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| **THEME 6. PRESENTATION OF DATA IN VARIOUS GRAPHICAL AND TABULAR FORMS** |

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| Learning outcomes  This lesson offers you opportunities to:   * Gain an overview about presentation of data and information; * Acknowledge about the characteristics of descriptive statistics; * Develop note-taking skills while watching speech; * Learn about methods of data presentation; * Assess how effectively convey your presentation.   *Key-words: textual, tabular, graphical formats, findings, illustrating patterns, quantitative and qualitative data, techniques, numerical descriptive measures.* |

**Presentation of Data and Information**

**Data** is often collected in a raw, unprocessed condition, complicating its interpretation. Therefore, it is essential to compress, process, and analyze the raw data. Nonetheless, regardless of the careful management of the raw material, the insights obtained must be conveyed proficiently; else, both authors and readers will face adverse outcomes. This topic examines many techniques for displaying data and information, including textual, tabular, and graphical formats. Text is the predominant medium used to communicate findings, illustrate patterns, and provide contextual information. A table is an effective means of displaying discrete data and may represent both quantitative and qualitative information. A graph is a potent visual tool for swiftly conveying data, facilitating comparison, and revealing patterns and relationships within the data, including temporal variations, frequency distribution, and correlation or relative proportions of the total. Text, tables, and graphs are effective methods for presenting facts and information. They have the ability to make an article clearly understandable, engage and maintain readers' interest, and effectively communicate significant volumes of complex information.

**Define Data Presentation.** Data presentation involves using various graphical representations to illustrate the relationship between two or more data sets, facilitating informed decision-making.

**Descriptive statistics** include the structure, summary, and presentation of a dataset to provide important insights. It use graphical methods and numerical descriptive statistics, such as means, to concisely summarize and communicate the data.

**Types of Data.** Data fall into three main groups:

* Interval Data;
* Nominal Data;
* Ordinal Data.

**Interval Data are:**

* real numbers, e.g., heights, weights, prices, etc.
* also referred to as quantitative or numerical data.

**Nominal Data are:**

* names or categories, e.g., {Male, Female} and {single, Married, Divorced, Widowed};
* also referred to as qualitative or categorical data.

**Ordinal Data** are also categorical in nature, but their values have an order. Example:

* Course Ratings: Poor, Fair, Good, Very Good, Excellent;
* Student Grades: F, D, C, B, A;
* Taste Preferences: First Choice, Second Choice, Last Choice.

**Types of Data Presentation.** There are three methods of data presentation:

* Textual;
* Tabular;
* Diagrammatic

***Methods of Displaying Data in Textual Format.*** This is the most direct way for data presentation. Clearly convey your findings in a coherent and systematic manner, and your assignment will be fulfilled. A fundamental limitation of this method is that it requires reading the whole book to get a thorough comprehension. The introduction, summary, and conclusion may effectively integrate the content.

***Methods of presenting and analysing data in a tabular format.*** To avoid the complexities of textual data presentation, users utilize tables and charts as alternate forms of data representation. This method entails the display of data in a tabular format, with information systematically arranged in rows and columns. Each row and column has qualities like name, year, sex, age, and other such traits.

**Diagrammatic Presentation: Graphical Presentation of Data in Statistics.** T This type of data display and analysis conveys substantial information in very brief intervals. Diagrammatic Presentation has been subdivided into several categories:

**Geometric Diagram.** A geometric diagram is a visual representation that includes shapes such as bars or circles. Examples consist of a Bar Diagram, a Multiple Bar Diagram, and a Component Bar Diagram.

**Basic Bar Chart.** The composition comprises rectangular bars. All of these bars has identical widths and are uniformly spaced apart. The bars are situated along the X-axis. The height or length of the bars functions as the measurement criteria. The Y-axis displays the measurement related to the data.

**Graphical representation of data using a circular diagram.** A pie chart is a graphical depiction in which a circle is segmented into several sectors, each denoting a certain data category. Each data point is first transformed into a percentage, which is then multiplied by 3.6 degrees. The output signifies the angular measurement of the data point's depiction in the pie chart. For example, if the measurement is 30 degrees, you would depict that angle on the pie chart by extending it from the center.

**Frequency diagram.** A Frequency Diagram is used to depict the distribution of students according to the quantity of pens they own, especially classifying them into groups of 1 to 2, 3 to 5, and 6 to 10 pens. Multiple varieties of Frequency Diagrams exist.

A **histogram** is a visual depiction of a dataset's distribution. It illustrates the frequency of various values or value ranges within a dataset. The aggregated frequency of pens is shown on the X-axis, while the number of pupils is indicated on the Y-axis. The data is presented in the form of vertical bars.

**Graphical depiction** of data using line segments to link the midpoints of each interval in a frequency distribution. A Frequency Polygon is created by linking the midpoints of the upper edges of the rectangles in a histogram.

