



Why designers fail and what to do about it

An Event Apart, Seattle
March 28th, 2011

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**Why the Things You
Buy Are Expensive, Badly
Designed, Unsafe, and
Usually Don't Work!**

B7591 • \$2.25 • A BANTAM BOOK

With some startling
practical alternatives --
like a radio that
costs 9c, a \$6 refrigerator,
a television set for \$8,
and much, much more!

Design For The Real World

by Victor Papanek

Human Ecology and Social Change

With an Introduction by
R. Buckminster Fuller

☛ Completely Illustrated

All men are designers. All that we do, almost all the time, is design, for design is basic to all human activity. ..

Any attempt to separate design, to make it a thing-by-itself, works counter to the fact that design is the primary underlying matrix of life. Design is composing an epic poem, executing a mural, painting a masterpiece, writing a concerto.

But design is also cleaning and reorganizing a desk drawer, pulling an impacted tooth, baking an apple pie, choosing sides for a backlot baseball game, and educating a child.

Victor Papernak, Design for the Real World

My three points

- All designers fail 95% of the time
 - Failures on drawing board + failures in real world = ?
- Why designers fail
 - Wrong goals, fail to meet goals
- What to do about it
 - Own your mistakes
 - Study failure and common situations
 - Study how to avoid / mitigate failures

Fourth Edition

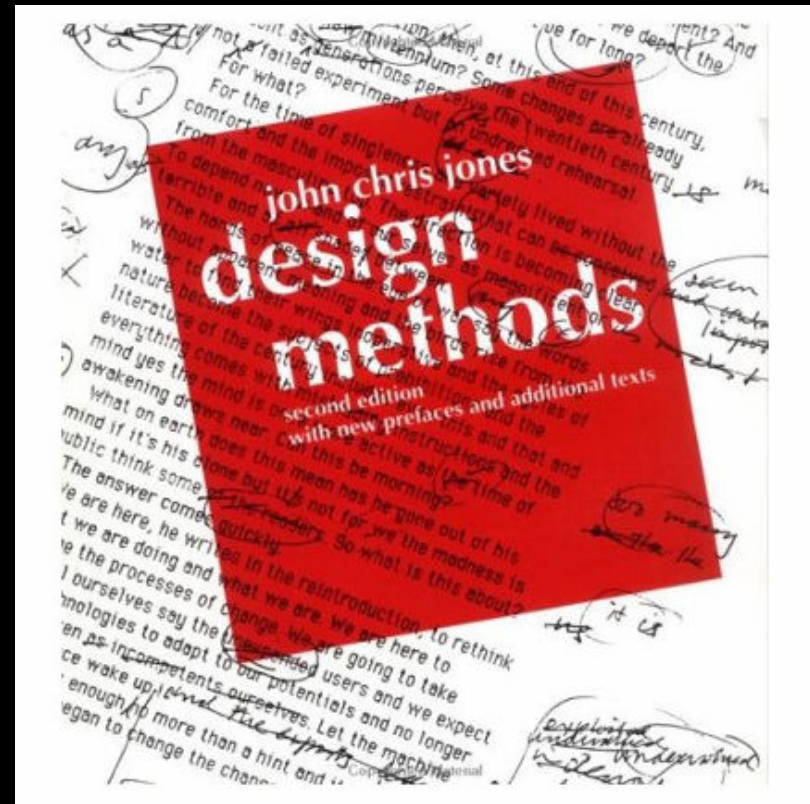
How Designers Think

The design process demystified



Bryan Lawson

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Design has no failure analysis

