SENIOR HIGH SCHOOL

Department of Education
National Capital Region
SCHOOLS DIVISION OFFICE
MARIKINA CITY

Practical Research 2

Second Quarter – Module 9
Presentation and Interpretation of Data

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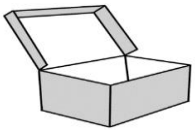


What I Need to Know

A pleasant day Senior High School Students! In this lesson, you are going to learn how to:

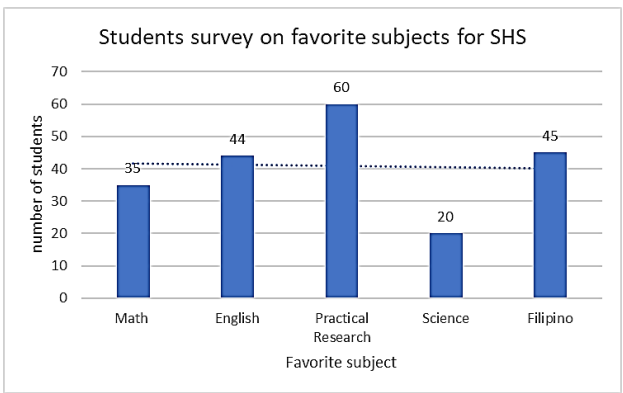
Present and interpret data in tabular or graphical forms

You can say that you have understood the lesson in this module if you can already:

1. familiarize with the use of graphics and tables in the presentation of results;
2. illustrate the concept of tabular and graphical methods; and
3. construct graphs and tables in a creative way.

What I Know

Look on the graph below and answer the following questions.



1. What type of graph is presented above?
   A. Bar graph C. Pictograms
   B. Line graph D. Pie charts

2. Base on the survey what is the most favorite subject of the students?
   _____

3. What is the least favorite subject of the students?
   _____

4. How many students has Mathematics as their favorite subject?
   _____

5. What is the total number of students that favor Science subject?
   _____

Lesson 1	Presentation and Interpretation of Data

What's In

In the previous discussion we study about data collection, how it is being collected, gathered and analyzed. And as mentioned, the bulk of data that is collected from primary or secondary sources are still considered a raw data that requires tallying or classifying. As a researcher, you are going to prepare a written report on the results of study in an organized and understandable manner. However, you will sometimes experience that it is not always easy to digest information presented in a long column of data, especially when it is a large number. Before you proceed on the next topic answer first the following questions to recall if you can still remember what you've learned?

Let us see if you could do the tasks below as directed.

In your own words, do the following as directed.

A. Write down your data collection procedure

_____
_____
_____
_____
_____

B. Write down how data will be analyzed using statistics

_____
_____
_____
_____
_____
_____
_____

C. With your own idea, how do you analyze quantitative data?

_____
_____
_____
_____
_____
_____
_____

What's New

A. Before Reading Activity

Research and read a quantitative article similar to your research and analyze it carefully.

B. During Reading Activity

Focus on the data collection methods and instruments they used and how they present base on the data gathered.

C. After Reading Activity

Analyze the article that you research and answer the following questions.

Research Topic:

_____
_____
_____

1. Who is the respondent? Type of data used?
   _____
   _____
   _____
2. How many respondents are from male and female?
   _____
   _____
   _____
3. What kind of graph they present in order to interpret the data?
   _____
   _____
   _____

What is It

Dear learner, you are about to be done with the study you are conducting. In today's lesson, you will learn about how to present and interpret data in tabular or graphical forms. Statistical approach involves arranging, summarizing, and presenting a set of data in a way that useful information is produced and it indicates the outcome of the experimentation. Parallelism is observed when the first research question is addressed by the first methodology employed and presented as the first results. Hence, this module will help you create and present an organized picture of information from a research report, and know important techniques to communicate findings and interpretations of research studies into visual form. The common techniques being used to display results are tabular, textual and graphical methods

Presentation of Data

Presentation of data is the process of organizing data into a sequential and meaningful manner to make the result easy to manage and interpret. There are three ways of presenting data: *textual, tabular, and graphical.*

A. **Textual** – this form of presentation requires number or numerals in statistical format in order to supplement the tabular presentation.

