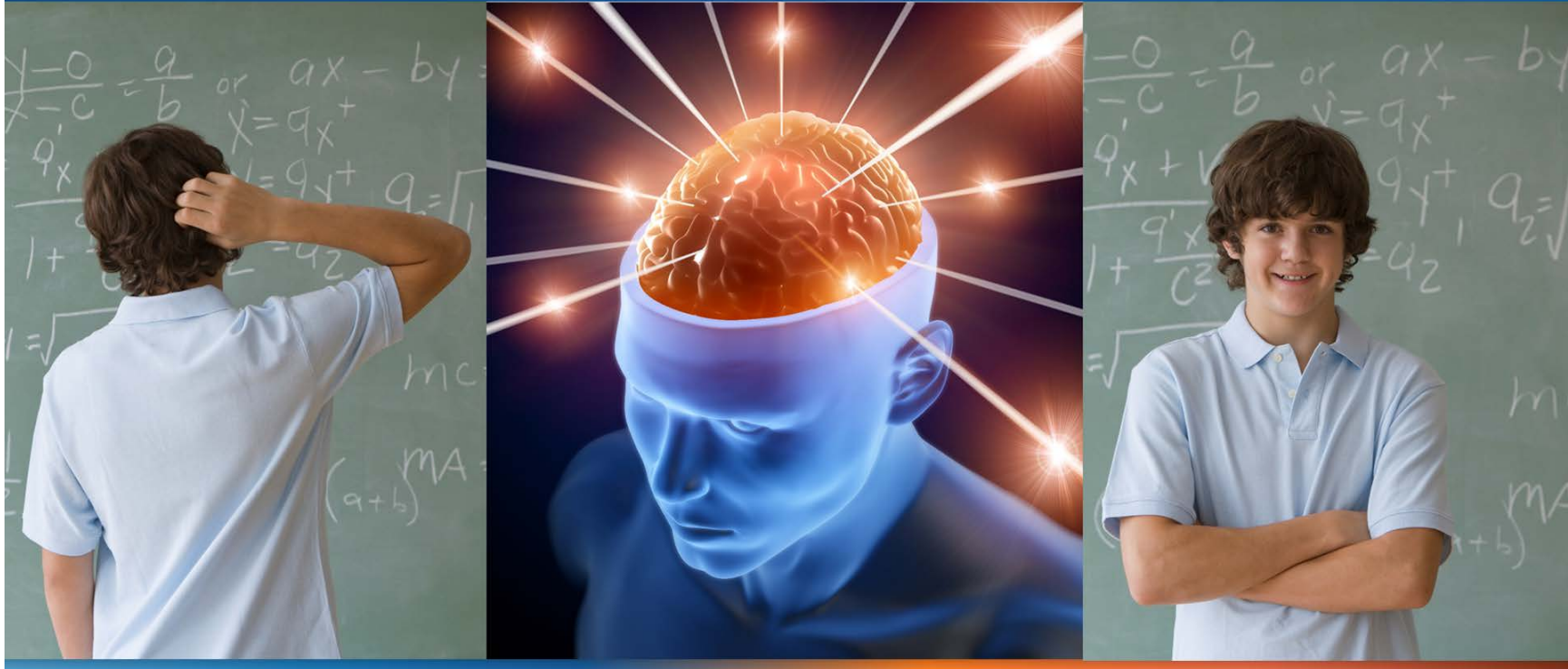


# Essential Design Principles for Tableau

*Cognitive Load and Clutter*

Cognitive load is the amount of mental effort required to interpret information





The goal in data visualization is to minimize cognitive load yet accurately communicate your message



