

Radical Design

From pencils to clothing to processes to software

Lecture 2: Seeing the Unseen

Award Winning Designs

The Six Thinking Hats

The IDEO Approach

Last Class

- Operational Definition of Radical
 - Get a WOW from domain experts
- Everyone is creative
 - Daydream exercise
- Enhancing the creativity skill set
 - Capturing, Challenging, Broadening, Surrounding
- Brainstorming
 - The Srtcdjgklerden Game
 - Creative drawing exercise and criticisms

Homework 1 due 2-11-09 (page 1)

- Browse and experience the web for “**radical** materials” (around 4 hours)
- Who talks about radical design?
- Who teaches it?
- Where does radical design fit, how do people think about radical design, the process, product design, how do people work with design?

Homework 1 due 2-11-09 (page 2)

- Select a **field of interest** and after some experiences with web pages in the field, attempt to select a specific product of interest (eyeglasses, a can, a watch, a living room, a table, a computer, a book, a theory)
- Don't rush it. It should be an object you are interested in and perhaps related to your state (are you renovating, are you looking to purchase a car, is your teenager going to get braces, are you getting married, ...)

Homework 1 due 2-11-09 (page 3)

- Critically examine the product: how do people use it? What is the object's relationship to the its use? How do people relate to the object (aesthetic, usability, utility, engagement, ...)?
- Explore its past, its evolution, its design, its future, and whether there is the potential for a radical step
- This is important before we break into groups for a single product/object activity

Homework 1 due 2-11-09 (page 4)

- Let your intuition and feelings flow with the web
- Write up 5-10 pages on your findings
- We will discuss your selected objects, identify obvious object groupings, and think about what product analysis and design groups we will form. The product you select may not be the one that the groups will select to work on. We will have 3-5 groups.

Homework 1 due 2-11-09 (page 5)

- The course web page is up for you to set up your personal wiki for the course
- Place your first HW assignment there
- Place any additional resources, papers, pictures, etc... you deem related in a universally understandable (possibly hierarchical) manner

2006 Class Products (13 out of 16)

- Stereo Headphones
- Power efficient laptop
- Breathable insulation
- Microbe cleaning
toxic waste
- The internet
- Tin can radio
- Multi touch
- Chairs
- The theramin
- Toilets
- Smart showerhead
- Bean bags
- Razors
- Hearing aids
- iPod

2009 Class Products (edit in class)

- Fork
- Jewelry
- Drinking water examination kit
- Highway system
- Digital conversation stenography
- Hybrid biological computer

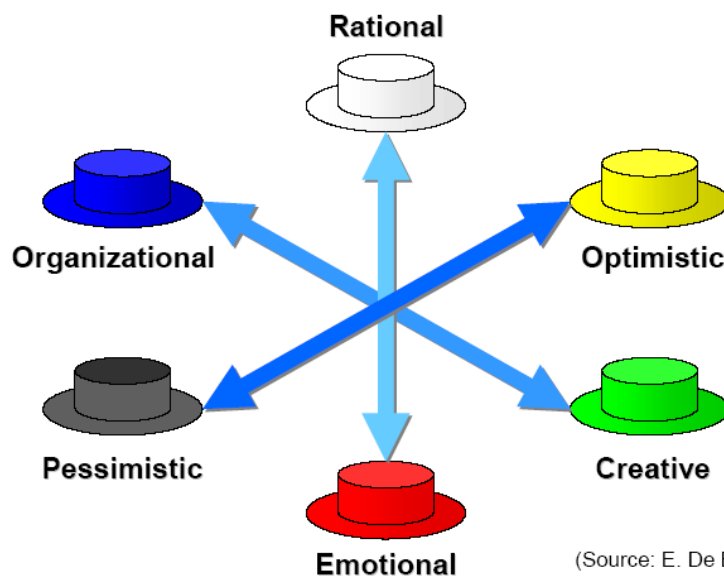
Working in Groups

- Human issues
 - Personality
 - Gender and racial pressures
 - Hierarchy issues
- Cultural issues
 - Language
 - Attitudes and etiquette
- Environmental issues
 - Atmosphere
 - Monetary
- ...