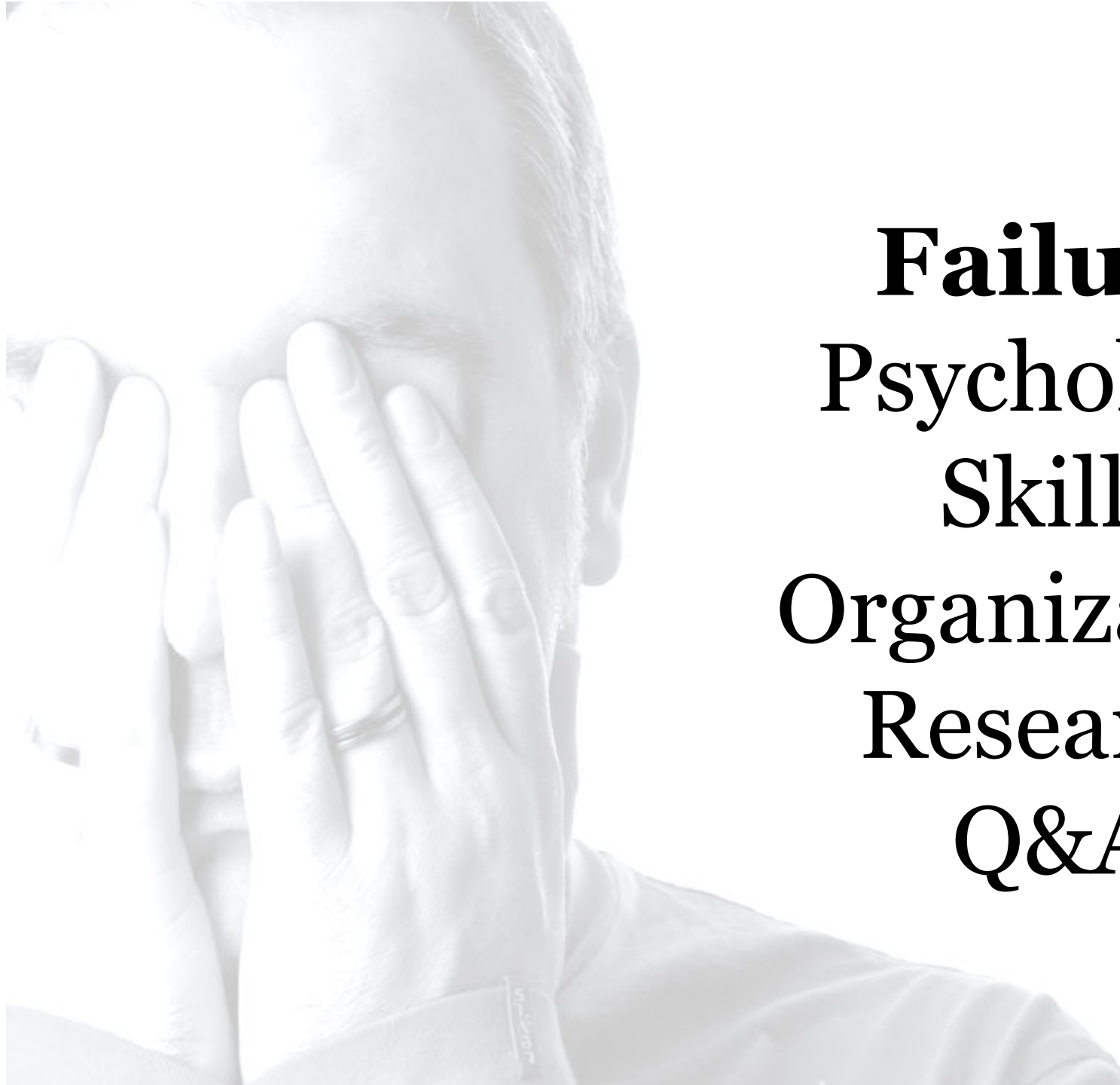
- Doctors: M&M (Morbidity & Mortality)
- Forensics: autopsy
- Air Force: mission debriefing
- Manufacturing: failure analysis
- Software: postmortem

- Design? Architecture?