Intrinsic

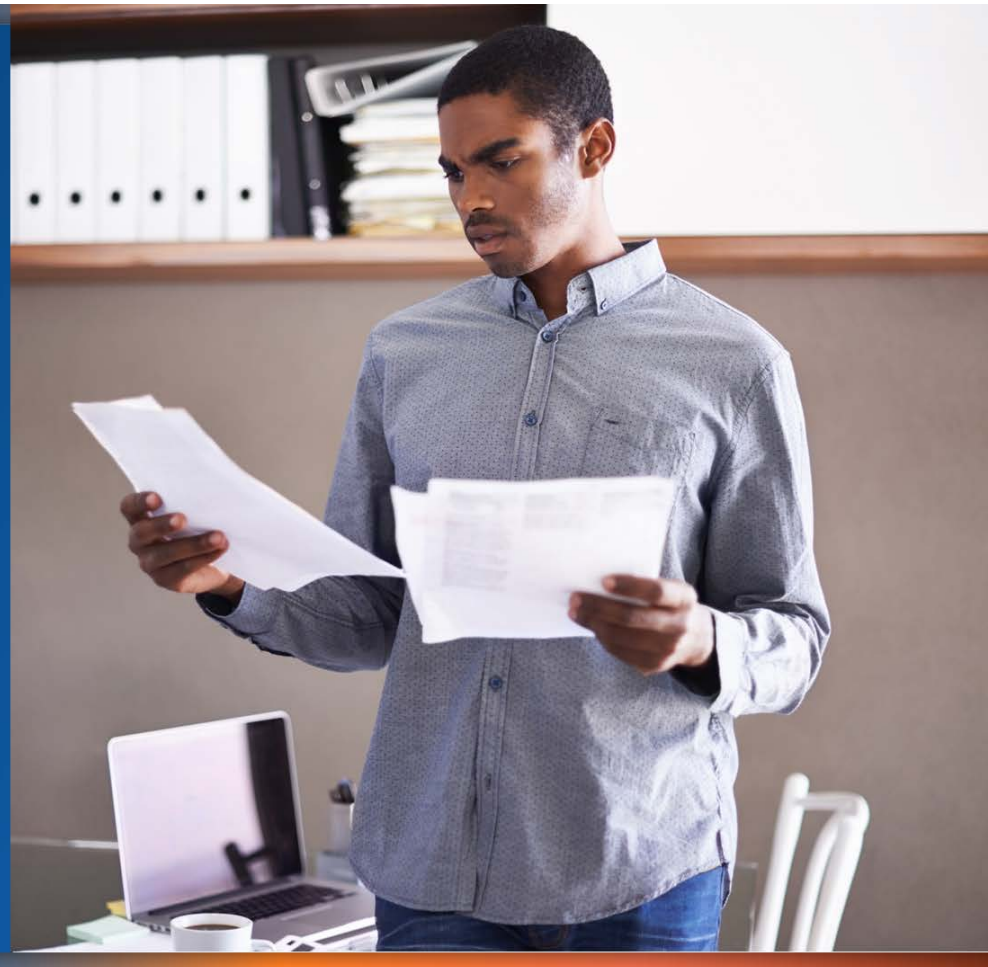
Extraneous

Germane

Amount of memory  
we need to understand  
an idea



Different tasks require  
different amounts  
of thought and attention





Extraneous cognitive load relates to how information is presented



Poor design requires more effort to identify problems and create a mental image





Germane cognitive load pertains to how we mentally organize into patterns and contextualize information for later reference