Six Thinking Hats

- From de Bono
- Focused on the creative process in groups rather than individual
- Draws from group dynamics
 - Constrains brainstorming through a rigidly structured discussion
- Six different *natures* of thought each represented by a different colored hat (real or imaginary)

The Six Thinking Hats 1



Six Thinking Hats 2

- **White Hat**

- Focus on the data available.
- Look at the information you have, and see what you can learn from it
- Look for gaps in your knowledge, and either try to fill them or take account of them
- This is where you analyze past trends, and try to extrapolate from historical data

- Facts!

Six Thinking Hats 3

- **Red Hat**

- Look at problems using intuition, gut reaction, and emotion
- Try to think how other people will react emotionally
- Try to understand the responses of people who do not fully know your reasoning

- Feelings!

Six Thinking Hats 4

- **Black Hat**

- Look at all the bad points of the decision
- Look at it cautiously and defensively
- Try to see why it might not work

– Criticize!

Six Thinking Hats 5

- Black Hat thinking is important because it highlights the weak points in a plan
 - It allows you to eliminate these weak points, alter them, or prepare contingency plans to counter them
 - It helps make plans 'tougher' and more resilient
 - It can also help spot fatal flaws and risks before embarking on a course of action
 - This is one of the real benefits of the six hat technique, as most people get used to thinking only positively that often they cannot see problems in advance - this leaves them under-prepared for difficulties

– Criticize!

Six Thinking Hats 6

- **Yellow Hat**
 - Think positively
 - It is the optimistic viewpoint that helps you to see all the benefits of the decision and the value in it
 - Yellow Hat thinking helps you to keep going when everything looks gloomy and difficult
- Encourage!

Six Thinking Hats 7

- **Green Hat**
 - Think creatively
 - This is a freewheeling way of thinking
 - There is little criticism of ideas
- Imagine!

Six Thinking Hats 8

- **Blue Hat**

- The Blue Hat stands for process control by the leader or chair
- Used when running into difficulties because ideas are running dry, for contingency plans, ...
- Used to direct activity

- Control!

The Six Hats – Summary

Hat	Key Words	Usage
White	Information and facts	Call for information known or needed
Black	Judge and criticize	Play devil's advocate Explain why it won't work
Green	Creativity	Offer possibilities, alternatives, new ideas
Red	Emotion and intuition	Express feelings, hunches and intuition
Yellow	Optimism and positive	Be positive, enthusiastic, supportive Provide values and benefits Explain why it will work
Blue	Thinking and process	Use rationalism, logic, intellect, organize Manage the thinking process

Design Winner Examples

2009 Independent Games Festival - Innovation Awards (1)

<http://www.igf.com/02finalists.html>

- Between
 - A networked game for two players about consciousness and isolation
- Coil
 - An experimental "art" game that plays out more like a song or painting than an actual "game". I was basically trying to create an experience that put the player into an open minded space and let them question not only what the game was about, but what a game can actually be

2009 Independent Games Festival - Innovation Awards (2)

- The Graveyard
 - A very short computer game where you play an old lady who visits a graveyard. You walk around, sit on a bench and listen to a song. It's more like an explorable painting than an actual game. An experiment with realtime poetry, with storytelling without words.
- Mightier
 - An action puzzler that pulls you away from the screen to solve puzzles by hand with pencil and paper. Using a color printer and web camera, the game prints puzzle pages for you to draw on, then captures the results when you're done.
- You Have To Burn The Rope
 - A game about interactivity and false choices. It is a completely predetermined experience, you might call it an anti-game. Most importantly it is a joke, a parody!

