CHAPTER 3

RESEARCH METHODOLOGY

Research Methodology is a blueprint of the methods and techniques used by researcher at different stages of research to achieve the objectives of the study. A study without better planning may not provide desired results so research methodology is imperative for achieving the required goals of the research. This chapter holds significance of the study, objectives of the study, sample size, types of data, and sources of data, statistical methods for data analysis, organisation of study and limitations of the study.

3.1 SIGNIFICANCE OF THE STUDY

The study of the impact of workers participation in management is significant for the performance of employees, organisation and the society. The participation of workers is significant in a way to establish peace in the industry. It also creates better relationships between employer and employee in the organisation. It enhances the decision making power of the employees. Through WPM, trade unions remains satisfied resulting in reduction of conflicts. It also leads to personal development of employees resulting in reduction of job stress. It is also significant in enhancing the creativity and innovation among employees. It is also significant for organisational growth as it leads to reduction in absenteeism. It is also significant in raising the productivity level of the organisation. It attracts fresh talent in the organisation and creates better flow of communication. It is significant for society as well. It is significant in improving the quality of the product. It also establishes a better image of organisation in the public thus enhancing its goodwill. It also practice social justice.

3.2 OBJECTIVES OF THE STUDY

1) To study the impact of workers participation in management on the performance of employees.
2) To study about workers participation level in management.

3.3 SAMPLE SIZE

FORMULA = Sample Size $n = [Z^2 * p * (1-p)/e^2] / [1 + (Z^2 * p * (1-p)/e^2 n]$

Here, p = Proportion of the population,

n = Total population,

e = Margin of error,

Z = Confidence limit/ Z-score.

The sample size of my study is limited to 40 employees only.

3.4 TYPES OF DATA

Data collection is a process of collecting information from all the relevant sources to find answers to the research problem & evaluate the outcomes. There are basically two types of data:

- ★ **Primary data:** The researcher directly collects the primary data from the original sources. It is mainly collected by a researcher to address the research problem. Primary data are original in nature & directly related to the issue or problem & current data. Primary data are the data which the researcher collects through various methods like surveys, online structured questionnaire, etc.
- ★ **Secondary data:** Secondary data is a data collected by someone other than the user. These may be available in written, typed or in electronic forms. Secondary data sources include information that you retrieve through pre-existing sources such as research articles, books, internet, etc.

The researcher has used both the primary and secondary data in the study. The impact of workers participation in management on the performance of employees achieved with the help of primary data and the level of workers participation in management achieved with the help of secondary data.

3.5 SOURCES OF DATA

The primary data has been collected with the help of well-structured online questionnaire developed by the researcher through Google forms. The questionnaire which I created includes a total of 20 questions in which there are 05 questions related to their personal details and the remaining questions are related to my objective. To make the questionnaire easily understandable, I try to write the questions in easy to understand language. The questionnaire

was sent to almost 60 respondents among those only 40 respondents filled it. Secondary data was collected through journals, books and online sources.

3.6 STATISTICAL METHODS FOR DATA ANALYSIS

This section discusses the various statistical techniques and tools used by the researcher to conduct the data analysis on primary and secondary data. The researcher has used Average, frequency method, graphical and tabulation methods. These methods are as follows:

A. Average Method

Under this method, a single value is to be found which represents the whole set of figures and all the figures revolve around it. It is a single value that lies in the range of data and that represents all the values in the series and therefore called measure of central tendency.

- ★ **Definition:** "An average is a single figure that represents the whole group."- Clark
- ★ **Functions of Average:**
  - ➢ Simple and systematic description of the raw data.
  - ➢ Helpful in comparison.
  - ➢ Helpful in policies formulation.
  - ➢ Helpful in decision making.
  - ➢ Representation of the universe.
- ★ **Essential Requirements of a Good Average**:
  - ❖ Easily understandable.
  - ❖ Simple computation.
  - ❖ Based on all items in the series.
  - ❖ Properly defined with an algebraic formula.
  - ❖ Should be mathematically expressed.
  - ❖ Should not be affected by extreme values.
  - ❖ Should be capable of using in many other techniques of statistical analysis like measures of dispersion, Correlation, etc.
  - ❖ Should be possible to find central tendency in open end class intervals.
- ★ **Types of Average:**

Averages or measures of central tendency are of the following types:

1. **Mathematical Averages:**

- Arithmetic mean(A.M.)
- Geometric mean(G.M.)
- Harmonic mean(H.M.)