B. **Tabular** – this form of presentation is better than textual because it provides numerical facts in an orderly manner. It is defined as a systematic arrangement constructed to facilitate and to present the relationship of the sets of data in orderly forms. Therefore, preparing table is a very important step. Its purpose are as follows:

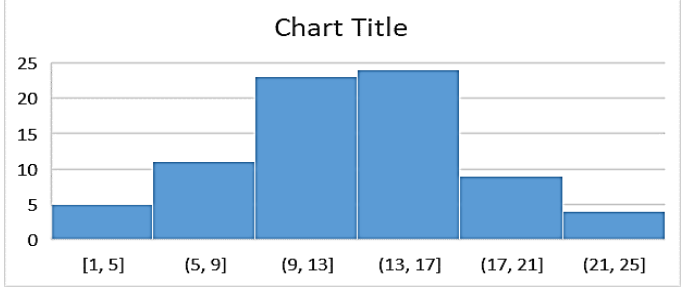
- Facilitate the study and interpretation
- It is brief; it reduces the matter to the minimum
- The data are separated and group according to category
- Construction for data is part of analysis

C. **Graphical** – a chart representing quantitative changes of variable, it is the most effective means of organizing and presenting data. The purpose is to present the variations, changes, and relationship of data in a most attractive and effective way.

Types of Graphs/Charts

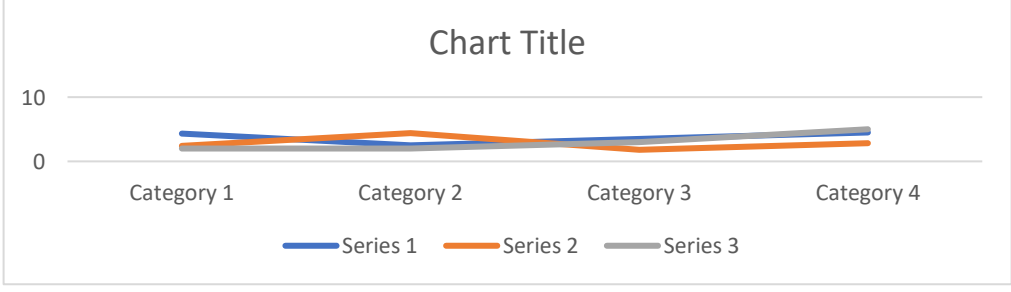
A. Bar Charts consists of bars or rectangles of equal widths horizontally or vertically depending on the needs. This can be shown in opposite direction above and below zero line to illustrate relationships examples profit/earning or loss deficit.

Illustration:



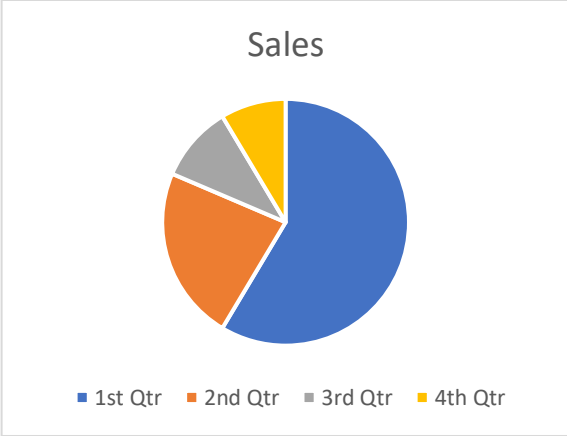
B. Line Graph shows relationship between the two sets of quantities. This is very useful for presenting particular measurement taken at a number of points.

Illustrations:



C. ***Circle or Pie chart*** – this is another visual representation of data, used to show how all the parts of something are related to the whole. Hence, it is appropriate for displaying the marketing research results in a wide range of situation.