New Chess Game Contest ('99)

- Design a chess variant on a board with exactly 40 squares
- The notion of *square* can be interpreted broadly, and is meant to denote any cell that can contain a piece
 - e.g., variants with hexagonal cells are acceptable
- 22 games were submitted
- Jury evaluated the games on originality, playability, and more

<http://www.chessvariants.com/40.dir/index.html>

<http://www.chessvariants.com/40.dir/philosophers.html>

Interior Design

- 35th annual interior design competition
<http://www.iida.org/i4a/pages/index.cfm?pageid=140>
- Firm: Behnisch Architekten
- Firm Location: Stuttgart
- Project: Haus im Haus
- Location: Hamburg

QuickTime™ and a decompressor are needed to see this picture.

Interior Design (2)

- 35th annual interior design competition
<http://www.iida.org/i4a/pages/index.cfm?pageid=140>
- Firm: Behnisch Architekten
- Firm Location: Stuttgart
- Project: Haus im Haus
- Location: Hamburg

QuickTime™ and a decompressor are needed to see this picture.

Interior Design (3)

- 35th annual interior design competition
<http://www.iida.org/i4a/pages/index.cfm?pageid=140>
- Firm: Manuelle Gautrand
- Firm Location: Paris
- Project: Citroën Showroom
- Location: Paris

QuickTime™ and a
decompressor
are needed to see this picture.

Interior Design (4)

- 35th annual interior design competition
<http://www.iida.org/i4a/pages/index.cfm?pageid=140>
- Firm: Manuelle Gautrand
- Firm Location: Paris
- Project: Citroën Showroom
- Location: Paris

QuickTime™ and a
decompressor
are needed to see this picture.

Interior Design (5)

- 35th annual interior design competition
<http://www.iida.org/i4a/pages/index.cfm?pageid=140>
- Firm: Manuelle Gautrand
- Firm Location: Paris
- Project: Citroën Showroom
- Location: Paris

QuickTime™ and a decompressor are needed to see this picture.

Interior Design (6)

- 35th annual interior design competition
<http://www.iida.org/i4a/pages/index.cfm?pageid=140>
- Firm: Steve Leung Designers
- Firm Location: Hong Kong
- Project: MX Quarry Bay
- Location: Hong Kong

QuickTime™ and a decompressor are needed to see this picture.

Interior Design (7)

- 35th annual interior design competition
<http://www.iida.org/i4a/pages/index.cfm?pageid=140>
- Firm: Steve Leung Designers
- Firm Location: Hong Kong
- Project: MX Quarry Bay
- Location: Hong Kong

QuickTime™ and a decompressor are needed to see this picture.

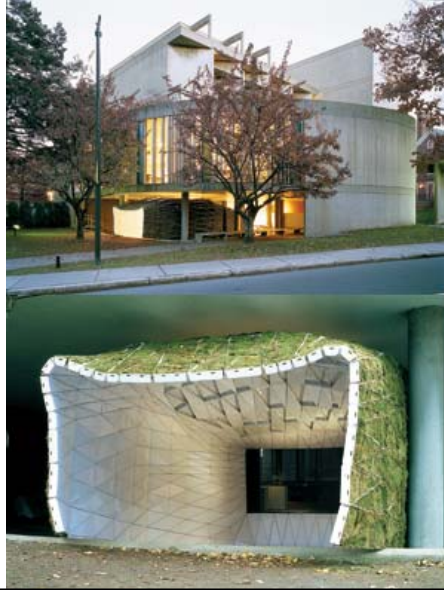
Contract Magazine: Designer of the Year (2009)

- <http://www.contractmagazine.com/contract/competitions-awards/interior-awards/index.jsp>

I.D. Magazine Annual Review

- Consumer products
- Graphics packaging
- Environments
- Furniture
- Equipment
- Concepts
- Interactive

<http://www.id-mag.com/annualdesignreviewwinners2008?catid=6747&slide=1>



Automobiles

- 2004 Motor Trend International Design
- <http://www.carsdesignnews.com/news/2004/041102mtcontest-winners/index.html>





Interior: 2009 Motives Design Awards

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.

<http://www.interiormotivesawards.com/interiormotives/>

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.

