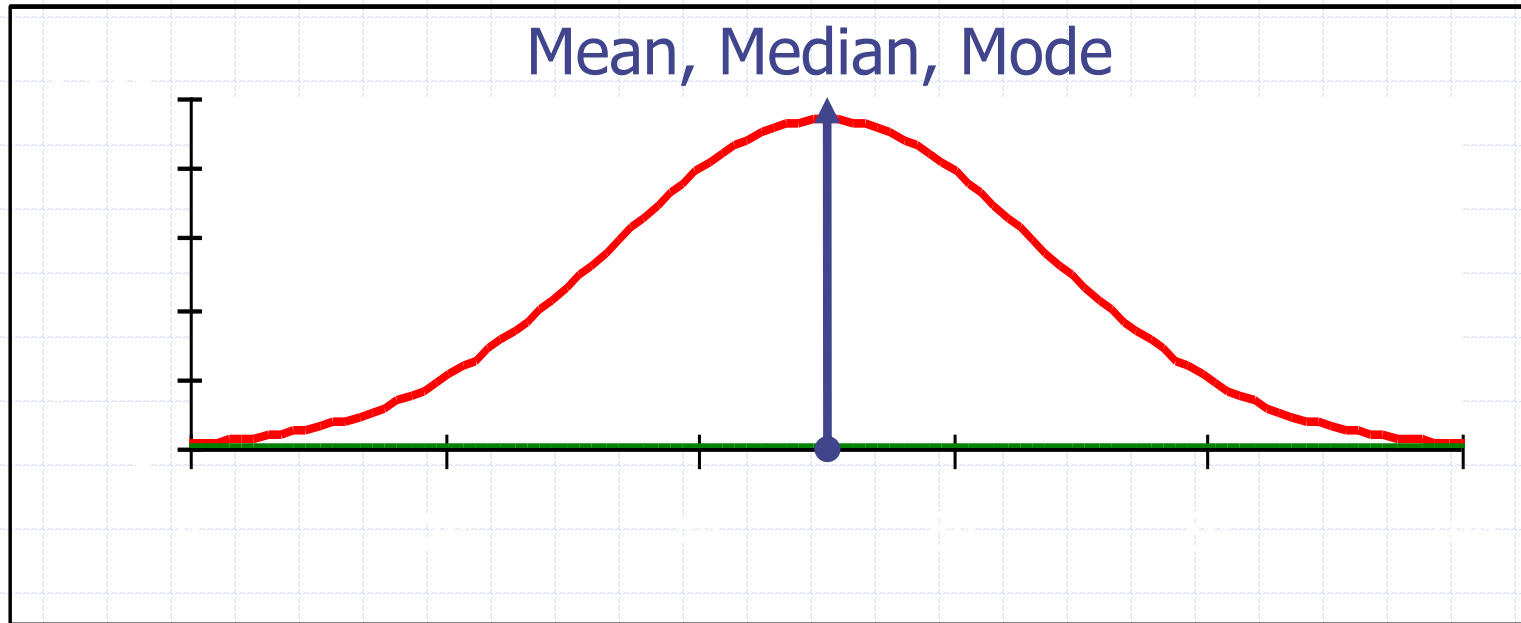
Median: 56

Mode: 63

# The Normal Distribution Curve

In everyday life many variables such as height, weight, shoe size and exam marks all tend to be normally distributed, that is, they all tend to look like the following curve.