Illustrations:



D. ***Pictogram*** – is a visual presentation in drawing of pictures or symbols related to study.
E. ***Map Graph*** – This presentation is always accompanied by a legend that directs and tells the meaning of the line.
F. ***Scatter Diagram*** – it shows the relationship between two independent variables.

The following examples illustrate the significance of a well-organized and creatively presented data and interpretations using tabular and graphical forms.

Respondent Profiles - Tabular forms

The Respondent profiles are data gathered to gain insight about the characteristics of respondents of the study through the questionnaires. Data obtained were recorded as follows:

Table 1.0 Demographic profile of respondents by gender

Gender	**Respondent**	**Percentage (%)**
Male	89	44.5
Female	111	55.5
Total	200	100

Interpretation in the tabular forms:

Table 1.0 Demographic profile of respondents by gender shows that 89 respondents or 44.5% are male, and 111 respondents or 55.5% are female. Therefore, majority of the respondents are female.

Illustration of Graphical Forms Presentation and Interpretation:

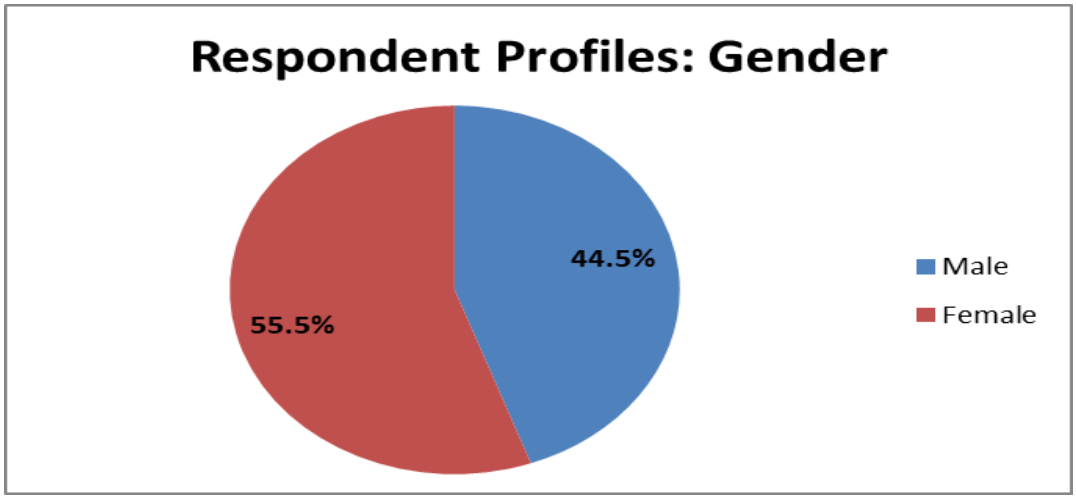


Figure 1.0 Profile of Respondents by Gender

Interpretation:

As it is shown in figure 1.0 respondents' profile by gender, 89 or 44.5% were male respondents and 111 or 55.5% were female respondents. Therefore, the majority respondents were dominated by female.

Scope and Purpose of Data Analysis

Data analysis is the process of developing answers to questions through the examination and interpretation of data. In the above examples, data were presented in a clear and concise form which are being presented in graphs and tabular forms. Researchers must interpret and give implication regarding the data collected. Data presentation presents and summarizes background information of the respondent and the data collected through literature, survey questionnaire, interviews and observations (Sarno, 2010).

In a quantitative analysis data gathered need a summary across the participatory process and it generates large or bulks of data that requires summarizing through statistical packages.

Data Interpretation

Research interpretation is defined as an adequate exposition of the true meaning of the material presented in terms of the purpose of the study (Reyes, 2004). Researcher must plan and organize the data; hence, researcher must look on the evaluation questions as it is always match with the analysis and research problems.

