Five Design-Sheet (FdS) Methodology Overview and Examples

From “Sketching Designs using the Five Design-Sheet Methodology”
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InfoVis 2015
Sheet 1 – Brain Storm

- Generate Ideas
  - short concepts that could be part of whole
- Filter
  - remove duplicate or impossible ideas
- Categorize
  - order the ideas
- Combine & Refine
  - organize ideas into bigger solutions, multiple views?
- Question
  - does this provide a solution to the task?

Rules of Brainstorming
1. Don’t criticize
2. Don’t evaluate
3. Generate-generate-generate
4. Use the whole design space
Sheets 2, 3, 4 – Initial Designs

• Layout
  – vision of what the final vis would look like, sketch screenshot

• Focus
  – central idea of the vis, could be particular component or novel interaction method

• Operations
  – how the user operates the vis, controls needed for the interface

• Discussion
  – advantages and disadvantages of the technique
Sheet 5 - Realization

• Complete layout, focus, and operation sections for the chosen vis
  – may be different from the original 3, or a combination

• Exchange discussion for detail
  – algorithms
  – design details (color, shapes, etc.)
  – dependencies – software libraries
  – estimated time to build
  – other hardware/software requirements
Sheet 1 - Brainstorm

Data regarding University access for disabled students.
Sheet 2 – Initial Design 1

[Diagram with handwritten notes and annotations]
Sheet 3 – Initial Design 2
Sheet 4 – Initial Design 3
Sheet 5 – Realization
Sheet 1 - Brainstorm

Data of predatory birds in the UK.

Contains information about breeding pairs, deaths of birds, and population growth.

Worked through ideas for temporal, circular, and map-based visualizations.
Sheet 2 – Initial Design 1

Title: Interactive Map
Author: [Name]
Date: 14/11/12 Sheet: 2
Task: Visualize predatory bird contamination in UK

- Users have initial view of the average results (perhaps a timeline) and can click on checklists to either alter the heatmap results (e.g., show chemical X etc.) or alter data sources (e.g., map) to see any certain items based on criteria.
- Hover over data sources and click to see further details.

- Extensive options to show map details,
- Simple visual analysis with heatmap.

The checklists will have a lot more options than shown, e.g., reasons why, etc. 10-12 types of ways the bird died.
Sheet 3 – Initial Design 2

Title: Graphical slices and graphs

Date: 16/11/12  Sheet: 3

Task: Visualize predatory bird contamination in UK

- Overall averages are represented, hover over certain areas to find detailed values for the item.

Circles represent contamination levels as each species, each slice is its own contaminant.

- Comprehensive visual representation of averages amongst the data.
- All data is shown from initial view.

Each slice is the overall accumulation of chemicals amongst two species.

- Specifics such as how the bird died is ignored.
- Circum-rings/Slices do not show specific yearly statistics.
Sheet 4 – Initial Design 3

Title: Visual Eggs and Graph
Author: [Name]
Date: 1/1/12 Sheet: 4
Task: Visualize predatory bird contamination in the elk

- Honor over section of bird egg shell to see contamination %.
- Click date timeline to alter egg shell chemical ratio based on selected date.

Each bird inside an egg shell represents % of contamination of chemical the bird has. Timeline chart below.

- Simple design
- Birds in egg provide easy visual representation

- Does not provide details of death
- Egg shells somewhat like pie chart.

Note: Each line represents a chemical that year, K = Kestrel, S = Sparrowhawk, H = Heron.
Sheet 5 – Realization
Predatory Bird Monitoring Scheme

Kestrel
Heron
Sparrowhawk

HCH
DDE
HEOB
PCB
TDE
DDT
Hg
Sheet 1 - Brainstorm

Data of Olympic medal wins

Considered pie charts, stacked bar charts, and map views

Discovered the “missing” Olympic games during WWII
Sheet 2 – Initial Design 1
Sheet 3 – Initial Design 2

Title: Assignment 1 Figs
Author: [Name]
Date: 24/10/2014
Sheet: Q3

Operation
- Can choose to display data from MENS, WOMENS or both categories.
- According to data that fits categories chosen, the legend and graph changes.
- The Data Range slider at the bottom is indicative to the entire range but can be changed to any range.
- The axes and legend change accordingly. Co-Dax slider, min and slider max year range is adjusted.

Discussion

Advantages
- Highly interactive visualization
- Trends in Wimbledon history can be observed easily.

Disadvantages
- Hard to implement
- Depending on number of countries, too many graph can get congested.
Sheet 4 – Initial Design 3

Discussion

Pros:
- Highly interactive.
- Entire data can be previewed in one view.
- Trends like geographical regions and their influence can be observed, for example, where wines are produced in 10/40 countries.

Cons:
- Difficult to implement.
- Small countries will not appear as visually prominent despite number of sales.

World Map: Representing wine per country.
Sheet 5 – Realization

Title: Assignment 1: FdS
Author: [Name]
Date: 24/01/2014
Sheet: 05

Operations
- Use selected countries to show and map is updated.
- Countries that have won limit each at least once get a marker pin to differentiate them.
- Clicking on pin reveals a tooltip with name, country name, flag and link to win.
- Comparative history compares chosen countries to 5 top winning countries using a timeline.

Legend
- [Legend details]

Details
- Dependencies
  - Google Maps API
  - Javascript + Validation API
  - HTML + CSS
- Tools to build
  - 3 web tools.
- Requirements
  - Browser that supports CSS3 & JS
  - Internet connection
  - Device with at least 1480 x 320 resolution

Country with wins have markers.

Country with wins have markers.