Assignment 1: Data Visualization

6311 Visual Culture and Design

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Introduction

Data visualization seeks to communicate a clear concise message to the audience via visual representation. According to Donis A. Donis, the substance of all visual design is based on the inclusion of basic visual elements (39). Although a greater understanding can be achieved by decomposing visual structure into its corresponding components, the overall success of the design relies on the effectiveness of its components to communicate that overall message of the work. Therefore, initial data analysis is a fundamental step in capturing the essence of the data. The purpose of this project is to utilize the basic elements of visual structure to design three static visualizations that demonstrate logical relationships derived from abstract survey data. The three visualizations represent the trends collected by the CDC's national Youth Risk Behavior Survey (YRBS). The entire body of the work will be described in the context of basic design principles.

Grid Layout

The overall design of the website seeks to bring organization to the entire work. Each page is dedicated to one topic, which is easily accessible from the fixed location of the navigation bar. The layout utilizes a basic two column grid, which divides the content from the navigation. The visualizations and descriptions display in the first column of the grid, in order to elevate their prominence on the page. Typographic hierarchy is established by modifying the size and style of the text (Lupton 94). All titles and headings use a sans-serif font, which aid the user in legibility while scanning the page. The text font-size is reduced during each descent into the hierarchy, in order to reinforce the division of content. A serif font is applied to the descriptive text to increase its readability. All text has been left justified, as Lupton recommends, establishing a clean shape on the page (84). The baseline orientation of labels on the y-axis of Visualization 1 and Visualization 2 were changed from vertical to horizontal to better utilize the pages real-estate (Lupton 91).

Visualization 1

Visualization 1 (Alcohol Consumption) makes a general statement on the decline of alcohol consumption among American high school students. The overall design utilizes a basic bar graph structure, which is enhanced by the substitution of three dimensional beer glasses for the traditional two dimensional vertical bars. The substitution removes abstraction by giving the viewer a visual reference which embodies the essence of the data. A three dimensional image was chosen, in order to give the image perspective. According to Donis, the use of tonal value reinforces the illusion of reality (48). The basic goal is to illuminate the qualities that have been lost in the abstraction of the survey data. The beer glasses use the principle of scale to emphasize the overall decline in alcohol consumption from 1999 to 2005. The juxtaposition of the beer glasses at different scales instantly provides contrast between the 1999 and 2005 data set. The imposing stature of the 1999 glass trivializes the significance of 2005 data, which resembles a shot glass in comparison.
Visualization 2

Visualization 2 (Obesity) makes a clear statement about the increasing trend of obesity among American high school students. Its similarity to Rudolph Zallinger’s “March of Progress,” which represents the evolution of man, invokes an immediate comparison between man's progress and subsequent decline (Howell 41-45). The structure of the design enhances a basic line graph by adding an image of a masculine silhouette. The increase in the number of obese high school students is represented visually by the relative increase in width and height of the silhouette. The monochromatic color scheme seeks to deemphasize the prominence of the images themselves, while refocusing attention on the red trend line. Because of the sensitivity of the topic, the design attempts to avoid making any statements about obesity or its underlying causes. The placement of the images facing the same direction, equally spaced, adds an element of linear movement. The illusion of motion is captured in the arrangement of the images in conjunction with the read-flow principle of perception, which describes a general scanning of the page from a left to right, top to bottom (Dondis 65).

Visualization 3

Visualization 3 (Meth vs. Obesity) explores the unusual relationship between methamphetamine use and its inverse relationship to high school obesity. It suggests that the level of obesity is a key indicator of the level of methamphetamine use, and vice versa. The basic structure identifies the data elements as cubes. The white color was chosen as the most logical choice for the representation of methamphetamines, while grey was chosen to suggest that the relationship between obesity and methamphetamines use is not fully known. The characteristic of measurement for both objects have been aggregated and represented visually as packages weighed on a scale. The cubes add stability and weight to the overall structure, while elements of conflict and tension are communicated via the triangle that balances the weight of both data elements (Dondis 44). The layout for the 1999 and 2007 data visualizations use an asymmetrical visual technique, in order to overemphasize the large increase in obesity in 2007.

Conclusion

In conclusion, the entire work is constructed to effectively communicate a coherent message to the user. The structure of the website seeks to encapsulate and present the information in a logical manner. Each visualization utilizes basic design elements such as shape, size, and perception, to communicate with the viewer. Although each element supports the overall theme of the composition, the message relies on the contextual understanding of the visualization as a whole. The goal is not to create a symbolic representation of the data, but instead illuminate meaning by using visual references that are relevant to the overall message.
Works Cited