Visual Storytelling

Visual Storytelling Workshop: Seizing the Opportunity to Tell Your Story

May 7, 2025



Welcome



Forland and Wheeler Consulting



Cynthia Forland, Ph.D.

Management Consultant and former Assistant Commissioner and CIO at Washington State Employment Security Department

Scott Wheeler

Data Management Consultant and former Workforce Operations Information Manager at Washington State Employment Security Department

Today's Goal

Seizing the Opportunity to Tell Your Story



- Discussing the art and science of data analysis
- Reviewing different approaches to visualizing and when/why to use them
- Exploring how individual visuals combine to tell a story
- Identifying and avoiding bias in your visualizations

Visual Storytelling

The story is the culmination of all your preceding work.





Storytelling Supports Continuous Improvement

- Increases understanding
- Discovers new insights
- Make points "sticky"
- Creates enthusiasm
- Improves decision making and outcomes





Populating Logic Models with Data





https://www.abtglobal.com/sites/default/files/files/insights/w hite-papers/2023/visualizing-program-theory.pdf

The Art and Science of Data Analysis

Potential approaches:

Start at the end and then "flashback."

Present each puzzle piece and then complete the puzzle.

Dive into outliers and analyze their meaning. Follow the patterns and explore their origins.



Common Applications

Application	Pros	Cons			
Power BI	Cost, drag/drop, plays nice w/ Excel	Complex joins, inflexible, large files			
Excel (Query/Pivot)	Fast, easy, accessible	Large files			
R (Shiny)	Cost, flexibility	Steep learning curve			
Tableau Desktop	Drag/drop, quick visuals, plays nice with Prep	Cost, inflexible design, large files			

Others?



Application Tips

Application	Strategy
Power BI	Connect/link to dynamic data; best used for interactive tools
Excel (Query/Pivot)*	Use to normalize data prior to ingestion; best used for quick analysis
R (Shiny)	Use for real-time user-determined statistical calculations
Tableau Desktop	Use with pre-aggregated/static data; best for interactive purposes



*SQL is also a great pre-visualization data analysis tool

Visualizing Complexity

https://www.datarevelati ons.com/how-many-linesare-too-many-lines/





Ostensible change in pizza prices, 2022 to 2023



Mapping Multiple Trends



https://s2.washingtonpost.com/camp-

rw/?trackId=596b02b6ade4e24119ac1a18&s=6680138c253baa5f4e19135f&linknum=2&linktot=54

Strong Examples from Higher Education





https://viz.passhe.edu/t/Public/views/PASSHEWorkfor ceOutcomes/WorkforceOutcomes?%3AisGuestRedir ectFromVizportal=y&%3Aembed=y







https://databridge.highered.texas.gov/the-texas-talent-trajectory/



In-State

○ Out-of-State

take out in loans?

Select Residency Status

How much do students typically

Cost of Attendance



Student Loan Outcomes



(?)

Time to Degree Cost Calculator

Which schools should I compare?

Use this page to compare costs per year between two USG colleges/universities. Choose the residency status below and then select two colleges/universities from the dropdown menus on the right and the table will adapt.

will adapt.	College/University 1 Albany State University	College/University 2 Clayton State University			
Percent of Students Who Borrow per Year	7 5%	4 6%			
Average Amount Borrowed per Year	\$5,744	\$6,126			
Percent of Graduates Who Have Any Debt (Bachelor's)	0 88%	63%			
 Average Amount Borrowed Among Graduates (Bachelor's) 	\$29,656	\$27,997			
Percent of Graduates Who Have Any Debt (Associate)	0 80%	52%			
 Average Amount Borrowed Among Graduates (Associate) 	\$16,902	\$23,137			
(i) Cohort Loan Default Rate	0%	0%			

https://www.usg.edu/cost-of-attendance

In-State					Out-of-State								
Year	Tuition & Mandatory E&G Fees	Mandatory Non-E&G	Average Room & Board (1)	Total	Tuition & Mandatory E&G Fees	Mandatory Non-E&G	Average Room & Board (1)	Total					
Univer	sity of Virgini	a					I						
2020- 21	\$14,658	\$2,638	\$12,083	\$29,379	\$49,188	\$2,638	\$12,083	\$63,909					
2021- 22	\$14,649	\$2,761	<mark>\$</mark> 12,376	\$29,786			Full-Ti	ime Ge	eneral L	Indergra	iduate S	tudent Charges	
2022- 23	\$15,339	\$2,889	\$12,876	\$31,104	100.000				Ur	niversity of	Virginia		
2023- 24	\$15,785	\$3,023	\$13,656	\$32,464									
2024- 25	\$16,259	\$3,155	\$14,495	\$33,909	75,000	\$63,9	09		\$64,316		\$67,256	\$70,076	\$72,629
					50,000						۰.		¢22.000
					25,000	\$29,379		\$29,786		\$31,104		\$32,464	\$33,909
		\mathcal{N}			U	2020-21		2021	ý	2022	\mathcal{F}	2013-24	2024-25
						Show All OS Tuitio	IS Tuit	tion & Manda / EG Fees	ory EG Fees OS Manda	IS Mandato tory Non-EG Fees	ry Non-EG Fees OS Ava	IS Avg. Room & Board Room & Board	

Forland and Wheeler Consulting

https://viz.passhe.edu/t/Public/views/PASSHEWorkforceOutcomes/WorkforceOutcomes?%3AisGuestRedirectFromVizportal=y&%3Aembed=y

Rehearse & Refine





https://pleated-jeans.com/

Avoiding Bias and Logical Fallacies





false cause

Presuming that a real or perceived relationship between things means that one is the cause of the other.

anecdotal

Using personal experience or an isolated example instead of a valid argument, especially to dismiss statistics.



special pleading

Moving the goal posts to create exceptions when a claim is shown to be false



slippery slope

Asserting that if we allow A to happen then Z will consequently happen too, therefore A should not happen.



the texas sharpshooter

Cherry-picking data clusters to suit an argument, or finding a pattern to fit a presumption.

https://yourlogicalfallacyis.com



Framing Your Data (1 of 2)

Thing A





Framing Your Data (2 of 2)





Pie/Doughnut Charts vs. Bar/Column





https://venngage.com /blog/misleadinggraphs/



Questions? Comments?





Resources

- <u>https://flowingdata.com/</u>
- <u>https://www.gapminder.org/tools</u>
- <u>https://www.washingtonpost.com/newsletters/how-to-read-this-chart/</u>
- <u>https://www.reddit.com/r/dataisbeautiful</u>
- <u>https://www.reddit.com/r/DataArt/</u>
- <u>https://evalhub.workforcegps.org/resources/2024/05/03/19/11/H</u> <u>ow-We-Model-Matters-Visualizing-Program-Theories</u>



Connect with us

Cynthia Forland forland_c13@msn.com

Scott Wheeler wheelermgtconsulting@gmail.com



Thank you for joining us today!