**Distribution curve of frequency.** By drawing a line freehand that crosses the vertices of the Frequency Polygon, one obtains a Frequency Curve.

**Arithmetic line graph.** To illustrate the association between the incidence of COVID-19 infections and the number of recoveries from January 2020 to December 2020, an Arithmetic Line Graph may be used. The X-axis must be labeled with the months, and the Y-axis should represent the number of infections and recoveries.

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| **Activity 1. Reading. Read the text and answer the following questions.** |

1. What constitutes data? What are descriptive statistics?
2. How many categories do data include, and what are they?
3. What distinguishes the tabular technique from the textual method of data representation?
4. What sorts of diagrammatic representations are you familiar with?
5. What categories do geometric diagrams encompass?

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| **Activity 2. Watch a You Tube video “Quantitative and Qualitative - What's the difference?” and take notes while watching.** |

You tube link: <https://www.youtube.com/watch?v=4iws9XCyTEk&ab_channel=DeakinLibrary>

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| **Activity 3. Speaking. Answer the following questions.** |

1. What is quantitative data?
2. What is qualitative data?
3. What distinguishes quantitative data from qualitative data?
4. Which option do you favor?
5. Why do some researchers use both methodologies in a single study?

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| **Activity 4. Listening. Complete the notes below. Write ONE WORD ONLY for each answer.** |

**Quantitative and qualitative. What’s the difference?**

The difference is the type of 1\_\_\_\_\_\_\_\_\_\_\_\_\_ they collect.

For example: a study to investigate stress in a workplace.

**Quantitative data:**

* Quantitative data is usually 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_, using measurements, numerical surveys and statistics.
* You could start by collecting some quantitative data on their height, weight, 3­­­­­­­­­­­­­­­­­­­­­­­­­­­ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and so on.
* But the quantitative data can’t always tell us why these staff are so stressed.

**Qualitative data:**

* Qualitative data is 4\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, using surveys with open questions, interviews and recording 5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* You want to learn about your subject’s experience in the workplace, interviewing them about their work habits and 6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* You find a scene in their responses that shows the staff experiencing stress are 7 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to a noisy environment.

**Conclusion:**

* Quantitative data is great for 8 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ how much, how often and other statistics, while qualitative data is great for recording people's experiences 9 \_\_\_\_\_\_\_\_\_\_\_ and beliefs.
* Some studies will use both quantitative and qualitative data to try to get a whole picture in a 10 \_\_\_\_\_\_\_\_\_\_\_\_ study.

**Listening. Key:**

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| 1. Data 2. Numerical 3. Blood pressure 4. Descriptive 5. Experiences | 1. Environments 2. Exposed 3. Measuring 4. Attitudes 5. Mixed-method |
| **Activity 5. Vocabulary. Match the words with an appropriate definition.** | | |

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|  | **Words** | **Definitions** |
| 1 | attitude | a) describing something, especially in a detailed, interesting way |
| 2 | belief | b) a value, discovered by measuring, that corresponds to the size, shape, quality, etc. of something |
| 3 | clue | c) to make something covered or hidden able to be seen |
| 4 | data | d) involving or shown by a series of numbers |
| 5 | descriptive | e) an examination of opinions, behavior, etc., made by asking people questions |
| 6 | expose | f) a collection of numerical facts or measurements, as about people, business conditions, or weather |
| 7 | measurement | g) a feeling or opinion about something or someone |
| 8 | numerical | h) information that helps you to find the answer to a problem, question, or mystery |
| 9 | statistics | i) the feeling of being certain that something exists or is true |
| 10 | survey | j) information, especially facts or numbers, collected to be examined and considered and used to help with making decisions |

**Activity 5. Vocabulary. Key:** 1.g, 2.i, 3.h, 4.j, 5.a, 6.c, 7.b, 8.d, 9.f, 10.e.

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| **References** |

Brown, J. D. (2004). Research methods for applied linguistics: Scope, characteristics, and standards. In A. Davies & C. Elder (Eds.), The handbook of applied linguistics (pp. 476–500). Oxford: Blackwell.

Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education. Routledge, 301 p.

Cottrell, S. (2019). *The study skills handbook*. 5th edition, Bloomsbury Publishing.

Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Pearson.

Dornyei Z. (2007) Research Methods in Applied Linguistics: Quantitative, Qualitative, and Mixed Methodologies, Oxford University Press, 335 p.

Louis, C., Keith, M., & Lawrence, M. (2000). *Research methods in education 5th edition*. New York.

Scarry, S., & Scarry, J. (2013). The writer's workplace with readings: Building college writing skills. Cengage Learning.

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| **Internet sources** |

<https://dictionary.cambridge.org/>

<https://www.vedantu.com/commerce/presentation-of-data>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5453888/>

<https://www.utdallas.edu/~scniu/OPRE-6301/documents/Graphical_and_Tabular.pdf>

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