

Huang, Yingdan
Mangalath, Praful
Shao, Peng Michael
Chen-Chung Liu

Brainstorming

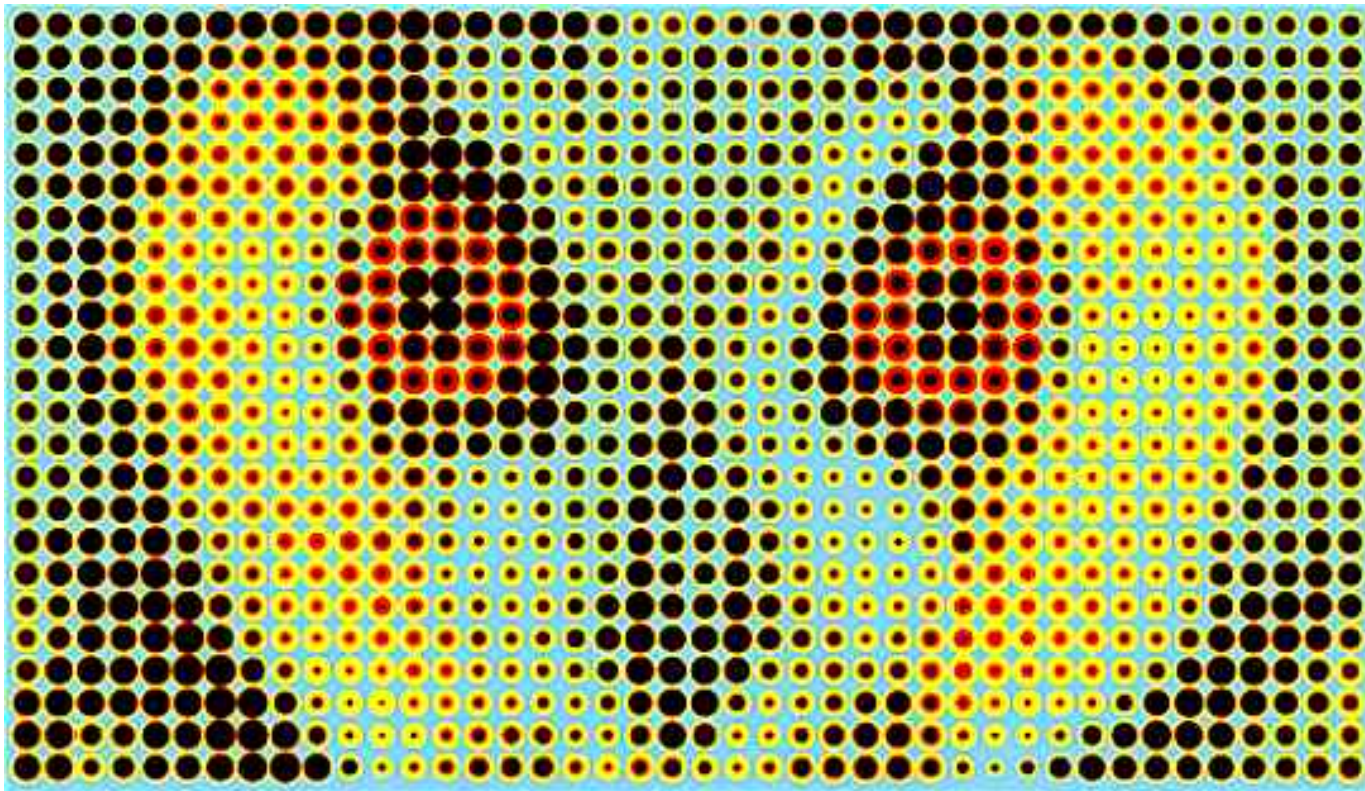
- Collaborative process for generating, collecting and filtering ideas
 - environments that facilitate this process
- ‘board/sketch’ type environments
 - initial phase collaborative design
 - multi-user design environments
 - Synchronous/Asynchronous

Multilevel systems in design

- Design is presented as an iterative top-down and bottom-up process that induces the emergence of desirable properties
 - Analysis
 - Abstraction
 - Synthesis

Analysis :: Top-down :: Gestalt

- Analysis is the resolution of anything complex into its elements and the study of these elements and of their interrelationships. It calls for identification, definition, structuring and arrangement. The acquired information is transformed into knowledge.