2. **Positional Averages:**

- Median(M)
- Mode(Z)

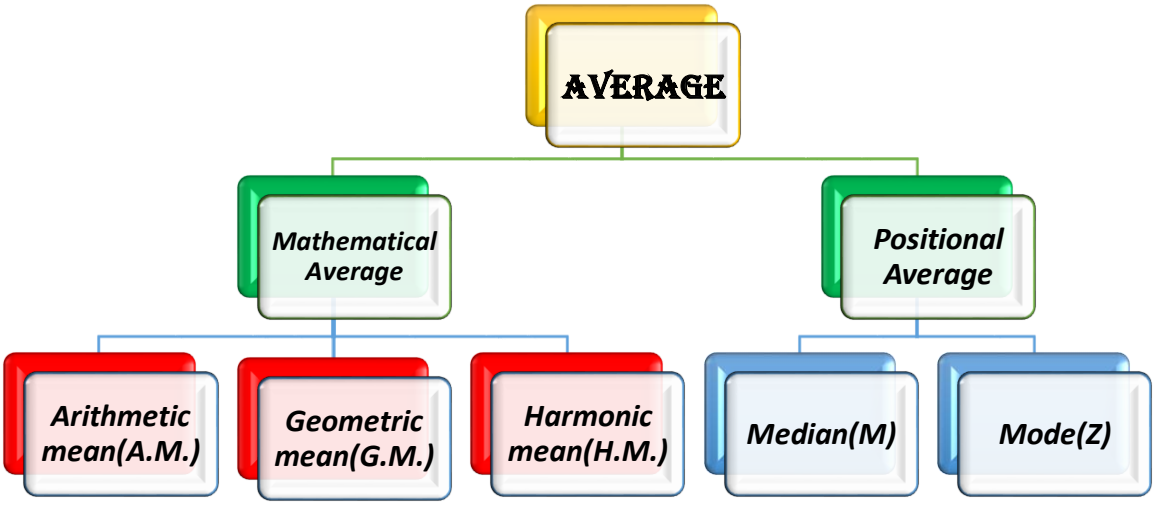

Diagram 3.1 Types of Average

★ **Formula of Average:**

$$\text{Mean} = \frac{\text{Sum of all data values}}{\text{Number of data values}}$$

Symbolically,

$$\bar{x} = \frac{\sum x}{n}$$

where $\bar{x}$ (read as 'x bar') is the mean of the set of x values,
$\sum x$ is the sum of all the x values, and
n is the number of x values.

(https://www.mathsteacher.com.au/year8/ch17_stat/02_mean/mean.htm)

B. Frequency Method

Frequency distribution is a type of a statistical table which reflects the values of variables being arranged in order of magnitude, either individually or in groups, and also the

corresponding frequencies side by side. There are 2 kinds of frequency distributions which are the following:

(a) Discrete frequency distribution

(b) Grouped frequency distribution

(a) Discrete Frequency Distribution:

Marks	Tally bars	Frequency
16	|	01
17	|||	03
18	𝍸	05
19	||	02
20	||||	04
	Total	**15**

Diagram 3.2 Discrete Frequency Distribution

It is a statistical table that shows the values of variables individually and also the corresponding frequencies side by side. Its construction is very simple and easy. During its construction, the frequencies of the various items are to be counted. To find the frequency of a specific item, we use tally bars. Each tally bar shows the presence of one value of the item. Tally bars are used in the form of 'Four and Cross Method'. But if the value of any item is repeated 5 times, a cross is to be put on 4 lines.

