How to give a Design Critique

CS 171

What is a Design Critique?

“A critique is a form of analysis that uses critical thinking to determine whether a design is expected to achieve its desired objectives (and adhere to any pertinent best practices or heuristics)" - Conor and Irizarry in *Discussing Design*

In CS171 we typically expect a written critique to contain up to 1000 words and to include appropriate illustrations or screenshots to make your points.

General Rules for a Design Critique

The main three rules in a design critique are:
(1) Be honest in your critique and candidly criticize what we think is wrong if —and only if—
(2) you can clearly explain why it's wrong, and
(3) if you are willing to do it in a considerate manner.

For each critical statement you make, try to identify a specific aspect of the design, relate that aspect to an objective or best practice, and describe how and why the aspect works to support or not support the objective or best practice. Supporting your statements with rationale, i.e., explaining *why* is key and you are expected to draw on the material and terminology you have learned throughout the course, including principles, guidelines, heuristics, best practices, etc. Remember that your *critique should be driven by evidence and design principles* and is not about your taste, opinion, or "gut reaction”.

Detailed Questions to Assess

For each of these questions, be specific and exhaustive. E.g., instead of “the data is US dollars in the streamgraph” use “gross income (inflation adjusted USD), quantitative, encoded as area (size) and color (hue).” Answer the questions in the order they are posed here. You may want to copy the questions first so you don’t forget anything. Sometimes the concerns are overlapping, so feel free to elaborate on points you were making earlier.

Note: For a written design critique you do not have to answer each one of those questions, but you should cover your main point of view for all eight categories listed below.

1. Goals

- Who is the audience?
- What questions does the visualization try to answer?
- Is it successful in answering them? Why or why not?
- What is the main message?
- What elements of the design are related to the message?
- Is it successful in conveying that message? Why or why not?

2. Visual Encodings

- What are the data (gross income, number of participants, weight etc.), data units (inflation adjusted USD, count, kilograms etc.) and data types (categorical, ordered, quantitative)?
- What marks (points, lines, area) and channels (position, size, (grey) value / luminance, texture, color (saturation and hue), orientation, shape, motion) are used for the data?
- Are the visual encodings appropriate for the data type? Why or why not?

3. Design and Effectiveness

- Are Tufte's principles followed, i.e., does the visualization:
  - have graphical integrity
  - mind the lie factor
  - maximize data-ink ratio (i.e., keep it simple)
  - avoid chart junk
- How does the design use the C.R.A.P. (contrast, repetition, alignment, proximity) principles?
- How does it use subjective dimensions (engagement, aesthetics, style, playfulness, vividness)?
- Overall, is the design effective in reducing cognitive load in the viewer? Why or why not?

4. Perception

- How do the visual encodings rank in effectiveness of each channel they are using (high, medium, low)?
- Does the visualization use pre-attentive channels? Which channels for what data?
- Does it combine channels? Which channels for what data? Are they separable or integral?
- Does the visualization use layering with contrast & color effectively?
- How are Gestalt principles being used (proximity, similarity, enclosure, connection, continuity)?
- How are motion or animation being used? Is it perceptually effective?

5. Color and Usability

- How is color being used (e.g., number of colors, color scheme, color space) for categorical and ordered data types?
- Are the categorical and ordered color maps appropriate? Why or why not?
- How is color being used (e.g., continuous or discrete color map, number of colors, color scheme, color space) for quantitative data types?
- Are the quantitative color maps appropriate? Why or why not?
- Is the visualization usable for color-blind people? If possible, check it in a color-blindness simulator.
- Would the visualization work in 'black and white,' i.e., grayscale? If possible, convert it to greyscale and check.

- Are there other usability issues, e.g., small fonts, unreadable labels, etc.?

6. Interactions

- Is the visualization interactive? If not, skip this section.
- What types of interactions does it use (tooltips, pan & zoom, filtering panel, etc.)?
- Does it successfully enable exploration (navigation, aggregation, filtering, faceting) of the data? Why or why not?
- Are the data exploration interactions effective (fast, statistically meaningful, easy to use, etc.)?
- Which interactions are easily discoverable by the user? Which ones are not?
- Are the interactions effective and in support of the goals of the visualization?

7. Storytelling

- Does the visualization tell a compelling story?
- What are the story pieces?
- What is the story structure (context, need, approach, message, findings, conclusions, perspective)?
- Are the title, visualizations, annotations, and text in support of that story?
- Does it have a punchline or an element of surprise?
- Is the story successful (engaging, memorable, carefully designed, conveying the message, moving us to action)? Why or why not?

8. Overall Assessment

- Is the visualization a success? Why or why not?
- How would you improve aspects of it? Be specific.
- What did you especially appreciate? Why?

Resources:

- https://github.com/comp-journalism/UMD-J479D-J779D-Fall2016/wiki/Assignment-%233---Visualization-Critique
- http://www.thefunctionalart.com/2014/08/some-words-about-constructive-criticism.html