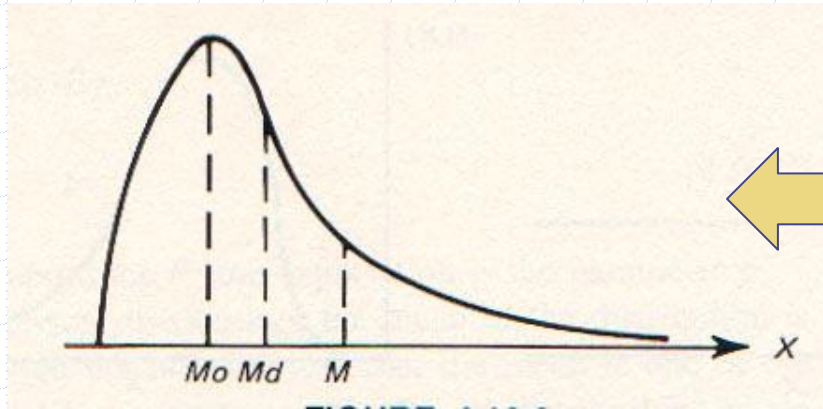
# The Normal Distribution Curve



- ◆ It is bell-shaped and symmetrical about the mean
- ◆ The mean, median and mode are equal
- ◆ It is a function of the mean and the standard deviation

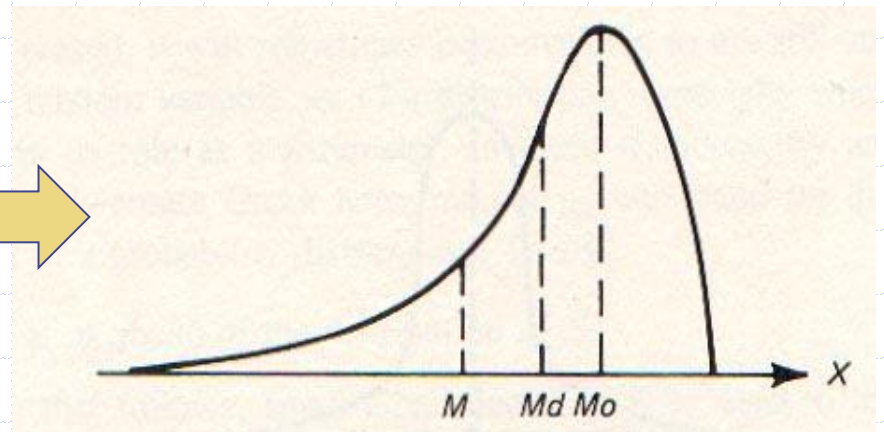
# Influence of Distribution Shape

## Skewness



← **Positively Skewed**

**Negatively Skewed** →

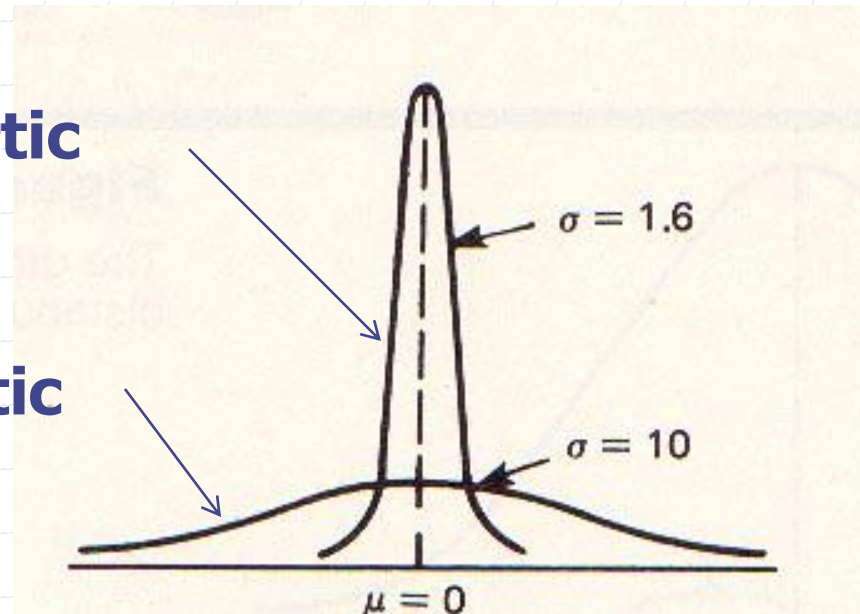


# Kurtosis

This shows the peakedness or flatness of the data. This also gives the idea of dispersion of data.

**Leptokurtic**

**Platykurtic**





**Thank You**