The Effects of Color and Familiar Visual Context on Chart Comprehension and Memorability

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Motivation

- Visualizations should not include chart junk (Chart junk refers to the confusing or unnecessary visual elements in graphs and charts).
- This view has also been supported by psychology lab studies. However, some researchers said, chart junk can possibly improve memorability.
- Can we make a chart where there will be no chart junk and, in the meantime, it will be more memorable to users?

Research Question

- RQ1: How can an engaging, more memorable chart be developed without the need for chart junk?
- RQ2: How does a combination of color with recognizable visual context offer a better chart understanding and improved user perception?
- RQ3: Are color and context an effective replacement to eliminate chart junk and contribute to the user’s memory?

Key Contribution

→ Conducted a user study with five different types of charts—minimalist, chart junk, colored, context, and a chart with color and context—to discover the memorability performance of the user.
→ Analyzed the visually embellished chart to identify the essential element that significantly contributes to memorability.
→ Evaluated the memorability performance of different types of charts to generate a memorable chart without chart junk.
→ Examined different aspects of a chart to see if the charts can actually be made more memorable.

Experiment Set-up

- Popular Transportation used in Country A
- Social Media Popularity in Country B
- Popular Food Consumption in Country C
- Social Media Popularity in Country D
- Social Media Popularity in Country E

Experiment Results

- Performance analysis for the highest data
- Performance analysis for the lowest data
- Performance analysis for the midway data
- Performance analysis for the overall data

Overall Findings

- The most important factor to influence a user’s memory is color, which may be employed in the chart to make the representation more interesting and memorable.
- The use of color in conjunction with a recognizable visual feature may facilitate chart understanding and may affect the user’s perception.
- To create a better chart, adding color with context can help to eliminate graphical cartoons and embellishments that are unnecessary.