As Reyes (2004) added, interpretation of data is inextricably woven with the analysis so much so that it is a special aspect of analysis rather than a distinct operation. With this, the outcome or the results should be written in a concise and order format, that is why in a quantitative research it is usually presented in a tabular and graphical form so that it will be easy to interpret and understand the collected data.

Supplementary Notes:

The organization of the presentation and interpretation of findings vary according to the research method used. In descriptive research especially the survey type, the presentation of results follows a pattern. The findings presented will follow the sequence of the sub-problems raised in chapter 1. It would be a good idea if reports assist in the analysis, interpretation and clarification of the next materials.

Do not present your findings by recasting your sub-problems in chapter 1. Remember that your whole chapter 4 is the exposition of the answers of findings to your research questions specially stated in chapter 1. Your answers become the subheadings of your chapter 4.

Examples:

For research problem 1. What is the profile of the respondent in terms of age, sex, educational attainment, civil status and position? Your subheading in your presentation should be:

1. Demographic profile of Respondent in terms of: Age, Sex, Educational Attainment, Civil Status and Position

For research problem 2. What is the leadership styles of the Marikina High School Administrator, using the following five Likert scales, Strongly Agree to Strongly Disagree or (5,4,3,2,1 scale)?

External Format:

- Tables and graphs are both ways to organize and arrange data as we discuss in this module because both of them are related in the sense that the information used in the table is frequently used in the graphs as shown in previous example above.
- Bar graph is an excellent way to show the results timely which can be horizontal or vertical.

Activity - Citing your idea

In the space provided, write your own idea about the Advantage and Disadvantage on the types of graph as follows.

Type of Graph	Advantage	Disadvantage
1. Bar Graph		
2. Line Graph		
3. Pie Graph		

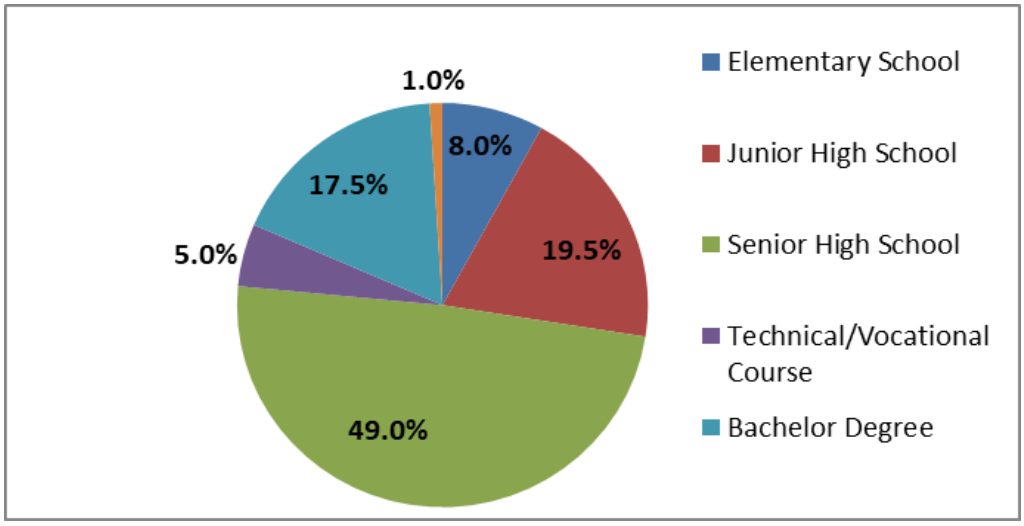
What's More

Answer the following activities to practice your knowledge and skill about presentation and interpretation of data.

Activity 1- Analyzing the graph

The graph below shows the distribution of Elementary, JHS, SHS, Vocational, Bachelor's degree and Graduate program enrolment in President University, SY: 2020-2021. Analyze carefully and answer the question below the graph.

