Teaching R graphics & visual rhetoric

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www.graphdoctor.com
github.com/graphdr


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Creating a data visual is an exercise in rhetorical judgement.

- meanings
- comparisons
- contexts
Different communities focus on different aspects of communication.

- technique
- patterns
- inference

scripting
& analysis
Different communities focus on different aspects of communication:

- tips
- clarity
- convention
- technique
- patterns
- inference

scripting & analysis

design aesthetics

- technique
- patterns
- inference
- tips
- clarity
- convention
Different communities focus on different aspects of communication.

- technique
- patterns
- inference
- tips
- clarity
- convention
- meaning
- context
- response
A student creates a portfolio of displays and critiques.
Allotting the in-class hours to the major topics.

Percentage of course

Class hours (40 hours total)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Data</th>
<th>Graphs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Scripting</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Design</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Rhetoric</td>
<td>8</td>
<td>20</td>
</tr>
</tbody>
</table>
Consider the rhetorical attributes of the dot plot.

- empirical-study based
- optimal data transmission
- philosophical positivism
Rhetoric of adaptation: tailoring the communication to a specific situation.

The “Curriculum Committee” version:

<table>
<thead>
<tr>
<th>Class hours</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio</td>
<td>14</td>
</tr>
<tr>
<td>Coding</td>
<td>11</td>
</tr>
<tr>
<td>Design</td>
<td>10</td>
</tr>
<tr>
<td>Rhetoric</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
</tr>
</tbody>
</table>
Social rhetoric: readers interpret displays through their collective learning, experience, and values.

The “Board of Trustees” version:

<table>
<thead>
<tr>
<th></th>
<th>Percent class hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical</td>
<td>50%</td>
</tr>
<tr>
<td>Lab</td>
<td>30%</td>
</tr>
<tr>
<td>Communication</td>
<td>20%</td>
</tr>
</tbody>
</table>
Indifference to the human condition: a cruel graphic.

Total casualties in Iraq, 2003-10

- U.S. military: 4365
- Iraqi civilians: 94,000
A humanizing image can convey a humanistic ethic.
Implications for teaching R graphics.

- Carefully select your technical computing objectives.
- Continue to design for clarity and truthfulness.
- Pay attention to the needs of the audience.
- Convey a humanistic ethic.

With thanks to my students E.W. Cating, S. Hacker, M. Pitsch, F. Winkelmann, & J. Wullbrandt for sharing excerpts from their portfolios (pp. 7, 13, 14).