Appliance Design 2006

- Excellence in Design Winners
- http://www.appliancedesign.com/CDA/Articles/Cover_Story/8abdbc67dba38010VqnVCM100000f932a8c0
- The Straightshot M4 microdebrider
- A surgical hand piece used by ear, nose and throat surgeons as a cutting tool for the removal of tissue such as polyps during nasal sinus surgery



Appliance Design 2008

- The Tatung VOIP Phone
- Designed to be intuitive to use, especially for new users, children, and the elderly
- The simplified user interface features a clear display keypad that has touch sensor operation that simplifies the function key and keypad
- EID Juror Seth Orsborn called it a counterexample to the current 'feature avalanche' in most consumer products. "By only providing the necessary features, the interactions become intuitive and easy to accomplish," he says.

QuickTime™ and a decompressor are needed to see this picture.

http://www.appliancedesign.com/CDA/Articles/Cover_Story/BNP_GUID_9-5-2006_A_1000000000000344497

Business Week Design Awards

- 2008 Industrial Design Excellence Award
http://www.idsa.org/IDEA_Awards/gallery/2008/index.asp
- IDEA: Design Award Winners, 2008
Slideshow at
http://images.businessweek.com/ss/08/07/0717_idea_winners/index.htm

Business Week

- The Best Product Designs of 2006
- http://www.businessweek.com/innovate/content/jun2006/id20060629_827411.htm?chan=search
- Slide show



Business Week

- The Best Product Designs of 2008
- http://www.businessweek.com/magazine/toc/08_30/B4093ide_a_best_product_design_awards.htm

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.

Web Page Design Winners

- <http://www.designfirms.org/awards/competition/2007/>
- First place
 - <http://www.mindsmack.com/clients/doritos/www/>
- Some honorable mentions:
 - <http://lounge lizard.com/>
 - <http://clockwork.net/>

Design Awards

- National Design Awards (2008)
 - <http://www.nationaldesignawards.org/2008/>

Design Firms	Awards				Total	2005 Design Awards				
	Gold	Silver	Bronze	Total		Corporations				
						Gold	Silver	Bronze	Total	
IDEO		4	3	7						
Design Continuum	3	1	1	5	Hewlett-Packard		2	3	5	
Fuseproject	2	1	2	5	Nike	2	2		4	
Antenna Design	1	2	1	4	Philips	1	2	1	4	
Tools Design	2	1		3	Samsung		2	1	3	
Altitude	1	2		3	Apple	2	1		3	
Smart Design		3		3	Art Center College of Design	1	1	1	3	
Alto Design	1		1	2	BMW	1	1	1	3	
Astro Studios		1	1	2	California College of the Arts		1	2	3	
Atelier Markgraph		1	1	2	DaimlerChrysler		2	1	3	
Cesaroni		1	1	2	Eva Denmark	2	1		3	
designafairs		1	1	2	Siemens		2	1	3	
Herbst LaZar Bell	1		1	2	ASUS		2		2	
Karim Rashid		1	1	2	Harman		2		2	
Kauffmann Theilig + Partner		1	1	2	IBM	1	1		2	
Lakeside Product Development	1		1	2	KAZ		2		2	
One & Co. ID		1	1	2	Motorola	2			2	
RKS Design		2		2	RKS Guitars		2		2	
Whipsaw			2	2	The Stanley Works	1		1	2	
ZIBA	1	1		2						

2006 Design Award Winners

DESIGN FIRMS	GOLD	SILVER	BRONZE	TOTAL
ZIBA	3		1	4
Formation Design Group	1	2		3
Antenna Design NY			2	2
blueMap design	1	1		2
Davison Design & Dev.		1	1	2
Design Continuum	1	1		2
designafairs	1	1		2
Ergonomic Systems Design	1	1		2
fuseproject	1	1		2
Karim Rashid			2	2
Keen Design Studio			2	2
Lunar Design		1	1	2
Newdealdesign			2	2
Stuart Karten Design		1	1	2