Distribution of Enrolment for SY: 2020-2021



1. Which level dominated highest number of enrollment?

   _____
   _____

2. Can you give the total enrollment for each level?

   _____
   _____

3. Interpret the percentage /data in the graph.

   _____
   _____

Activity 2 – Exploration

The figure below shows the monthly rainfall in the Philippines. Look carefully and answer the following questions.

Rainfall Recorded in The Philippines

Months	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Rainfall	0	10	10	15	35	250	300	500	650	800	450	275

1. Construct a bar graph and give the table heading

2. Use the bar graph, by how much did the rainfall in June exceed that in May.

_____

_____

3. What months is the rainy season?

_____

_____

Activity 3 – Self Construction

Below is a sample profile of respondent by age, look on the table carefully and answer the following questions.

Table 1.1 Demographics Profile of Respondent by Age

Age	**Respondent**	**Percentage (%)**
19 yrs. old less	20	10
19-25 yrs. old	34	17
26-35 yrs. old	57	28.5
36-45 yrs. old	45	22.5
46-55 yrs. old	29	14.5
55 yrs. old above	15	7.5
Total	200	100

1. Construct a pie chart for this table.

2. Based on the chart, interpret the outcomes and give conclusion.
_____
_____
_____
_____

3. How many respondents belong to 46 to 55 years old?
_____
_____

What I Have Learned

In this lesson, you learned on the presentation and interpretation of data and now that you have finished. Express what you have learned by answering the questions below.

1. _____ is a very vital stage in conducting research most specially by selecting which material will be used for drawing conclusions. Establishing the significance of material and identifying potential weaknesses and limitations.
2. A graph used to represent changes in data over a period of time, like changes in temperature, income population and the like is what you called _____.
3. _____ is a process in dealing with editing, coding, classifying, tabulating and presenting data through chart or diagram.
4. According to Reyes (2004) _____ is inextricably woven with the analysis so much so that it is a special aspect of analysis rather than a distinct operation
5. _____ It is defined as a systematic arrangement constructed to facilitate and to present the relationship of the sets of data in orderly forms.

What I Can Do

Apply what you have learned about presentation and interpretation of data by doing the activity below.

Write your concise learning about the following:

1. Textual Presentation of data

_____
_____
_____
_____

2. Graphical Presentation of data

_____
_____
_____

3. Purpose of Graphing

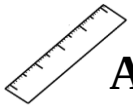
_____
_____
_____

4. Bar Charts

_____
_____
_____

5. What are the three methods of data interpretation?

_____
_____
_____



Assessment

Showcase the knowledge and skills you have learned in this lesson by answering the assessment activity.

Answer the following questions base on what is being asked.

1. The table below shows the number of customers per months of Infinity Coffee shop. Show this information on a bar graph.

Months	Nos. of Customers
June	45
July	60
Aug.	75
Sept.	50
Oct.	100
Nov.	140

2. Mr. Orly Santos inherited P2,000,000 pesos from his father. He invested it in:

Housing	P 460 000
Grocery Store	P 220 000
Meat Factory	P 480 000
Mini Market	P 200 000
Lending	P 640 000

Show this information on a pie graph.

3. Refer to questions 1 and 2, which among the graphs is more convenient for you? Justify your answer.

_____
_____
_____
_____
_____

Additional Activities

Please answer the questions concisely.