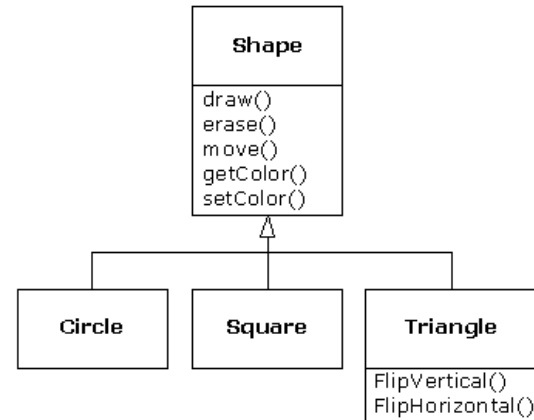
Synthesis :: Bottom-up :: Seed



- Synthesis is the putting together of parts or elements to produce new effects and to demonstrate that these effects create an overall order. It involves search and discovery, and also composition and combination.

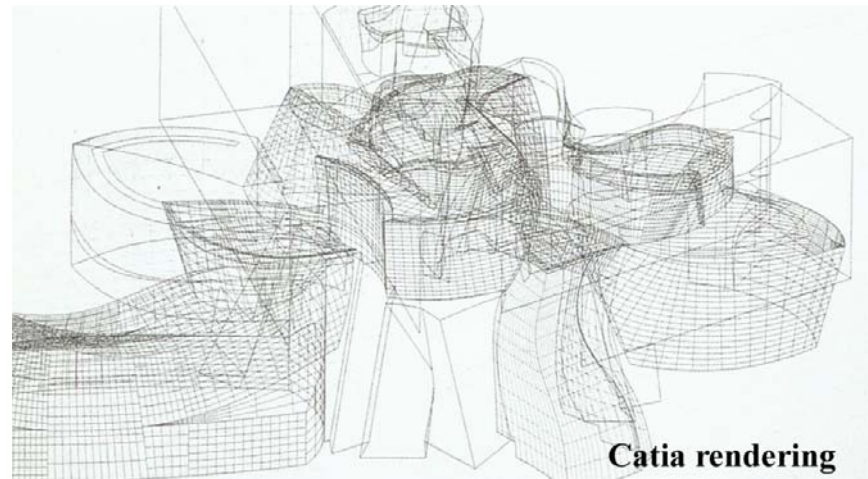
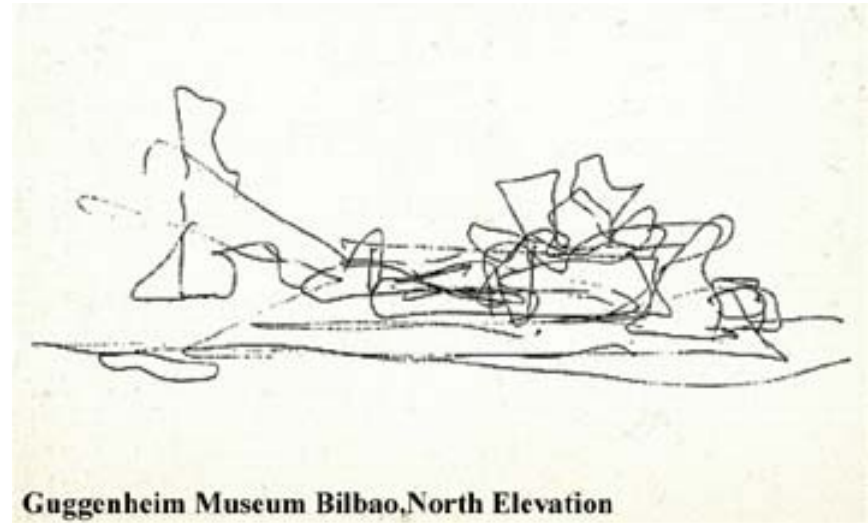
Abstraction

- Abstraction gives the possibility of finding a higher level interrelationship, that is, one which is more generic and comprehensive. Such a process reduces complexity and emphasizes the essential characteristics of the problem and thereby provides an opportunity to search for and find other solutions containing the identified characteristics. At the same time new structures emerge in the minds of designers and these assist with the organization and retrieval of the many ideas and representations.



