Research Paper   **Mathematics**

BAR GRAPH

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ABSTRACT

The first purpose of the present study was to find out to what extent bar graphs may contain emergent features that can facilitate performance. In an experiment bar graphs with three different types of emergent feature were presented to each of 39 subjects who were asked to compare the sum of half of the values with that of the remaining values. The emergent features merely resulted from the relative size and position of the bars in relation to the subjects' task.
A fourth type of bar graph did not contain any of these emergent features and served as a control (baseline). A second purpose of the study was to investigate the effect on performance of training graph readers in the use of these emergent features. Results of the experiment in which 50 bar graphs of the four above mentioned types were presented to the subjects showed that there were significant differences between the four graph types in both reaction time and accuracy. However, the effects for reaction time were largely in opposite directions from those for accuracy. Further analysis of this phenomenon showed that a composite measure, obtained by summing reaction time and accuracy, significantly discriminates between the four graph types. Apparently, subjects responded quickly but inaccurately on some graphs, whereas they responded slowly but accurately on other graphs. Half of the subjects received more extensive training on the use of the emergent features. This additional training did not affect performance on any of the graph types, however. Implications of these results for the theory of graphical perception and the practice of graph design are discussed.

Keywords :

❖ **Objectives:**
After completing this paper you should be able to:
· Classify the bar graph title.
· Classify labels of the bar graph axes.
· Classify information of bar graph.
· Create statements on data pattern from a bar graph.

❖ **Bar Graph:**
· An image display used to compare the amounts or frequency of occasion of different characteristics of data is called a bar graph.
· A graph with rectangular bars with lengths relative to the values that they represent is called bar graph.
· A bar graph is a chart that uses either horizontal or vertical bars to show comparisons with categories.
· A bar graph is a graphical display of data using bars of different heights.
· Bar graphs are a very common type of graph best suited for a qualitative independent variable.

❖ **Parts of Bar Graph**
(1) Graph Title:
The graph title gives an overview of the information being presented in the graph. The title is given at the top of the graph.

E.g.: "subject verses marks"

(2) Axes and Labels:
· Each graph has two axes.
· The axes labels tell us what information is presented on each axis.
· One axis represents data groups and the other axis represents the value of data groups.
· E.g.: x-axis and y-axis.

(3) Label Axis:
· The labeled axis is always at the base of the bars.
· This axis displays the type of data group.
· This axis in display in label of the data.
· E.g.: Sunday ,Monday, Tuesday, …. Etc.

(4) Numerical Data Axis:
· The numerical data axis is always numerical scale data.
· This axis displays scalable data.
· This axis in display data.
· E.g.: 10, 20, 30, 40… 100.

➢ We are discuses of parts of the bar graph, now we are understanding example of following bar graph parts.
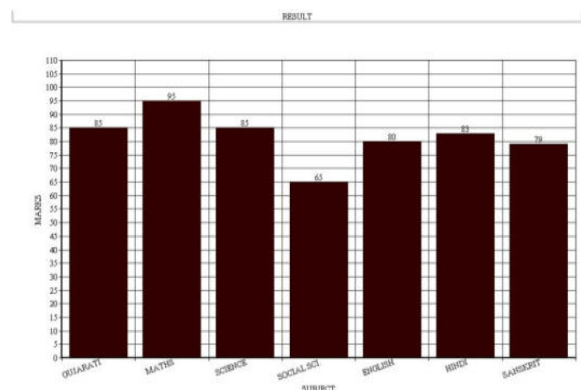
[Figure: 1 bar Graph]

1. Graph Title: Result (subject v/s marks)
The above bar graph is subject v/s marks of any one student and also the title of the graph is "RESULT".

2. Axes and Labels: subject and marks
Bar graph has two axes. The above bar graph has one axis is "subject" and another axis is "marks".

3.   Label Axis:
Bar graph has Label axis. The above bar graph in labeled are "GUJARATI","MATHS","SCIENCE","SOCIAL-SCIENCE.","ENGLISH", "HINDI","SANSKRIT".

4. Numerical Data Axis:
Bar graph has Numerical Data Axis. The above bar graph in numerical values is 0, 5, 10, 15, 20, 25, 30, 35……100.

❖ **Various Types of Bar Graphs:**
There are four types of bar graph.