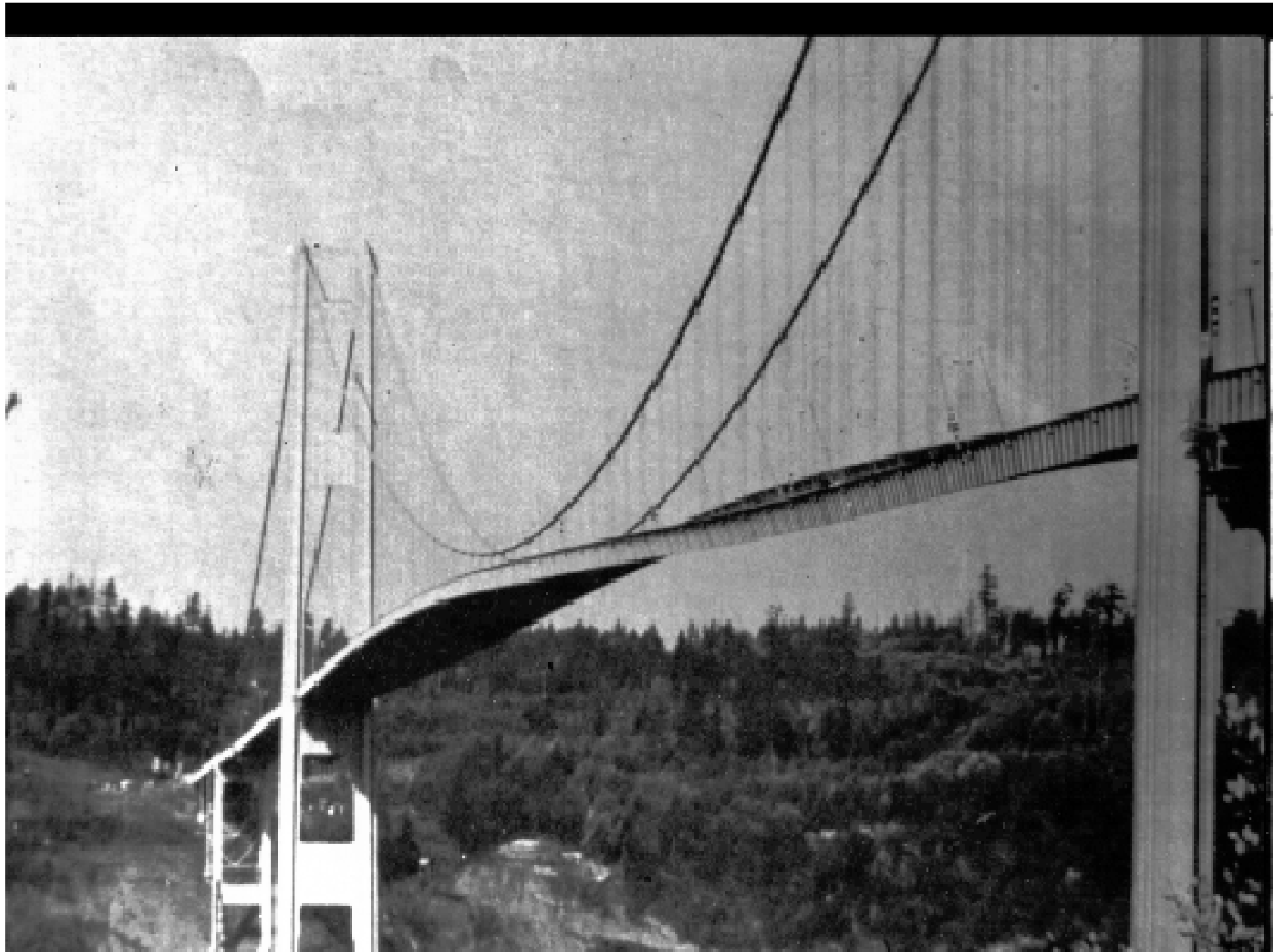



restrooms



Failure
Psychology
Skills
Organization
Research
Q&A





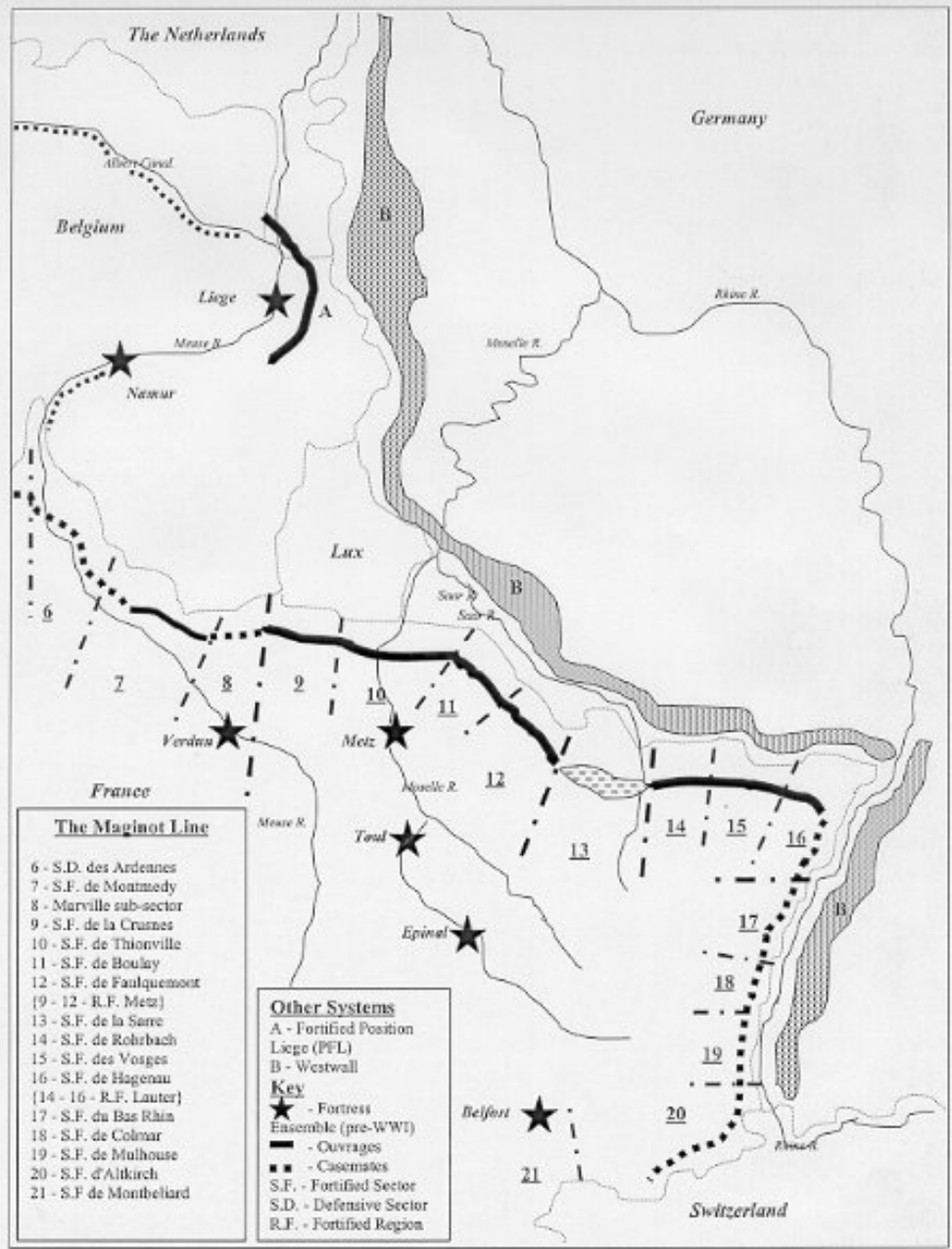
A black and white photograph of the Tacoma Narrows Bridge, showing its suspension towers and cables against a dark sky. The bridge spans across a body of water, with a forested hillside visible in the background.