Early Phase Design

- Early design representation and strategies
 - We sketch
 - We talk
 - We make models
 - All these efforts are to externalize designers' thoughts and share with others even with oneself
- Context for computer supported collaborative design



Design Brainstorming

- Rules of brainstorming
 - No idea is a bad idea
 - Be creative
 - Take risks and be brave
 - No criticism allowed, no comment until later
 - Record, don't discuss
 - Feed off and expand on other people's idea
- Transforming any object into something new
 - Substitution
 - Modify
 - Combine
 - Put to other users
 - Adapt
 - Minify or eliminate
 - Magnify
 - Rearrange
 - reverse

Experimental Design

- Two experiments:
synchronous, localized, short-term brainstorming.
- **Improvisatory** nature.
- Individuals had some **domain knowledge** of brainstorming.



Analysis, 1 of 4

- Start with individual brainstorming, then presentations, then group brainstorming, then group idea reduction.
- Support **audiovisual** communication, especially during group brainstorming.



Analysis, 2 of 4

- Support different kinds of representation **media** (text, various sizes post-its).
- Support note taking **distinct** from sketches.
- Support colors insofar as it tracks each individual's **contributions**.



Analysis, 3 of 4

- Support **observation** of other individuals during individual brainstorming.
- Support constant **feedback loops**.
- Support the presence of a **moderator** to maintain discussion focus.