Awards Winner 2002-2006

CORPORATIONS/SCHOOLS	2002-2005	2006	TOTAL
Samsung	16	3	19
Apple	14	1	15
Hewlett-Packard	11	1	12
IBM	10	0	10
Philips Design	8	2	10
Art Center College of Design	7	2	9
BMW	9	0	0
Logitech	9	0	9
Nike	9	0	9
Panasonic	3	6	9
Black & Decker	6	0	6
DaimlerChrysler	5	1	6
Kohler	5	1	6
Motorola	5	1	6

Awards Winner 2002-2006

DESIGN FIRMS	2002-2005	2006	TOTAL
IDEO	39	0	39
Design Continuum	16	2	18
fuseproject	14	2	16
Smart Design	16	0	16
ZIBA	10	4	14
Lunar Design	10	2	12
Altitude	8	1	9
RKS Design	7	1	8
Antenna Design N.Y.	5	2	7
Newdealdesign	5	2	7
Karim Rashid	4	2	6
Pentagram	5	1	6
@radical.media	5	0	5
designafairs	3	2	5
Formation Design Group	2	3	5
Herbst LaZar Bell	5	0	5

GE Edison Awards (2005)

- http://www.gelighting.com/na/business_lighting/edison_award/



GE Edison Awards (2006)

QuickTime™ and a
decompressor
are needed to see this picture.

QuickTime™ and a
decompressor
are needed to see this picture.

GE Edison Awards (2007)

QuickTime™ and a
decompressor
are needed to see this picture.

QuickTime™ and a
decompressor
are needed to see this picture.

2005 Students Awards Helen Hamlyn Research Center

- <http://www.hhrc.rca.ac.uk/programmes/awards/index.html>



2007 Students Awards Helen Hamlyn Research Center

- http://www.hhc.rca.ac.uk/393/all/1/mobility_choice_award.aspx

QuickTime™ and a
decompressor
are needed to see this picture.

2007 Students Awards Helen Hamlyn Research Center

- http://www.hhc.rca.ac.uk/393/all/1/mobility_choice_award.aspx

QuickTime™ and a
decompressor
are needed to see this picture.

Students Awards Home and Housewares Show

- http://www.housewaresdesignawards.com/ha/links/past_winners_profile.asp?ID=352

QuickTime™ and a
decompressor
are needed to see this picture.

Microplane's all-in-one box grater features a soft-grip, ergonomic handle and rubber footing to ensure comfort and stability.

Designed to grate in both directions, the box grater is reportedly non-clogging and features a removable cutting blade for easy access and cleaning.

Timex Watch Competition

- Categories
 - Wrist-based
 - Wearable
 - Conceptual
- <http://www.core77.com/timex/winners/>

Timex Watch Competition

- Categories
 - Wrist-based
 - Wearable
 - Conceptual
- <http://www.core77.com/timex/winners/>



Timex Watch Competition

The twisting arms of the Xemit bracelet project two rays of light onto the wearer's wrist to represent the hands of a clock

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.

Innovation is Found Everywhere



Innovation anywhere (2)

<http://www.youtube.com/watch?v=TKWL1md7Dv4>

<http://labnol.blogspot.com/2006/07/how-to-tie-your-shoe-laces-in-2.html>

TED: Technology Entertainment Design

- TED talks
 - <http://www.ted.com/index.php/talks>
- David Carson
 - http://www.ted.com/index.php/talks/david_carson_on_design.html

IDEO Approach

- Learn
 - Look
 - Ask
 - Try
-
- The following in class exercises may change

Learn

- Analyze the information you've collected to identify patterns and insights
 - Activity analysis, affinity diagrams
 - Anthropomorphic analysis, character profiles
 - Cognitive task analysis, error analysis
 - Competitive product survey, flow analysis
 - Cross-cultural comparisons, historical analysis
 - Long-range forecasts, secondary research

Learn

- Long-Range Forecasts
 - HOW: write up prose scenarios that describe how social and/or technological trends might influence people's behavior and the user of a product, service, or environment
 - WHY: Predicting changes in behavior, industry, or technology can help clients understand the implications of design decisions

Learn

- Secondary Research
 - HOW: Review published articles, papers, and other pertinent documents to develop an informed point of view on the design issues
 - WHY: This is a useful way to ground observations and to develop a point of view on the state of the art