(b) Grouped Frequency Distribution: It is a statistical table that shows the values of the variables in groups and the corresponding frequencies are also to be shown side by side. Some of the terms associated with the Grouped frequency distribution are the following:

- **Class Interval:** It is a group of numbers in which the items are to be placed such as 20-40, 40-60, etc.
- **Class frequency:** The number of observations under a class is called class frequency and it is denoted by 'f'.
- **Class limits:** Each class is located between 2 numbers which are the upper and lower limit of the class. The lower value of the class is the lower limit and the upper value

of the class is the upper limit of the class. For example, in the class 20-40, the lower limit is 20 and the upper limit is 40.

- **Class marks (or mid-value):** It is the average value of lower limit and upper limit of the class. It is calculated by dividing the sum of lower limit and upper limit by 2. For example, (20+40)/2 = 30. So, mid-value is 30.
- **Width of the class:** The difference between the lower and upper class limits is called the width or magnitude of the class. For example, 40-20= 20. So, 20 is the size of the class interval.

Salary (in thousands)	Number of employees
Below 20	*55*
20-40	*40*
40-60	*25*
60-80	*20*
Above 80	*10*
	150

Diagram 3.3 Grouped Frequency Distribution

C. Graphical Method

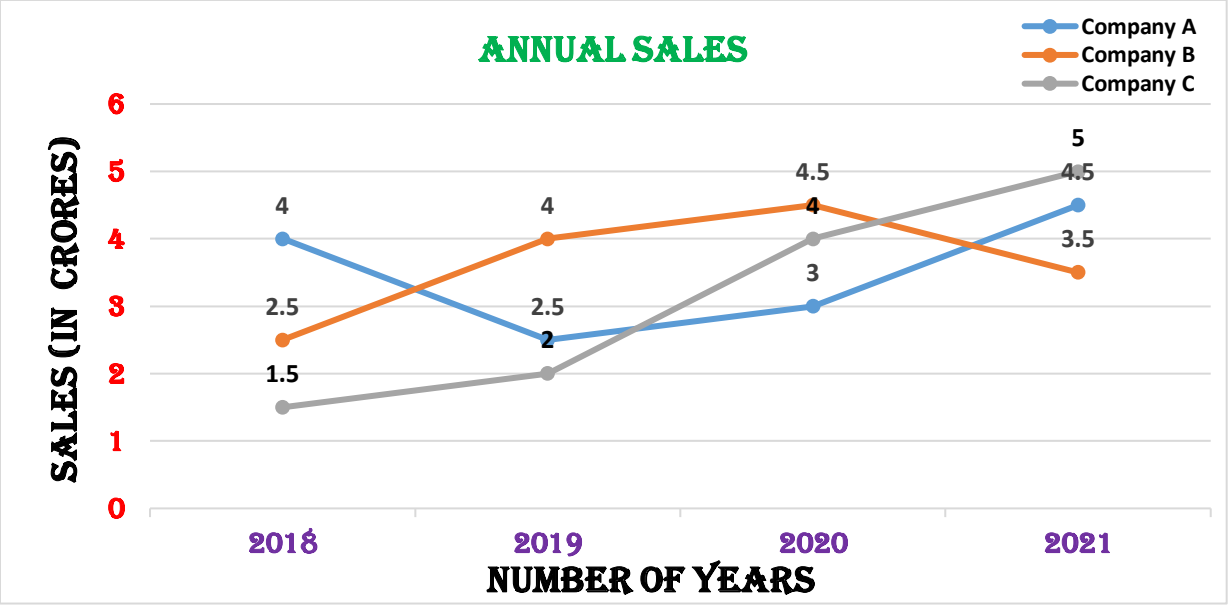

Diagram 3.4 Graphical Presentation of Annual Sales

It is one of the methods of presentation of data. Under this method, data is to be presented with the help of graphs.

