Data Visualization + Empathy

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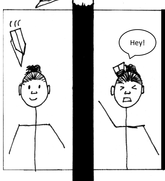
Empathy is often at the heart of using comics in medical education and within data visualization there's been an argument about the medium's ability to convey or increase empathy. Let's find out how these two areas overlap:

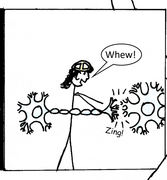
The use of narrative in comics increases complexity and uses techniques such as metaphor and personification to engage readers and increase memorability. [1,3]

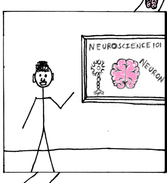


In comics, multiple meanings can be expressed through the images and through the juxtaposition of meanings in the image and text. The use of the gutter allows the reader to fill in the blank between panels, a process also known as closure. These points of uncertainty become points of emotional connection for readers. [1,3]

Creators who use characters who mirror their target audience, promote reader engagement. More simplified, cartoony characters can apply to a larger audience and are more likely to activate mirror neurons and the reader's empathy towards a character. [4,6,7]

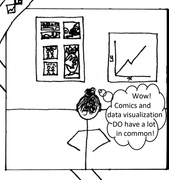
Text and image are a great duo! They increase understanding and build new knowledge on existing knowledge. [1]





The use of text and image also activates both side of the brain, the analytic and creative. [1,3]

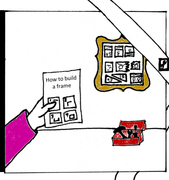
Comics can also bring disparate subjects together in the same panel or on the same page for comparison to find similarities and differences. [1,8]



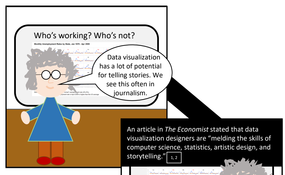
Data visualization and comics also share many of the same design principles to convey meaning such as line, text size, focus/framing, transition guidance, and ordering. [4,6,7]

To human interpretation, space is not neutral. Comics takes advantage of the meaning of space to convey relations (larger, smaller, up, down, sideways, importance). [1]

Comics are a versatile medium which range from informative to aesthetically pleasing. Comics are known for their humor and, while not all comics are humorous, some comics use humor to explore difficult subject matter. [1,3]



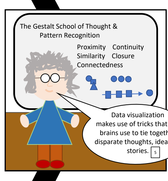
Educational comics humanize information for their readers. Graphic medicine is an example of one genre of comics which is portraying the human-side of medicine, both from the patient and provider prospective. [7]

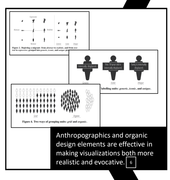


An article in *The Economist* stated that data visualization designers are "melding the skills of computer science, statistics, artistic design, and storytelling." [1,2]

Data can tell more than one story. In the same way, a data visualization can have multiple meanings. Does this make you uncomfortable?

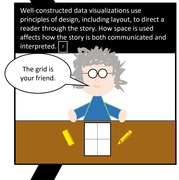
The story becomes personal when the data is *YOU*. [3]

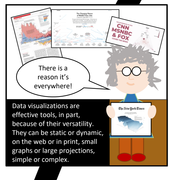




Anthropographics and organic design elements are effective in making visualizations both more realistic and evocative. [1]

Well-constructed data visualizations use principles of design, including layout, to direct a reader through the story. How space is used affects how the story is both communicated and interpreted. [3]

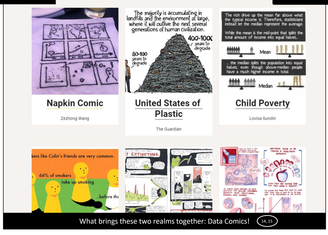




Data visualizations are effective tools, in part, because of their versatility. They can be static or dynamic, on the web or in print, small graphs or large projections, simple or complex.

The 20,000 foot view of people via data. *"From a distance, it's really easy to forget the dots are people."* [4]

Data Comics Gallery



What brings these two realms together: Data Comics! [4,5]

Implications for library visualization instruction:

- Use of principles from comics in data visualization instruction, specifically relating to empathy
- Data comics as a new medium [4,5]
- Possible learning activities found in research [9,10]

Future Work

- There are a lot of theories about the relationship between empathy and visualization but we found conflicting evidence as to how much visualization can elicit an empathetic response. There needs to be more experiments to test the theory of these techniques to increase empathy.

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