Ah!, Aha!, Ha! Ha!, Huh?

Excitement at the intersection of domains

Gary Zamchick, Brian Amento, NYU Spring ‘06
Experience Maps (Me Museum, Journey)
(please put maps on front desk)

- Blink! Which one conveys the most information at-a-glance? Does the personality of the Me Museum honoree come across?
- Do any capture the sensory experience of the journey? Which projects you the most convincingly into an experience?
- Which solutions establish some semantics of their own (symbols, colors...)
- Which is the most metaphorical? Literal? Which could be built as specced?
- Which one is most accurate geospatially?
Experience Maps

• Each of us are unique filters of experiences. (What people say about themselves, what’s new, Puns...)

• Defining moments: Tadpoles (4) > Biology > Medical Illustration > Cartooning > animation > transformation > words becoming pictures > drawings becoming ideas becoming things...

• Aside: Counters, Multipliers...
Why create Experience Maps?

Social Viz

Cobot: Software agent in LambdaMOO

Help Build social models, analyze, and make introductions

BayMOO - a physical plexiglas model created by Peter Anders/ students

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Social Visualization

Chat circles
Conversational Histories
Dynamic Affinity Map
Sociable Media Group

MIT Media Lab

(https://www.cybergeography.org/atlas/atlas.html)
Why create Experience Maps?

Futuristic Data Universes

William Gibson’s
Johnny Mnemonic
C.O.R.E. Digital Pictures

Hackers
Artem Visual Effects
"City of Text"
dataspace

Tron

(http://www.cybergeography.org/atlas/atlas.html)
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Why create Experience Maps?

Games

Black & White (AI and physics)  Sims (Motivational gradients)
Stan Mack sees conversations.

Mark Allen Stamaty sees issues...

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Experience Map of an Alien (Seeing with a fresh eye)

Maris Bishofs - The Alien Diaries

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Storywriters use phrases that activate great networks of assumptions that already lie in the minds of readers.

- Marvin Minsky

It works in reverse as well. People recognizing that we continuously filter the environment key into those reservoirs.
Bouncing ideas around

(A brief look at seeing things in a fresh way)
Lecture format
Collaborative format

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Ah!, Aha!, Ha! Ha!, Huh?
Excitement at the intersection of domains

Rapid Visualization and Innovation
Forms of visual discovery
Fractionating concepts
Class Exercise
Visual Innovators (Food for thought)
Ah!, Aha!, Ha! Ha!, Huh?
Rapid Visualization and Innovation

Creation/Discovery (Arthur Koestler)
   Bisociation defined
   ...and Scientific Discovery (Aha!)
   ...and Aesthetics (Ah!)
   ...and Humor (Ha, Ha!)
   ...and New Product Development (Huh?)

Visual Salience (Peter Orton)

Fun
Creation/Discovery: Bisociation (Arthur Koestler)

- The core principle of innovative thinking: “The perceiving of a situation or idea . . . in two self-consistent but habitually incompatible frames of reference.”

- Often suppressed by automatic routines of thought. (We are often blind to innovative associations.)
Bisociation

Graphic Design

- **Wit:** Going from the concrete to the abstract
- **Humor:** Going from the abstract to the concrete
Invite to Furniture awards & Nasa talk on Spacecraft interiors.

Bloom!  Boom!
Examples in Design

Chernobyl
One person’s joke is another’s invention is another’s Sonata.

Ha Ha    Aha!    Ahh!
Humorist > Scientist > Poet
(Humor)   (Discovery)   (Art)

Caricature > Schematic > Stylization
Riddle    >   Problem    >   Allusion

Laugh    >   Understand   >   Marvel

Modes of thought
From Science to Poetry
No Sharp Breaks from Objectiver truth to subjective experiences

Objective (verifiable)
Chemistry
Biochemistry
Biology
Medicine
Psychology
Anthropology
History
Biography
Novel
Epic
Lyric

Subjective (emotional)
Bisociation:

A Playful Mind will happen on all manner of discovery -- humorous, scientific or aesthetic.

Rapid visual representation is a shortcut to playfulness. Put ideas down quickly before you package them for consumption.
Aha!

- **Scientific Discovery**
  
  Scientists: characterized by the ability to wander around (and into things) with a complex problem on their mind.

  Connecting trivial ideas with complex problems often results in spontaneous intuitions.
Heiro the Tyrant’s Crown

Archimedes’ challenge:

Was it pure gold or adulterated with silver?