Movie time:
Tacoma Narrows



Two kinds of failure

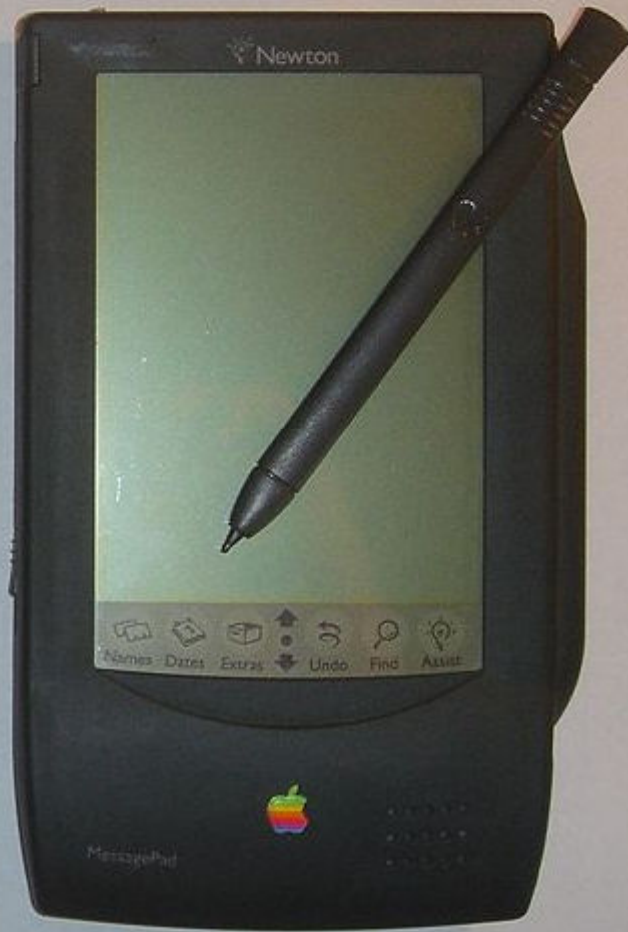
- Fundamental – system collapse, people die, etc: Tacoma Narrows, Maginot line, Microsoft Bob. Rare and dramatic.
- Partial / Subjective – Mixed results, basics work but to what standard? Big Dig, Microsoft Office, Local pizza place. Common and debatable.

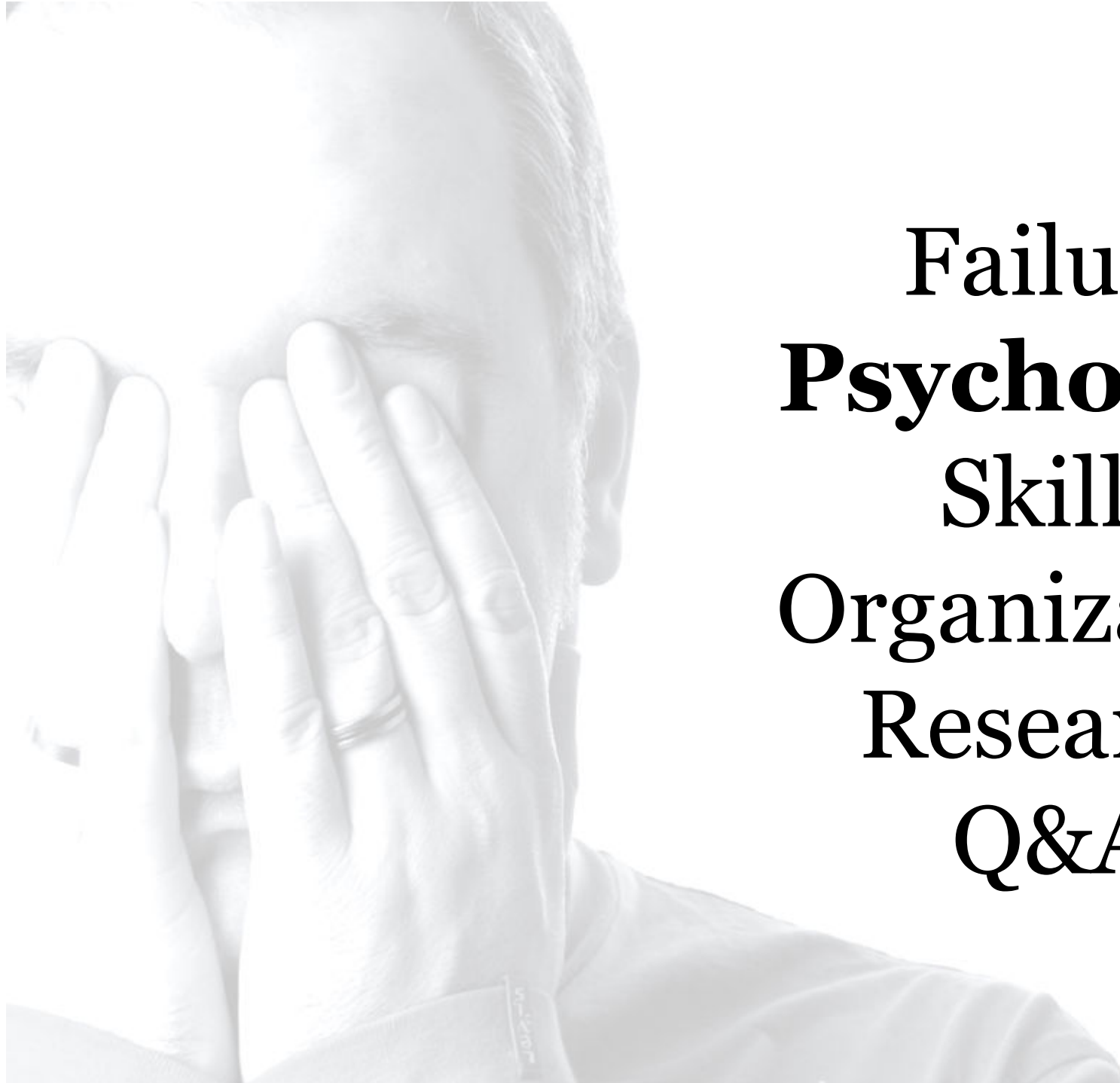


The stigmas of language

- We are taught to avoid : Disaster, Failure, Mistake
- But there are many kinds of failure:
 - Beautiful
 - Interesting
 - Unavoidable
 - Necessary
 - Breakthrough
 - Stupid*
- We must **Experiment** to create knowledge
- We must reward lessons in what we fear







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ASSEMBLY SPACE



Movie Time: Matt Wiley, Royal Academy

From the artist's work with a group of 100 students at the Royal Academy School of Art, Matt Wiley's new work is a series of sculptures that explore the concept of assembly space. The sculptures are made of thin, dark, branching rods that form a complex, organic structure. Wiley is standing in front of one of these sculptures, which is displayed in a gallery space. The text on the right side of the page discusses the artist's work and his connection to the Royal Academy.

