

PRESENTING DATA EFFECTIVELY

Fundamental Principles

- Clear
- Concise
- Correct
- Consistent

The difference between reference data and summarised data

Reference data can be defined as the raw counts of data which is the foundation of the summarised data.

Summarised data is data taken from the reference data, then rounded and extracted, but which doesn't show the original data's full detail.

Using Charts and Diagrams

How clear is the message?

"A picture is worth a thousand words"

And this is true, but only if the picture is a true reflection, in this case, of the data. More often than not, particularly as we can now produce charts and diagrams almost instantly on personal computers, the wrong or inappropriate diagram is produced, which then gives the wrong message.

To present numbers effectively in charts, graphs and diagrams, you need to:

- ensure that the picture represents the data accurately
- make the diagram simple enough so that your reader can quickly understand your message
- use colour appropriately to help with presenting your message

Most people will be more concerned with the colours that they use in charts and diagrams than how accurately the data is represented. The difficulty in interpreting charts should be as much the creator's concern as the reader's/ interpreter's.

A good first principle, before starting to draw a diagram, is to write an aim for it. For example: I want to show how often contracted forms like 'we're' are preferred to the full length 'we are'.

With a clear aim, it is then easy to draw a diagram and check whether the outcome meets the aim. However, without a clear aim, it is very easy to deliver the wrong message from data presented in diagrams.

Good diagrams clarify the data and are easy to read. The message should be obvious so the diagram does not need to be studied a lot. If the diagram is not clear, the reader will, more than likely, not try to understand your message.

Pie charts – formatting principles

Pie charts should be used to display the proportion of a total in relative terms.

The items being displayed can be:

- related - such as people in different areas; or
- unrelated - such as the modes of travel to work.

If the items are **related**, the pie chart should be in different shades of **one** colour. If the items are **unrelated**, the pie chart should be in **different** colours. The segments are also ordered by size, which instantly helps the user to gain information from the diagram. You should always label the chart effectively so that you do not have to use any other references.

Resist the temptation to have a segment for all the possible data splits. It is better to arrange the smaller elements into groups (if possible). You should only use up to six segments in a pie chart; so if you have more than six categories, it would be better if you displayed the data in a bar chart.

Bar charts (or block charts) – formatting principles

A bar chart shows the relationship between the data's values in terms of the bars' visual area. As with graphs, it is very important that the bars are correctly drawn with the scale shown – including the zero point.

For simple bar charts: Always show the full scale. Do not overlap the bars. If you want to show more than one data set, particularly where the second data set requires a different scale - it is important to think through the full reasoning of the chart's aim. Ask the questions: Is the message still clear? Do the different scales add confusion?

Principles for Diagrams (Charts and Graphs)

- Never use three dimensions
- Do not overlap bars in bar charts (this distorts the visual comparison)
- Use colour sparingly: shades of a single colour are often more effective; bold colours may draw attention away from the main purpose
- Always put the zero point on the scales when graphing absolute numbers or preparing standard bar charts
- Order the pie chart's segments largest to smallest. Start the first slice at either the 12 o'clock or 3 o'clock position. Do not separate any segments from the centre as this will complicate interpretation
- Always label the diagrams effectively
- Always show gridlines to help interpretation
- Always use appropriate rounding of numbers on the axes
- When using pictograms, the basic pictograms should be of the same size but, obviously could be cut vertically just to show a part of the pictogram. These can only be used to represent data on a single scale
- Create statistically correct charts.