He knew the weight per volume unit...but needed to measure it’s volume.
Heiro the Tyrant’s Crown

Erratic and repeated attempts to solve the problem. But the answer (T) was outside of his plane of thought.

Aha!

(Bisociated with the mundane-a Bath!)
Aha!

- Scientific Discovery

Kekule: Dreamed of snake biting it’s tail:

Benzene Ring
Aha!

• Scientific Discovery

Gutenberg: The coin punch (family biz), wax seal, & the wine press

Lifting the wine press out of the context of mushy pulp to the Printing Press
Ah!

- The Creative Arts
  - The lifeblood of songwriters, cartoonists, authors, artists, poets, playwrights... (A Bridge over Troubled Waters)
  
  “I heard the trailing garments of the Night, sweep through her marble halls

And see! she stirs! She starts-she moves- she seems to feel, The thrill of life along her keel.

- Henry Wadsworth Longfellow
Ha! Ha!

- **Bisociation and Humor** (Jokes anyone?)
  - Jokes = Stories designed to fool the censors. A description that applies to two domains at once. The first meaning simple and transparent (cliche) and the second, disguised and reprehensible. Once the first simple interpretation is firmly planted in the mind, a final turn of phrase suddenly replaces it with the other one. The censored thought has slipped through - a prohibited wish has been enjoyed. (Freud)
Ha! Ha!

- **Bisociation and Humor**
  - There are three engineers in a car; an electrical engineer, a chemical engineer and a Microsoft engineer. Suddenly the car just stops by the side of the road, and the three engineers look at each other wondering what could be wrong. The electrical engineer suggests stripping down the electronics of the car and trying to trace where a fault might have occurred. The chemical engineer, not knowing much about cars, suggests that maybe the fuel is becoming emulsified and getting blocked somewhere.

Then, the Microsoft engineer, not knowing much about anything, comes up with a suggestion, 'Why don't we close all the windows, get out, get back in, open the windows again, and maybe it'll work !?'
Ha! Ha!

The admiration we have for Microsoft product development.

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Ha! Ha!
Cartoons
- Cliché roles, situations...
- Composition
Huh?

- **New Product Development**

Invention results when you find “common and useful connections between two unrelated objects.”
The Value to New Product Development
IDEO
Visualize new-to-the-world concepts and the customers who will use them.
- Mission statement

Scroll/Display

Child’s toy/Medical device

Shopping cart (bisociate with the behavior of typical users)
King of the hill/Lobster Catcher  Carved whale bone/Lost luggage

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Huh?

- New Product Development
  - Inventions that exist at the intersection of technical domains...
    - Scanmail (ASR and Info Extraction)
    - WordsEye (NLP and Graphics)
    - eClips (Info Extraction, Multimedia)
    - Others...
Bisociation - Huh?

NYU Research Areas

Computer vision, CAD, Distributed systems, AI, File systems, Artificial life, NLP, Multimedia, Motion Capture, Cryptography, Adaptable Systems, Biological computing, Pattern recognition, Machine translation, Information extraction, Knowledge representation.

NYU Prototypes

Digital *Muybridge*, Comic Strips for Algorithm Visualization, key-insulated security, Binocular stereo vision, One.world, Automatic content extraction, Language modeling, Computing communities, Linguistic String Project, Text summarization

Real-World Applications

What other novel technologies exist at the intersection of these domains?

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Visual Salience
Rapid Visualization and Innovation

- Open with a joke > open with a compelling image
- Generates considerable excitement
- Unifies vision of team, company, political movement, country
- Secures internal and external buy-in

(Peter Orton - IBM’s Center for Advanced Learning)
Planting a new idea.
The closer it remains to a visual cliché, the faster its consumption.
Crystallize how people perceive a leader or the policies of a nation.
CAUTION: Use wisely - a powerful visual can galvanize the activity of an entire group around a questionable idea.
Visual Salience - Storytelling

- Martin Luther King’s “I have a dream!
- Hewlett Packard chairmen’s Fire Axe
  - Openness
- “Mr. Gorbechev, tear down that wall!”

Create a salient visual image early in the development process to give enormous energy to the execution of the idea.
Fun
Rapid Visualization and Innovation

• Fun: Opens the door to bisociative thinking
• Creates atmosphere where ideas emerge
  Show me a group having fun and I’ll show you a group creating great work
• Often in short supply in Industrial labs and academic environments
• Makes time fly
What Limits Creativity in Industrial Labs?