➔ **Advantages of Graphical Presentation:**

- ★ **Attractive and impressive:** The graphical presentation are always more attractive and impressive than table or figures.
- ★ **Easily understood:** The complex data can be easily understood by way of graphical representation. It should be written in such a way that anybody can draws the conclusion from it.
- ★ **Saves time and energy:** It saves time and energy of both, the statistician as well as the observer.
- ★ **Useful in comparison:** Through it, the items can be easily compared.
- ★ **Helpful for less literate audience:** There is no need of mathematical knowledge to understand the graphical presentation. Any person can easily understood it especially the illiterate ones.
- ★ **Helpful in estimating future:** On the basis of current availability of information, future can be predicted like in case of continuous increasing sales.
- ★ **Universal applicability:** In today's world, graphs can be used in all spheres of business such as trade, economics, government departments, advertisements, etc.

➔ **Limitations of graphical presentation:**

- ★ **Subjective:** The conclusions drawn are subjective in nature. It means the interpretation varies from person to person. For example- in case of declining sales, some experts says it will increase while others says it will decrease.
- ★ **Requires additional written or verbal explanation:** Graphs itself are not self-explanatory. It requires additional written or verbal explanation thereon to explain the graphs.

D. Tabulation Method

It is one of the methods of presentation of data. It refers to a system in which data is processed from the unorganised form and the information is arranged into a table, i.e. in rows and columns. It is designed to simplify presentation and facilitate analysis. The

purpose is to arrange large mass of complicated information in simple terms so that the viewers can easily draw reasonable conclusions from the presentation and interpretations from them. Tabulation is a highly specialised job. It requires thorough knowledge of statistical methods, skills, experience and common sense.

Diagram 3.5 Students marks in M.com. (Second semester) 2020-2021

SUBJECTS	STUDENTS		
	'A'	*'B'*	*'C'*
Organisational Behaviour	67	77	76
Operations Research	68	71	77
Marketing Management	64	66	69
Financial Management	60	65	65
Human Resource Management	81	80	79
Indian Economy	77	73	76
Total Marks	417	432	442

☑ **Objectives of Tabulation:**

- **To simplify the complex data:** One of the main objective of tabulation method is to present the complex data in a simplified manner so that it is easily understood by the viewer.
- **To highlight important information:** Under this method, data is to be presented in a concise manner without any textual explanation, so the crucial information is highlighted automatically.

☑ **Requisites or Essentials of a Good Table:**

A good table must possess the following characteristics:

- **Appropriate Title:** Every table must have a suitable title on it indicating towards the information presented in the table. The title must be on the top of the table.

- **Manageable size:** The table should be neither too small nor too big. It should be of appropriate size so that it looks eye catching to the viewer.
- **Attractive:** The table must have an attractive appearance so that it is appealing to the eye and the mind and the reader can easily grasp it without any strain.
- **Simple and clear:** The table must be presented in a simple and clear way so that it could easily understood by the reader.
- **Easy comparison:** The table must be presented in a way so that there is easy comparison of data. The data which are to be compared should be placed closely in the columns.
- **Numbering rows and columns:** The rows and columns should be numbered in a table for any reference of any cell of the table.
- **Units:** The unit designations should be given below the title in the table like "Distance in km." and "Age in years". But if there are different units for different items, then they should be mentioned in respective columns and rows.

3.7 ORGANISATION OF STUDY

Chapter 1. Introduction

Chapter 2. Literature review

Chapter 3. Research Methodology

Chapter 4. Data Analysis and Interpretation

Chapter 5. Major Findings & Conclusions

Chapter 6. References

3.8 LIMITATIONS OF THE STUDY

The empirical results reported herein should be considered in the light of some limitations. Here are some of the limitations of this study:

- Limited sample size as data was collected from 40 employees only, which could be increased.

- The data was to be collected from the employees of Educational Organizations like Schools, Colleges & Universities in Haryana only due to time constraints.
- Only one data gathering technique (online questionnaire) was used whereas data collected from various methods would have made my work stronger.
- There could be errors in collected data as it was collected by way of online questionnaire.

The observed limitations could be recommended for future studies & this can be improved by future researchers.