

Assessing Student Learning Gains from a Data-Driven Storytelling Worksheet Implementation

Basic Worksheet:

1. Superficial observations about the story

- "Geo Visualization to play with hurricane and see different outcomes."
- "Story is based on a change vs. time visualization."
- "The type of chart selected to show a specific kind of data."
- "Most of the visualization is to familiarize the audience with the story. The data presented is simple and has a message."
- "They highlighted the active year and made the other years faded to draw attention to the current year."
- "Showing an image to compare the height of El Capitan and a person to emphasize how tall and big the El Capitan is."

2. Challenges associated with implementing interaction

- "The central aspect of scrolling."
- "The scale for the scroll, the auto scroller."
- "Scrolling and moving in the horizontal direction instead of vertical."

3. Challenges associated with implementing animation

- "Combining simulation, story, sound, animation in one screen."
- "The charts animating itself onto the screen."
- "Literally all of the animations and their implementations."

4. Detailed observations about the data visualization (techniques, interaction, color, etc.)

- "Timing the transitions correctly, the right aspect ratio, and the rest of the website."
- "Many of the charts did not have axis labels, grid lines, or titles. Instead, shapes, images, and annotations were used to convey the data to the user."
- "Good data-to-ink ratio, use of color, and hover animations."

Data Driven Storytelling Worksheet:

1. Identification of an emotional response elicited by the story

- Sympathy/Empathy
- Distaste/Frustration about the topic
- Call to action
- Information/Enlightening the audience
- Questioning beliefs and behavior
- Users find themselves in the data

2. Aspect ratio of charts and the differences between desktop and mobile versions of the story

- "Slope graph is not spiral on mobile device."
- "The mobile version changes the template a little, only problem would be the legend."
- "In mobile version, the geomapping must be shown above and the bar chart below for coordinated view."
- "The charts go out of screen when on mobile and is funky."

3. Improvements to interaction (filtering/ brushing/ tooltips)

- "Filtering and brushing can improve the user experience."
- "A tooltip; ability to highlight/filter/brush based on month and lodging."
- "Tooltips, hover, magnification, zoom, ability to sort and filter."

4. Characteristics of the data used in the story

- "Quantitative, time series, multidimensional, geographical data used in the story."
- "GPS Location data showing traffic snapshots, before and after COVID video footage."
- "Discrete data, binned or categorical."
- "Radial data, only 2 discrete variables showing saturated fats and how fried the item is."

5. Colors/labels/legends in visualizations used

- "I wish they had a color/opacity legend for the dots in the strip plots."
- "The color scale is not appropriate. Color is rarely used as a scale throughout the story. It is mainly used for aesthetic purposes."
- "Colors are semantically resonant."
- "Labels are too cluttered."

6. Ability to critique the dataset/story through learning cues - different chart types, improve website, what is missing in charts

- "Search Cat questions tab visualization is hard to see all at once - maybe instead of hover, use selecting."
- "The area of the canvas should be bigger."
- "Hover was minimalistic, brushing would have looked better."
- "The vis looks good but maybe change the geo vis to show satellite data?"
- "No titles, axes, grid lines, etc."
- "Show actual figures, how many stores in total? Data from how many stores, pacing is good, shows few cities but can show more."

7. Additional observations through learning cues

- "Including audio for the sounds section could improve the user experience."
- "Data-to-ink ratio is not the best."
- "I liked the pacing and continuity of the story."
- "Additional feature to enhance - click for more information."