LIGHT WORK

Visionary architect Louis Kahn designed soaring buildings, open to the environment and the free exchange of ideas. Peter Conrad describes his creative relationship with his patron Paul Mellon, whose patience and deep pockets enabled Kahn to design the luminous Yale Center for British Art.

Kubla Khan dreamed a pleasure dome; the architect Louis Kahn, more an idealist than a hedonist, designed utopian. His buildings are secular temples, shrines devoted to knowledge and to the freedom of intellectual exchange. In Southern California, he constructed a research institute for Jonas Salk that dazzlingly balances on a headland above the Pacific, open to the ocean and to the sky. In Dhaka, he planned a floating fortress whose debating chambers and interlocking corridors protected the experimental democracy of Bangladesh. His library for Phillips Exeter Academy, a prep school in New Hampshire, is a brick cube with a cone of light that even manages to instill reverence in the teenagers who use it.

Kahn's career began and ended on the same street in New Haven, where he was hired in 1947 by the architecture department of Yale University. He had settled for a teaching appointment because the extravagant impracticality of his projects frightened potential clients. Eventually, at the age of 50, he got the chance to design his first significant building: a new art gallery for the university, whose cavernous spaces contained a stair tower that was both a miracle of engineering and a symbol of intellectual aspiration, confidently mounting towards the light. His final commission, on the other side of the same block, was the Yale Center for British Art, a gallery of a very different kind with an even more transcendental staircase secreted in a cylinder of concrete (right). By the time it opened in 1975, Kahn had been dead for three years, after suffering a heart attack at Pennsylvania Station in New York.

Kahn and his patron Paul Mellon, whose collection of art works and books was to be housed in the Center, came from



BA © Artforum 2007



different worlds. The architect was the child of poor Jewish immigrants from Estonia, who initially named him Lewas-lies Schimulowsky. The client was the pampered son of a robber baron who owed his fortune to lumber, steel, oil and shipbuilding. Kahn grew up in the Philadelphia ghetto; Mellon took his ease on a stud farm in rural Virginia, where he rode and hunted while his wife, a Listerine heiress, tended her elaborate gardens. Whereas Mellon had the instincts of a patrician, Kahn was a doughty democrat who refused to ride in the back seat of taxis as that implied he was somehow the driver's superior.

Yet Mellon was something of a traitor to the pioneering dynasty his father had founded. He had no interest in business, and spent his life giving Andrew Mellon's money away: philanthropy has tax advantages in America, but when practised on this scale it turns into an almost saintly self-abnegation. Kahn in his own way was an imperious creature, a Kubla Khan empowered by an uncompromising genius. One of his students at Yale likened him to a philosopher king on the edge of society: 'marginalised but still regal, elevated by the gift of vision. Mellon, to his credit, recognised this, even though – as was told by Professor Jules Prown, the art historian who brought them together – he probably viewed Kahn as 'a funny little man'. When the three of them met for breakfast after Mellon had visited the Salk Institute, Kahn babbled mystically about symbolic thresholds while scribbling sketches for the gallery and library on some flimsy paper napkins. After they left the restaurant, Mellon, the inveterate collector, suffered a twinge of regret: 'I forgot to pick up the napkins,' he said. 'Mellon,' Prown explained, 'always hired the best advice, whether it was about his horses or his private plane or his art collection. He was very much a gentleman. He became insecure when he felt that Kahn was heading off in a screwy direction or preaching about light and silence, though he always expressed his discontent very indirectly. But he judged by results, and he was proud of what Kahn built for him.'

