Best Practices for Map Design

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Outline of session

• Cartographic Requirement
• Design principles
• Putting the pieces together
• Publishing online
• Synopsis, final checking

CARTOGRAPHY
Design is crucial to communication in GIS

Large database
Equal Treatment
No inherent design

Design

Data Processing
Function
Meaning
Evaluation as part of the design process
Cartographic Requirement
What’s the story?
Maps are complex graphics

Written/spoken word: SERIAL

Graphics: PARALLEL
Cartographic requirement

- Audience
- Media resolution
- Viewing distance
- Output medium
- Anticipated level of understanding
- Conditions of use
- One map or multiple maps
- What areal extent to show
- Insets
Demo: Requirement
Cartographic Requirement

**Take-aways**

- Know your who’s, what’s, where’s & how’s.
- Ask if you don’t know!
Cartographic Design Principles
Visual hierarchy

Source: www.direct.gov.uk
Visual hierarchy
Demo: Visual hierarchy
Visual Hierarchy

*Take-away*

- Visual hierarchy creates structure and visual pleasure for your users.
- A great organizational aid.
Visual contrast
Figure-ground
Demo: Figure-ground
Figure-ground

*Take-aways*

- Make the important features on your map pop.
- Know who the actor is, and who is the stage.
Projections

Online map services

- WGS 1984 Web Mercator (Auxiliary Sphere)
Demo: Projection
Projection

Take-aways

• Don’t marry Mercator
• On-the-fly re-projecting can be costly
Symbol palette

- Spacing
- Orientation
- Size
- Hue
- Shape
- Lightness
Symbol meaning

- **Points**
  - Nominal: Airport, Emergency Phone, Picnic site
  - Ordinal: Large, Medium, Small
  - Interval or Ratio: 500-999, 100-499, 0-99

- **Lines**
  - Nominal: Motorway, Railway, River, Canal
  - Ordinal: Motorway, A road (dual), A road, B road, Minor
  - Interval or Ratio: 40-49, 30-39, 20-29, 10-19, 0-9

- **Areas**
  - Forest, Agricultural

The diagram illustrates how symbols are used to represent different types of data on a map, with variations in size, color, and pattern to indicate different levels of magnitude or classification.
Demo: Symbols
Symbols

**Take-aways**

- Know your visual variables
- Text is a symbol. Don’t forget that!
Classifying data
Feature generalization

Large scale

Small scale
Feature generalization

- Simplify
- Smooth
- Aggregate
- Amalgamate
- Collapse
Feature generalization

Merge

Refine

Exaggerate

Enhance

Displace
Demo: Feature generalization
Generalization

*Take-aways*

- Too much detail will kill your map
- Complex geometries are ugly
Colour – sequential

Sequential

2009 Obesity Rates
- 0% - 3%: Light blue
- 3% - 10%: Light green
- 10% - 20%: Light yellow
- 20% - 30%: Light orange
- 30% - 40%: Light red
- 40% - 50%: Dark red

2009 Diabetes Rates
- 0% - 7%: Light blue
- 7% - 9%: Light green
- 9% - 11%: Light yellow
- 11% - 13%: Light orange
- 13% - 15%: Light red
- 15% - 18%: Dark red
Colour – diverging

Diverging Critical Class

Diverging Critical Break

Map showing average annual solar potential with higher and lower regions.
Colour – qualitative

Qualitative
Colour

*Take-aways*

- Use colour wisely
- Understand which colour scheme to use and when
- Put a ‘u’ in colour
Typography

- **Purpose**
  - Cities
  - Towns
  - Villages

- **Size**
  - 5 point
  - 7 point
  - 10 point
  - 12 point
  - 18 point
  - 24 point

- **Position**
  - London

- **Conflict**
  - Northampton

- **Style**
  - sans serif
  - serif
Demo: Typography
Typography

*Take-aways*

• Possibly the most difficult map element to get right (alongside colour)
• Give labeling the time it deserves
Putting the pieces together
User interface for web map apps

- Map/app title
- Main map
- Pop-ups
- Dynamic legends
- Sliders, clickable icons
- Multi-media content
- Credit and source
Demo: layout
Layout

Take-aways

• Poor UI and map surrounds can murder your map.
• Give your map the finish it deserves!
Synopsis
Thank you...

Please fill out the session evaluation

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