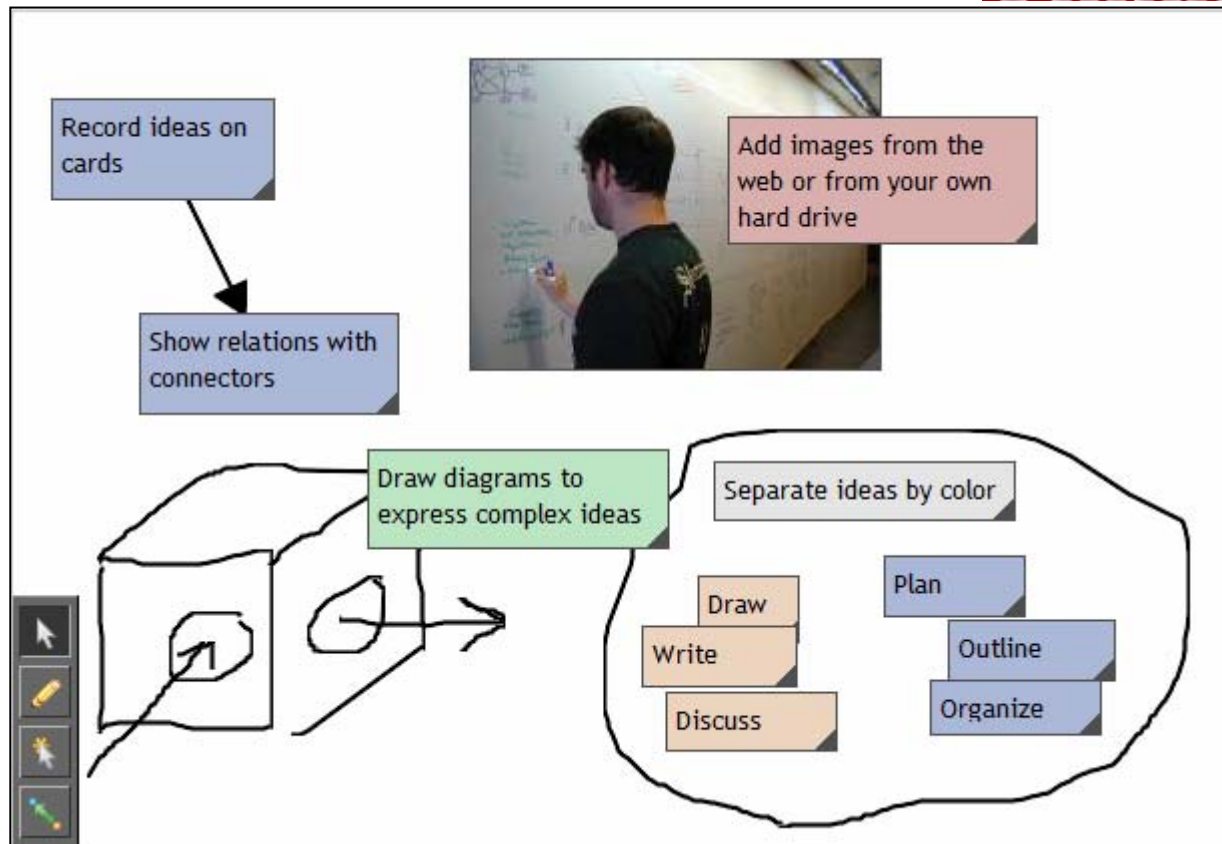
Analysis, 4 of 4

- Support **rapid iterative** drafting.
- Support a **public workspace** (whiteboard) in addition to **private workspaces** (desk).



Virtual Environments

Thinkature



- Single online workspace.
- Text chat, voice chat, uploads, sketches.
- Associations (aka. relations).

Virtual Environments



The screenshot displays a web browser window titled "skrbl: Your sharable online whiteboard - Windows Internet Explorer" with the URL "https://skrbl.com/demo". The interface includes a menu bar with "File" and "My skrbls", and a toolbar with icons for navigation and editing. The main content area is filled with several notes and diagrams:

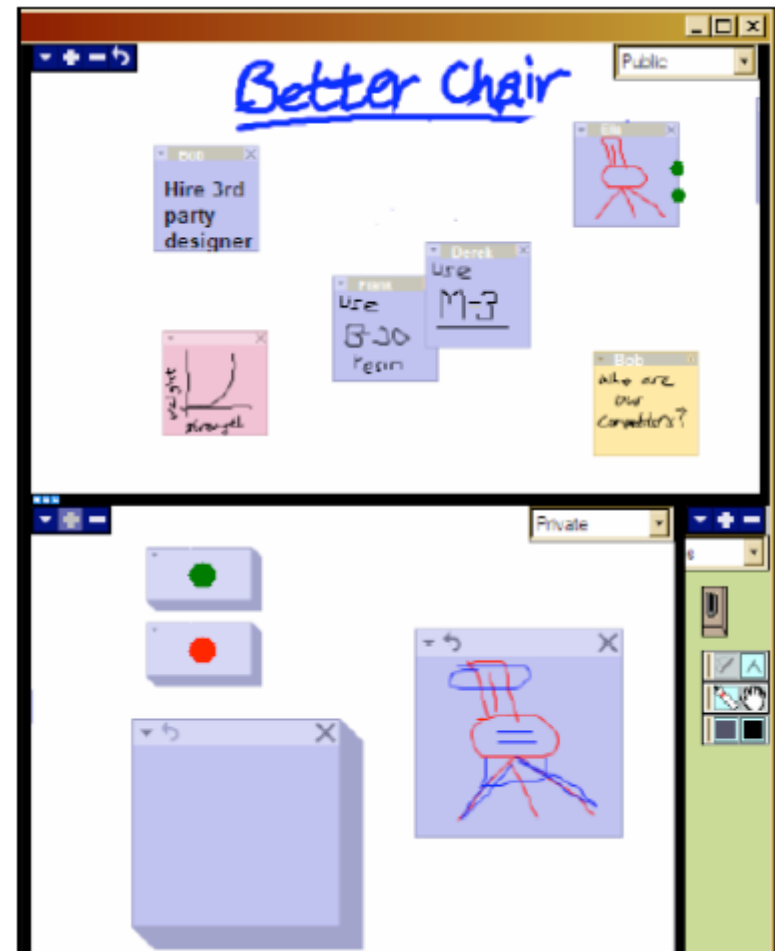
- What we skrbl**
 1. Conference notes
 2. Reminders
 3. Files to share
 4. Draft documents
 5. Ohone Numbers
 6. Cool Pictures
 7. Cooler doodles
 8. Call notes
 9. List of excuses for coming in late.