IDEO In Class Exercise

- Divide into groups of about 3-4
- Look around room and see
- Select an object

- Long range forecast
 - Come up with a future evolution of your object

- Draw on Whiteboard or Paper your concept

Look

- Observe people to discover what they do rather than what they say they do
 - A day in the life, fly on the wall
 - Behavioral archeology, guided tours
 - Behavioral mapping, personal inventory
 - Rapid ethnography, still photo survey
 - Social network mapping, shadowing
 - Time-lapse video

Look

- Time-Lapse Video
 - HOW: Set up a time-lapse camera to record movements in a space over an extended period of time
 - WHY: Useful for providing objective, longitudinal view of activity within a context

Look

- Social Network Mapping
 - HOW: Notice different kinds of social relationships within a user group and map the network of their interactions
 - WHY: This is a useful way to understand interpersonal and professional relationship structures within workgroups

Look

- Still Photo Survey
 - HOW: Follow a planned shooting script and capture pictures of specific objects, activities, etc...
 - WHY: The team can use this visual evidence to uncover patterns of behavior and perceptions related to a particular product or context, as well as structure and inspire design ideas

Ask

- Enlist people's participation to elicit information relevant to your project
 - Camera journal, cognitive maps
 - Card sort, conceptual landscape
 - Collage, cultural probes
 - Draw the experience, extreme user interviews
 - Five whys? Foreign correspondents
 - Narration, surveys and questionnaires
 - Unfocus group, word-concept association

Ask

- Five Whys?
 - HOW: Ask “Why?” questions in response to five consecutive answers
 - WHY: This exercise forces people to examine and express the underlying reasons for their behavior and attitudes

Ask

- Word-Concept Association
 - HOW: Ask people to associate descriptive words within different design concepts of features in order to show how they perceive and value the issues
 - WHY: Clustering users’ perceptions helps to evaluate and prioritize design features and concepts

Ask

- Surveys and Questionnaires
 - HOW: Ask a series of targeted questions in order to ascertain particular characteristics and perceptions of users
 - WHY: This a quick way to elicit answers from a large number of people

Ask

- Camera Journal
 - HOW: Ask potential users to keep a written and visual diary of their impressions, circumstances, and activities related to the product
 - WHY: This rich, self-conducted notation technique is useful for prompting users to reveal points of view and patterns of behavior

IDEO In Class Exercise

- Stay in your groups
- Ask the five whys of each other
- Summarize on Whiteboard or Paper

Try

- Create simulations to help empathize with people and to evaluate proposed designs
 - Behavior sampling, be your customer
 - Bodystorming, empathy tools
 - Experience prototype, informance
 - Paper prototype, role playing
 - Predict next year's headlines, scale modeling
 - Quick and dirty prototyping, try it yourself
 - Scenarios, scenario testing

Try

- Scenarios
 - HOW: Illustrate a character-rich story line describing the context of use for a product or service
 - WHY: This process helps to communicate and test the essence of a design idea within its probable context of use. It is especially useful for the evaluation for service concepts.

IDEO In Class Exercise

- Stay in your groups
- Develop a scenario of the use of your product
- Summarize on Whiteboard or Paper

HW 2 – page 1

1. Read up on 5 of the previous IDEO topics from Learn, Look, Ask and Try
2. Using your selected product (homework 1) use one of the methods for an evaluation for that product – **you will present one slide on your evaluation**
3. Pick a hat color and discuss your product from that perspective – **you will present one slide on that perspective**

HW 2 page 2

4. Start to read the Art of Innovation by Tom Kelley
5. Read the Six Thinking Hats by Edward de Bono pages 1-70 (introduction, white hat, and red hat) OR an online summary
6. Watch the Deep Dive movie if you haven't seen it

HW 2 page 3

Optional but very worthwhile readings

- Fast Co - Strategy By Design by Tim Brown
- Creating Breakthrough Innovations (to order) at 3M by Eric von Hippel, Stefan Thomke and Mary Sonnack