1. Discuss the different methods in the presentation of data.

_____
_____
_____
_____
_____
_____
_____
_____
_____

2. Explain why there is a need to present results/data through graphs and tables.

_____
_____
_____
_____
_____
_____
_____
_____
_____

3. Briefly discuss the difference between analysis and interpretation.

_____
_____
_____
_____
_____
_____
_____
_____
_____

Post Test

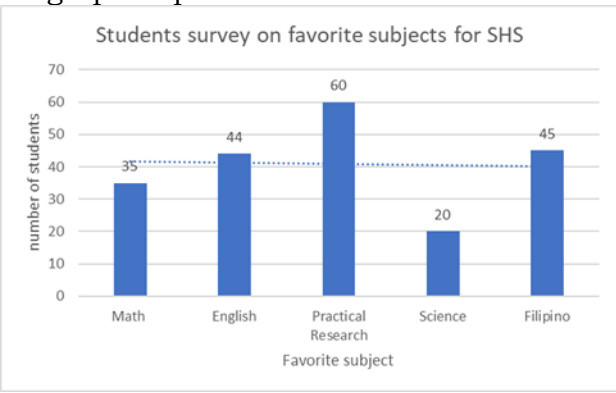
Read the following questions carefully and encircle the letter of the correct answer.

1. A simplest form of graphs which particularly useful in presenting a particular measurement taken at a number of points over time is called.
   A. Bar chart
   B. Line chart
   C. Pictograms
   D. Statistical maps

2. In which part of the research output are your results presented in a graphical form or through diagram?
   A. Analysis of data
   B. Interpretation of data
   C. Presentation of data
   D. Processing of data

3. After reading the method section of a quantitative research report, you should know _____.
   A. How the researcher analyzed the data
   B. The researcher's interpretation of the statistical results
   C. What the researcher did to collect the data
   D. Which literature support the researcher's hypotheses

4. What type of graph is presented below?



   A. Bar graph
   B. Line graph
   C. Pictograms
   D. Pie charts

5. The following are the advantages of tabular presentation EXCEPT.
   A. It is brief; it reduces the matter to the minimum.
   B. It tells the whole story with the necessity of mixing textual matter with figures.
   C. The systematic arrangement of columns and rows makes them readily understood.
   D. The columns and rows make comparison easier

6. A form of presentation that combines text and numerical facts in a statistical reports is.
   A. Circle graph
   B. Map graph
   C. Tabular forms
   D. Textual forms

7. Statistical data can be presented in.
   A. One form
   B. Two forms
   C. Three forms
   D. Four forms

8. Length is used to represent the data in.
   A. Pie chart
   B. Line chart
   C. Bar chart
   D. Histogram

9. The process of presenting classified data in suitable form is called.
   A. Calculation data
   B. Collection data
   C. Classification data
   D. Presentation data

10. A simple bar diagram is effective in representing.
   A. One variable
   B. Two variables
   C. Three variables
   D. Four variables

References

Books:

Altares, Precilla S., et al., Elementary Statistics with Computer Applications. Rex Book Store, 2005.

Faltado, Ruben E. 111, et al., Practical Research 2: Quantitative Research for SHS, 99-114.

Oronce, Orlando A., et al., E-Math Advanced Algebra and Trigonometry. Rex Book Store, 2007.

Rebustes, Nerza A. Methods of Research: Fundamental Concepts, Theory and Application, 2002, 67-69.

Trinidad, Jose Eos. Researching Philippine Realities: A Guide to Qualitative, Quantitative, and Humanities Research, 2018, 138–155.

Answer Key

What I Have Learned

1. Presentation and Interpretation
2. Line Graph
3. Data Processing
4. Interpretation of Data
5. Tabular Presentation

What I Can Do

(answer may vary)

Assessment

1.

2.

3. Answers may vary

Additional Activities – Essay

(answers may vary)

What I Need Know

1. A
2. Research
3. Science
4. 35
5. 15

What's In

(answers may vary)

What's New

(answers may vary)

What Is It

(answers may vary)

What's More

Activity 1 – Analyzing the Graph

1. Senior High School
2. No, there is no way in determining it if we rely on the pie chart
3. Base on the graph it was dominated or majority of the students are from senior high school.

Activity 2 – Exploration

,

1. Rainfall Recorded in the Philippines
2. Rainfall in June exceed that in May is about 215
3. From Aug to Oct.

Activity 3 – Self Construction

1.
2. Base on the figure it shows that majority of the respondent belongs to the age of 26-35 with 28.5 percent.
3. There are 29 or 14.5 percent belongs to the age of 46-55

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