www.skrbl.com
complete w
- Some important points to note include:**
 - An overwhelming 56% of the city exceeds the membership of (respons
 - Public health clubs had the highest s (and the lowest dissatisfaction). (* Bill
- Web service design - Bill Brown**
UAT - Tim Blake Completed - Tim
- Campaign Analysis - Kelly Frost**
- Vendor review - John Allen**
- Campaign Report**
Requirements.doc
- My Angel**
Image of a baby
- Schedule**
 - Morning - write code
 - Afternoon - debug code
 - Evening - deploy code
 - Night - dream of code
 - Wake up, Repeat
- Dentist - Dec 21 @ 10:30 am**
- New York Biz Trip Friday Dec 22**
 - Presentation.ppt
 - American Airlines 2189
 - Depart: 6:00am DFW
 - Arrive: 9:35am LGA
 - Call Jeff @ 476 555 8723
 - Resume.doc
- Diagram:** A flowchart starting with a box labeled "RFC". Two red arrows point from "RFC" to two other boxes: "collect order" (circled in blue) and "make an offer" (circled in blue).

- Private and Public workspaces.
- Notes, sketches, sharing images and files.

Virtual Environments

- Simultaneous Private and Public workspaces.
- Flexible backgrounds, representations.



Virtual Environments



The screenshot displays the VveW interface with several key areas highlighted by red boxes and callouts:

- Shared Workspace & Viewing Area:** Located in the top-left pane, it includes a toolbar with options like 'Insert Controls', 'Undo & Paste', and 'Insert & Delete Pages'. Below the toolbar, it lists capabilities: 'Intermix and work with: Microsoft Office and Adobe PDF files, Photos, Screen Captures & Desktop Shares, Plug-ins: text docs, diagrams, maps, etc.'
- Drawing & Commenting Tools:** Located in the bottom-left pane, it lists 'Draw', 'Highlight', 'Annotate', and 'Embed comments'. It also shows 'Shared text annotations' and 'And drawings, too' with a smiley face icon. A red arrow points to a 'Shared pointer, also'.
- User Management:** Located in the top-right pane, it lists 'Meeting Options', 'Kick Out All Users', and 'End Meeting/Logout'. A callout box lists: 'See who's logged in', 'Invite people via email', 'Set user permissions', and 'Lock & unlock the room'.
- Text Chat & FREE Teleconferencing:** Located in the bottom-right pane, it lists: 'Get your participants on the phone together' and 'Chat with ALL participants or select persons only'.

The main central area shows a 'Synch/Un-synch Pages' toolbar and a 'Userlist' on the right side, which includes 'John Doe (Owner)*', 'Invite People', and 'Room Unlocked'. A 'Chat' window is also visible, showing a 'Public Chat with All' with a 'Free Conference Call: 641-297-5320' and 'Access Code: 2961183'. The chat history shows a message from 'Guest 1: Hello, check out this built-in chat tool!' and a response from 'Guest 1: And FREE phone teleconferencing!'.

- Conferences, streaming.
- Documents for review.
- Multiple sessions.
- Versioning.

Analysis

- Feature rich applications
- Web 2.0 “certified”
- Verdict - klutzy !

Analysis

- Web apps still miles away from the “Desktop Experience”
- Synchronous and Asynchronous features
 - Whiteboard conference
 - wiki

Whiteboard conference - skype

- Real-time interactive whiteboard for multiple users
- Voice and video
- Synchronization + offline
- Save and load work



Wiki's

- A Glorified Whiteboard (<http://www.edutopia.org/1756>)
- Incubator phase – seeding
- Idea/opinion polling - evolutionary growth
- Moderation - reseeding

Wiki's - features

<u>Wiki Characteristic</u>	<u>Useful to Brainstorm?</u>
Good for sharing information.	Yes
Easy to track progress.	Yes
Easy to track user contributions.	Yes
Easy to use and set up.	Yes
Good for organizing ideas and notes.	Yes
Adaptable to change.	Yes
Suitable medium for discussion.	Yes
Easy to assimilate context.	Maybe
Continuous information sharing.	Yes
Distributed maintenance.	Maybe
They are flexible.	Yes

Discussion