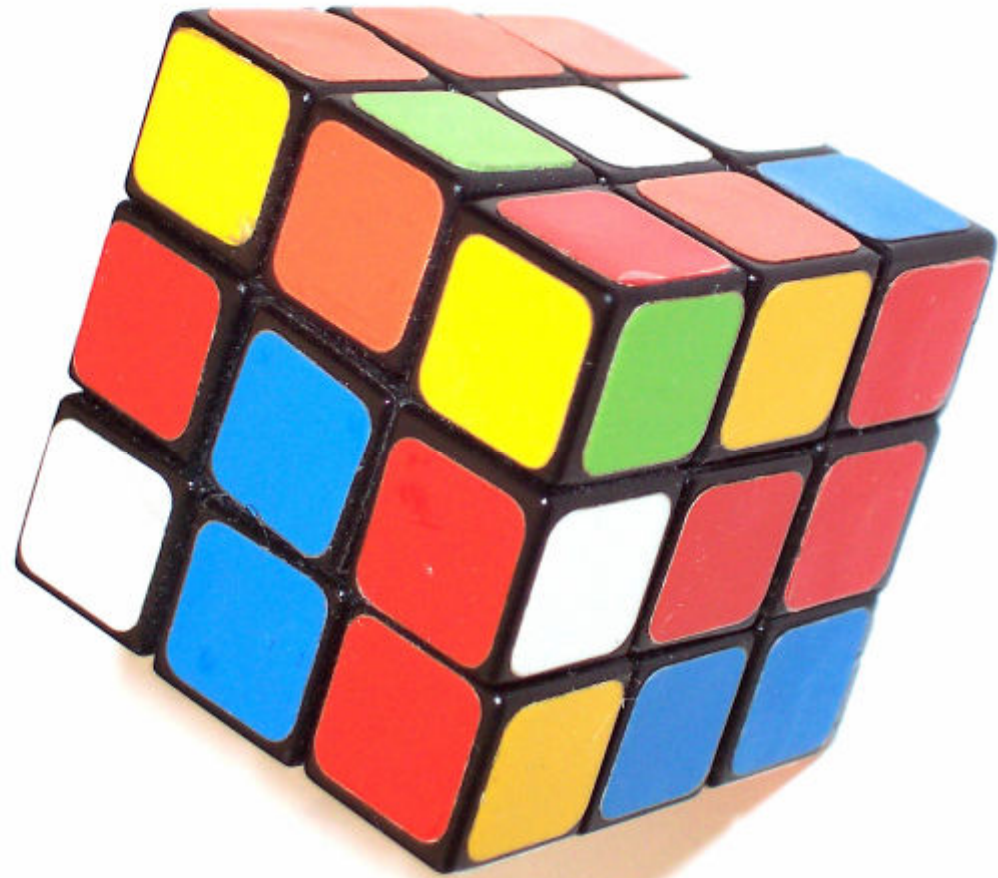
At the Salk Institute and in Bangladesh, Kahn constructed modern versions of the Acropolis or the castellated hilltop towns of the Italian Renaissance; setting out to replan downtown Philadelphia, he designed (but never built) lofty geometrical skyscrapers and a cliff-like barricade of semi-circular parking garages. However, in deference to Mellon, he agreed to work on a smaller, snigger-scale and even took it in good part when inflation forced him to rethink his original plan, eliminating a third of the space. The art in Mellon's collection was domestic in character: ancestral portraits, conversation pieces, landscapes that favour calm and quiet to noisy sublimity, anecdotal urban scenes. Mellon's favourite British painters did not turn out altar pieces for cathedrals or swaggering epic tableaux to be hung in town halls. They painted for private homes, and Kahn – not himself an especially domesticated character, who often slept on the floor of his office and died in a public washroom – honoured this intimate sociability. 'He worked in modules of twenty square feet,' said Prown as we walked around. 'For him, that was the size of the average room in which human beings are comfortable. He wanted to get away from the big open modern loft, which was the kind of space you find in his University Art Gallery just across the street.'

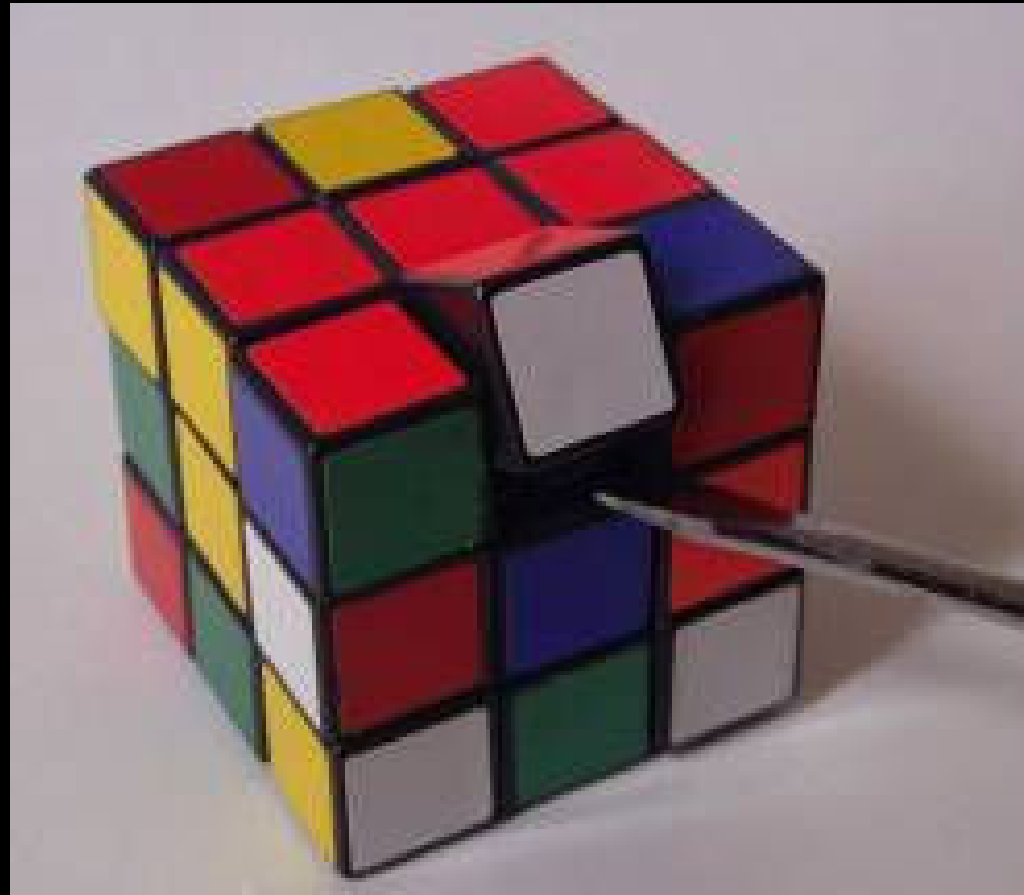
The buildings of the Yale campus behind the Center for British Art fustily mimic the architecture of Oxford and Cambridge, with decorative turrets and absurd cutchrens. Kahn of course avoids such pastiche: with its concrete pillars and its cladding of stainless steel, the Center is defiantly modern, employing materials that have been engineered into malleability – 'molten stone' (how he described concrete), metal that flexes and bends. Set inside this shell, Kahn subtly invokes the atmosphere of Britain, the fabled homeland of