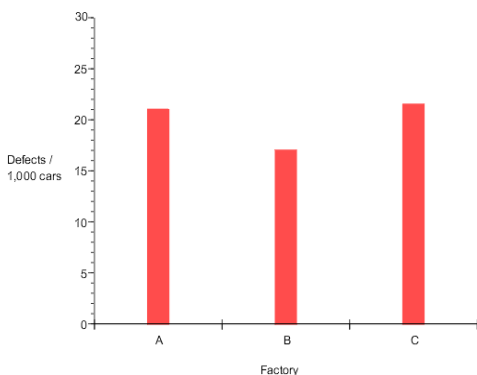(1) Vertical Bar Graph.
a.   Vertical Single Bar Graph.
b.   Vertical Double or Group Bar Graph.
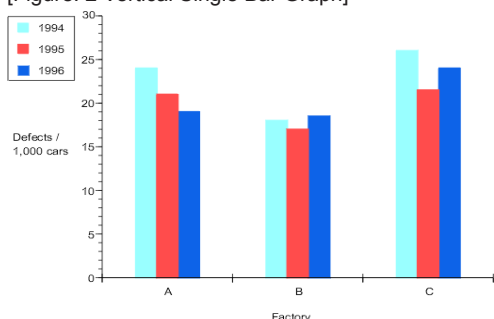
(2) Horizontal Bar Graph.
a.   Horizontal Single Bar Graph.
b.   Horizontal Double or Group Bar Graph.
(3) Stacked Bar Graph.

(4) Range Bar Graph.

➢ **Vertical Bar Graph.**
·   Vertical bar graphs should be used information of x-axis.
·   Vertical bar graphs should be used scale of y-axis.
·   Vertical bar graph is also known as simple bar graph or Colum bar graph.
·   There are two types of vertical bar graph.
1.   Vertical Single Bar Graph.
2.   Vertical Double or Group Bar Graph.
·   Vertical Single Bar Graph has one label has only one bar. Its information compares two another labels bar.
·   Vertical Group Bar Graph has one label have more than one bar. Its information compares to one label bar and another labels bars also.
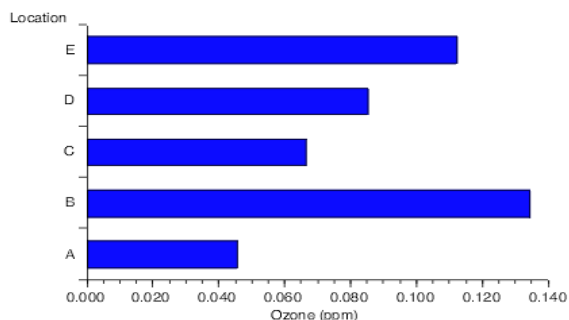

[Figure: 2 Vertical Single Bar Graph]

[Figure: 3 Vertical Group Bar Graph]
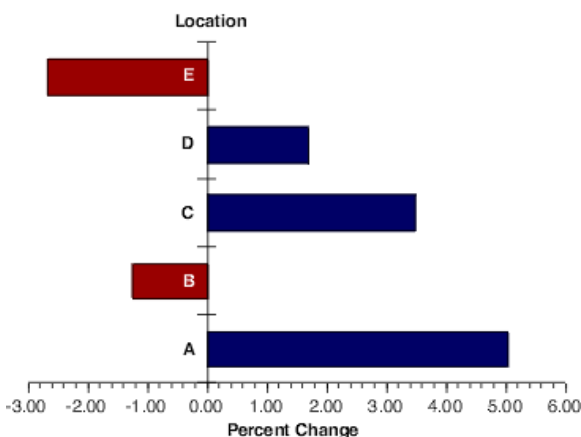
➢ **Horizontal Bar Graph.**
·   Horizontal bar graphs should be used information of Y-axis.
·   Horizontal bar graphs should be used scale of X-axis.
·   Horizontal bar graph is also known as Row bar graph.
·   There are two types of Horizontal bar graph.
1.   Horizontal Single Bar Graph.
2.   Horizontal Double or Group Bar Graph.
3.   Horizontal Positive-Negative Bar Graph.
·   Horizontal Single Bar Graph has one label has only one bar. Its information compares two another labels bar.
·   Horizontal Group Bar Graph has one label have more than one bar. Its information compares to one label bar and another labels bars also.
·   Horizontal Positive-Negative Bar Graph has variable has two type of value in bar as positive value and same graph have negative value also.