You know it  
when you see it





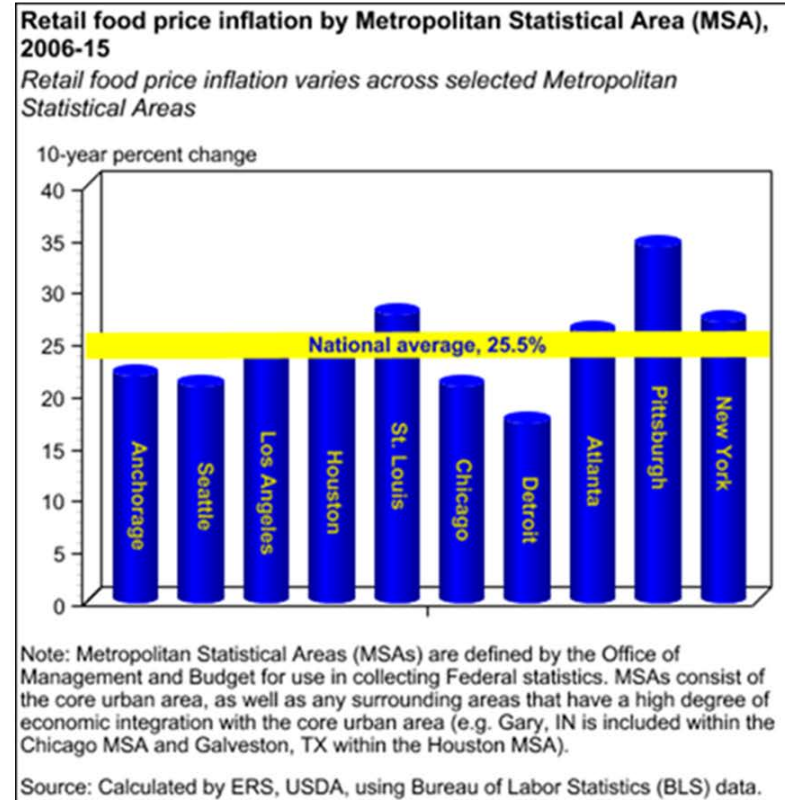
Reduce clutter to  
minimize user's  
cognitive load

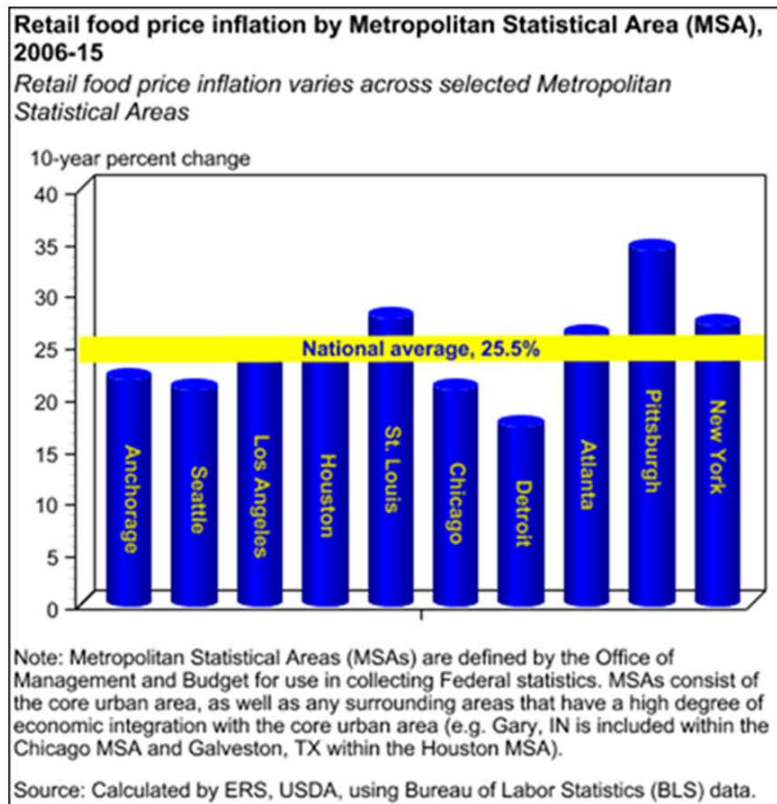
Less clutter =  
more effective  
visualizations



How would you  
remove the clutter?

What could have been  
done differently?





## Things to remove:

1. 3D effect
2. Dark grid lines
3. Overuse of bright colors
4. There is no apparent sorting of the data being shown
5. An unhelpful axis

3D doesn't improve  
a visualization

Skews information

Adds confusion



Redundancy (clutter) can help users manage cognitive load





Currency symbols

Percent signs

Commas within numbers

Scientific notation





Some details add clarity

Clarity reduces the effort required to comprehend complex data

Next time:  
Principles of visual perception