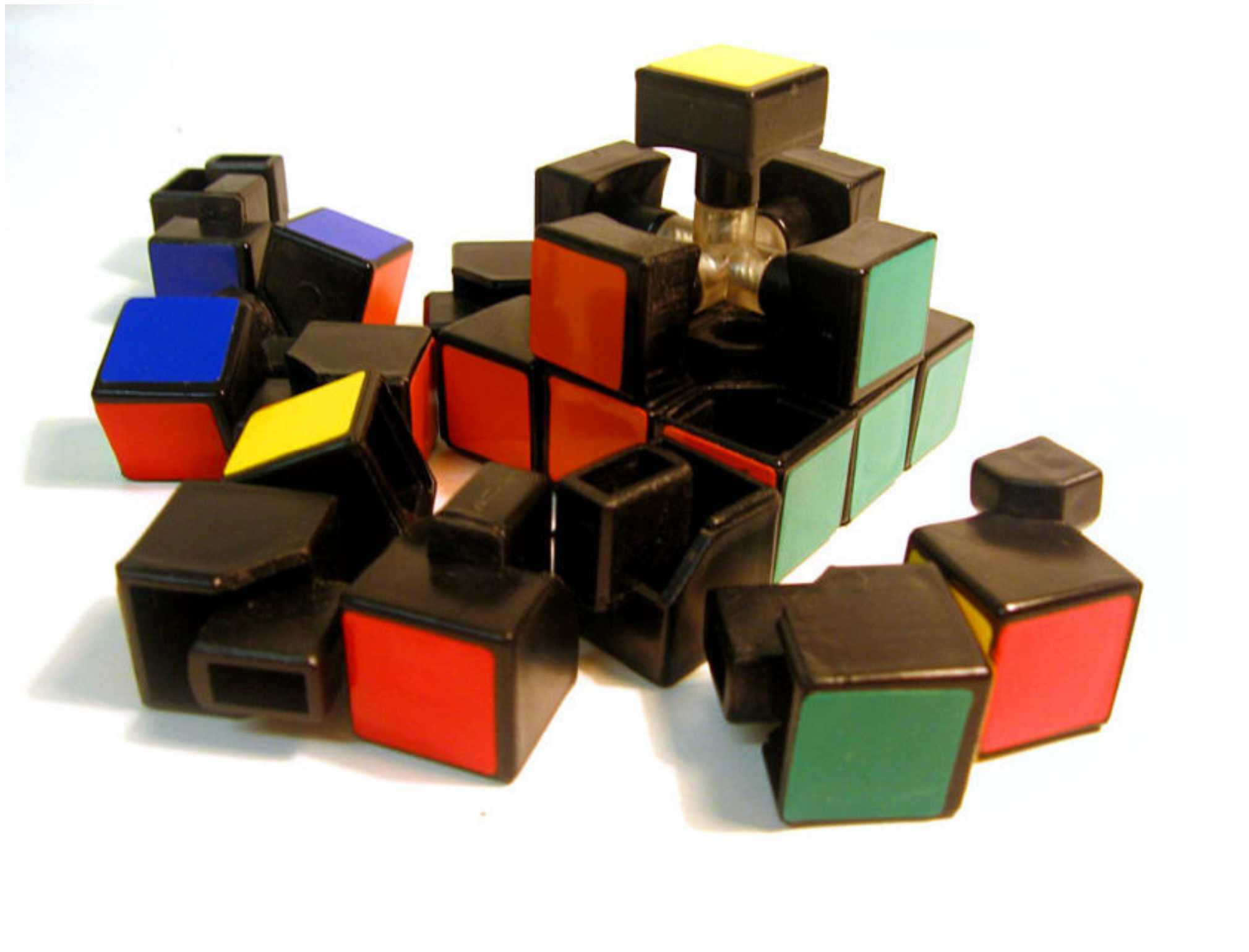
“An example of things not going well but more importantly to dismiss the myth with the students that there is some sort of magical formula for editorial design,

...sometimes, on a bad day, you just move stuff around a page until it feels ok, whilst drinking too much coffee and cursing the client every time they change something. “

-Matt Wiley, <http://www.studio8design.co.uk>



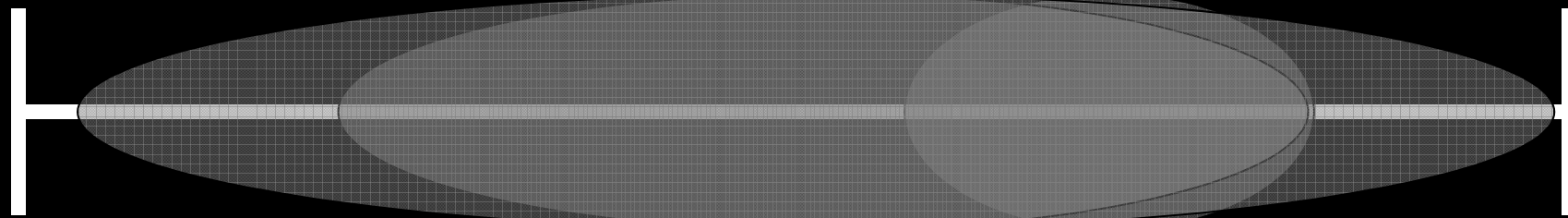




Psychological Issues

- Not enough research before design
- Takes limited responsibility for final outcome
- Lack of Conviction
- Fear of risks
- Big ego – expects others to worship
- Not receptive to good feedback
- Ignorant of their skill limitations
- Unwilling to make commitments