[Figure: 4 Horizontal Single Bar Graph]
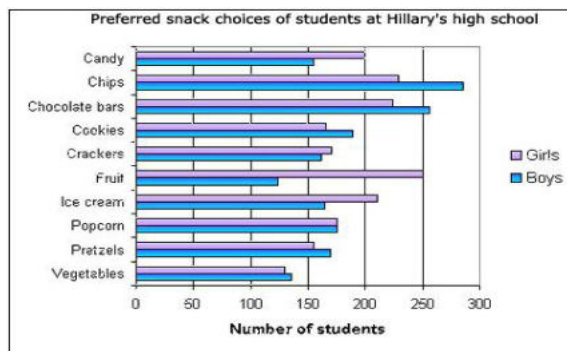

[Figure: 5 Horizontal Group Bar Graph]

[Figure: 6 Horizontal Positive-Negative Bar Graph]

➢ **Stacked Bar Graph.**
·   The stacked bar graph is used to show segments of totals.
·   The stacked bar graphs can express a lot of information.
·   The stacked bar graph can be very difficult to analyze if

too many items are in each stack.
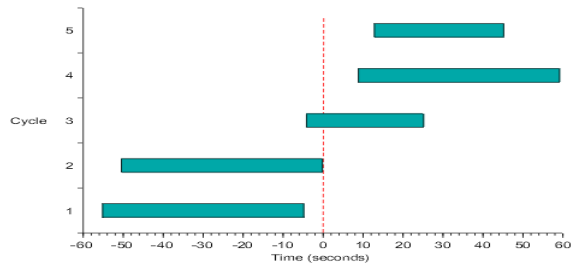· It can contrast values, but not necessarily in the simplest manner.
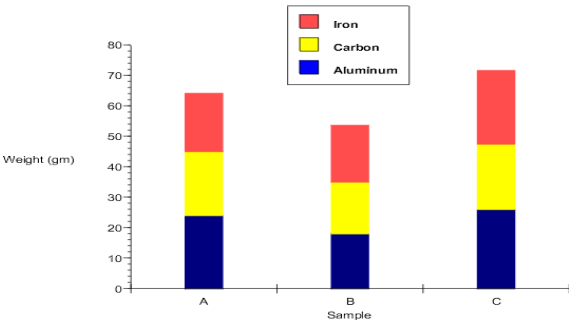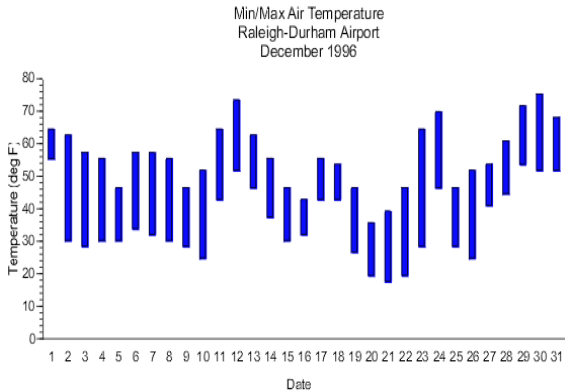
[Figure: 7 Vertical Stacked Bar Graph]
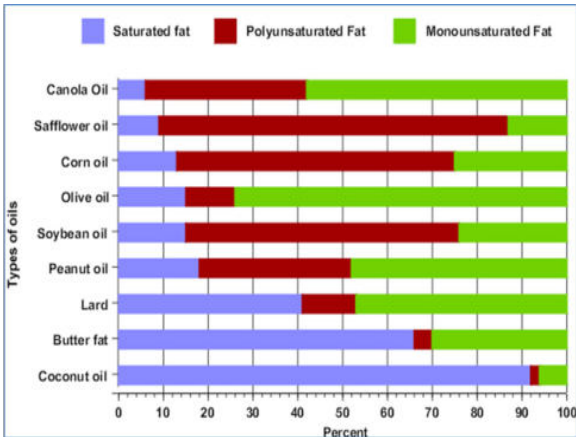
[Figure: 8 Horizontal Stacked Bar Graph]

➢ **Range Bar Graph.**
· Range bar graphs represent the dependent label as interval data.
· The bars rather than starting at a common zero point, begin at first dependent label value for that particular bar.

[Figure: 9 Range Bar Graph]

[Figure: 10 Range Bar Graph]

❖ Conclusion :
This paper conclusion of various types of graph in the powerful graph is bar graph. This paper contain of various all types of bar graph with example.

So that, this paper contain on bar graph is solid and information completed.

REFERENCES

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