• It’s hard to think out of the box.
• The investment principle
  • Older ideas have unfair advantage
  • Reluctance to tamper w/established skills
• Fear of appearing to be a novice
  • Discourages pursuit of wilder ideas
  • Some things at first seem stupid.
• Built in Mental Blocks - the need to eat/sleep
• Fear of sharing patent-able concepts
Ah!, Aha!, Ha! Ha!, Huh?
Forms of Visual Discovery
Juxtapositions (surprising contrasts) - Ambiguity (two ways at once)
Substitution (replacement) - Addition (grafitti) - Taking things literally...

Rapid Visualization Spring ‘05
Class Exercise - Dot.Comedy
Fractionating Concepts

- Rather than bisociate complete objects/concepts, *fractionate* objects in useful ways?
  - Break them down into component parts, functional elements.

- Intermediate forms help innovation proceed in a more conscious and systematic way.

*(Keith Hudson, Global Ideabank)*
Fractionating concepts

Working w/parts

• Shape (overall, distinctive parts, size, etc)
• Color (overall, distinctive parts, luminosity, shading, etc)
• Distance (causal and spatial relationships with others, etc.)
• Movement (direction, speed, locomotion, etc)
• Other: Touch, Auditory
• Also functional meanings and associations.
Class Exercise - Dot.Comedy

• Pick (2) words from this list: Corkscrew, Popcorn, grass-hopper, snake, blender, sponge, flying fish, bee, whale, wheelchair, Fan, traffic light, American flag, a Rose, bull, hot air balloon, artist palette, ball of yarn, eye glasses, footprints, faucet, trumpet, a maze, chain links, a Lava lamp, a keyboard, swiss army knife, plug and socket, a fern, dollar sign, a dog, a candle, periscope, rocket, a spinning top, eye chart, a globe, hamster spinner, see saw, onion, cactus, cello, musical notes, fun house mirrors, shish kabob, can opener, ant

Many functional relationships are found in simple objects
On one page, break the two simple objects into fractionated parts. Free associate on them.

hmmm... the user interface and the internal workings are related. Both involve circularity (clock face for time, and gears that make it work.) Often user interfaces are abstracted away from the internals. Not true here.

also the watch measures two things. It measures time (obviously). It also measures the size of the user's wrist!

- Bob Coyne
Then do a full page of sketches bisociating these simple objects with (1) word on next page or concept from your field of interest.

Cartoon Capture & Re-Targeting*

*Chris Bregler, NYU Movement
• Data Structures, Biological Computing, Medical Imaging, Graphics, Computer vision, Artificial life, Neural Networks, Distributed Virtual Machines, Security, Computational Fluid Dynamics, Pattern Matching/Recognition, **Motion Capture**, Knowledge representation, Cryptography, File systems, Natural Language Processing, Speech Recognition, Distributed Platforms.

• You may visualize a novel device/invention or software implementation (as on previous page.) Ridiculous outcomes OK!
Assignment: *Dot.Comedy goes public*

- Work up one of the sketches created during class to a more refined state. (Eg. Use a vector graphics program to formalize the graphics.) 8.5”/11” page
- Using bisociated elements, name the **products** and the **dot.company** that will develop it. Create a rough logo design for each product using **bisociated representations**.
- Create a rough advertisement (headline copy, image, features) hawking the service or product. (Creative ad copy, like poetry often combines bisociated elements) (1 page)
Food for thought

Dr. Suess
Saul Steinberg
Push Pin
David MacCauley
Scott McCloud
Will Wright
Game Designers
Dr. Suess

Inspired by visits to factories as a child

(Computers will be gone in 100 years but Suess will still be with us)
You'll find yourself heading, to parts "unknown," with nary a thought, your cover is blown.
Saul Steinberg

Use of simple line drawings to represent abstraction.

Putting man in the middle of a metaphorical landscape.
Push Pin Studios
Milton Glaser, Seymour Chwast

Moved visuals away from literal description of story to enhancing the story with metaphors of it’s own.

Rapid Visualization Spring ‘05
David MacCauley

The Way Things Work

Rapid Visualization Spring ‘05
Will Wright

- Visual thinker

- Day-to-day lives of AI simulated humans - attracts women and non-gamers in large numbers.

- Cottage Industry: Use of Sims characters/scenes to tell real stories
Scott McCloud

- Reinventing Comics: How Imagination and Technology are Revolutionizing an Art Form

www.scottmccloud.com
Game Designers

Too numerous to mention

- Explosion in exploration of 3D graphic interfaces
- AI, Physics engines, autonomous agents, NLP, procedural animation, flocking behavior,