First
decision



Last
decision

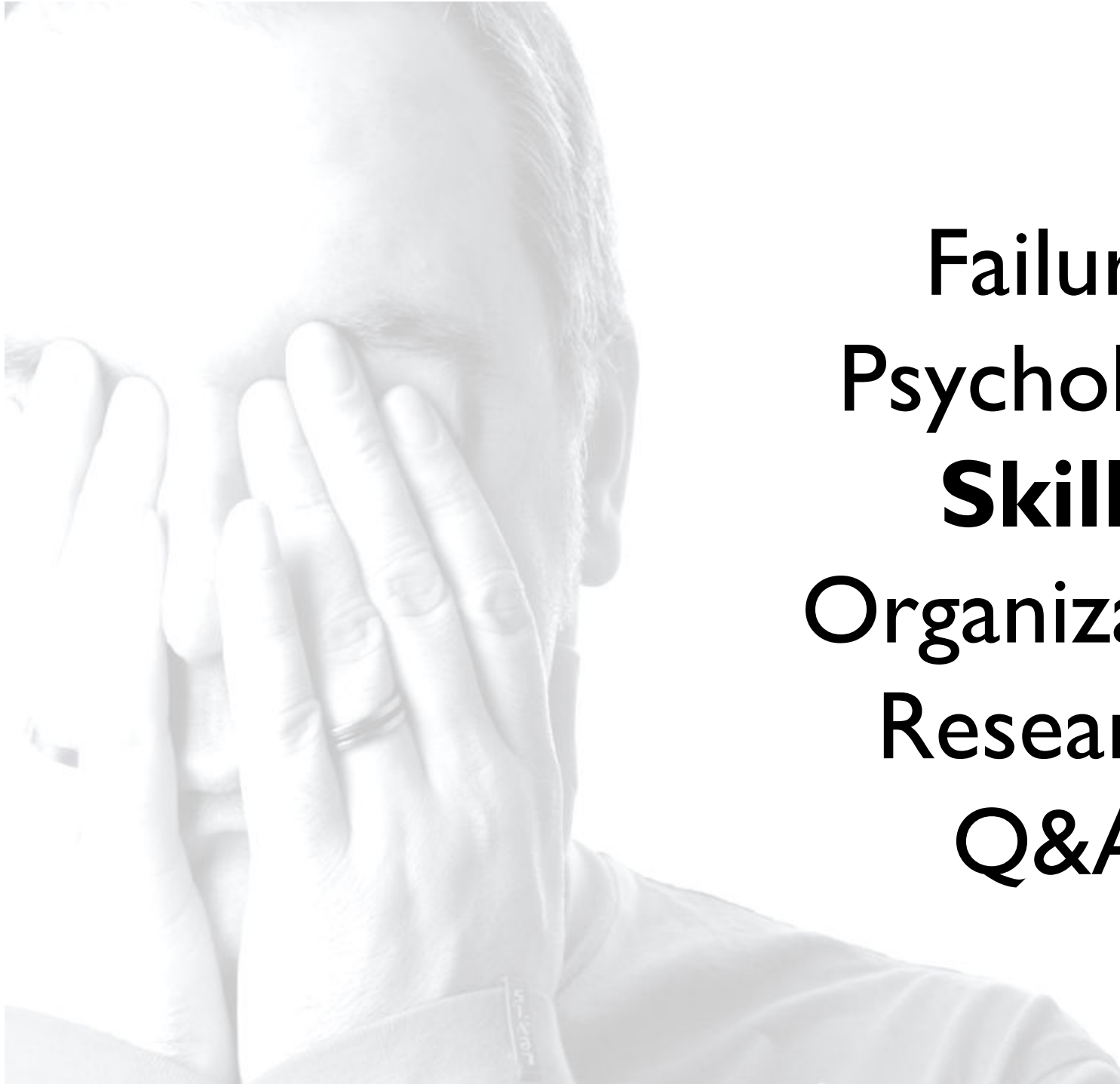
Questions of Psychology

- What am I responsible for?
- What are my problem solving tools?
- How do I know when I'm stuck?
- What tools will free me?
- Who can I talk to without embarrassment?
- How can I see the problem from best perspective?
- What fulfils me about my work?

Design traps

- Category—obsessive taxonomy (Plato / IA)
- Puzzle— problem solving for its own sake
- Numbers— believing what's measured is all there is
- Drawing trap – love the sketch more than what it represents

Ref: How designers think, Bryan Lawson, pg.227-240



Failure
Psychology
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Questions of Skill

- What am I responsible for?
- What skills are needed to fulfill ?
- How do I evaluate my proficiency?
- Do other fields have better techniques for this?
- What are my weakest skills? How do I own?
- Who does X better and how can I learn?
- Who will give me honest feedback about my work and work habits? And will I listen?

Skill Issues

- Poor collaboration skills
- Poor understanding of domain
- Poor understanding of technology
- Poor communication skills
- Poor persuasion / pitching skills
- Weak interaction design skills
- Lack of awareness of user-research methods
- Difficulty bonding with non-design team members
- Design complexities: missed requirement, bad assumptions, failed case, blown prioritization
- Unaware of business strategy
- Poor schedule estimation skills

What does the project need?

What skills do I have?

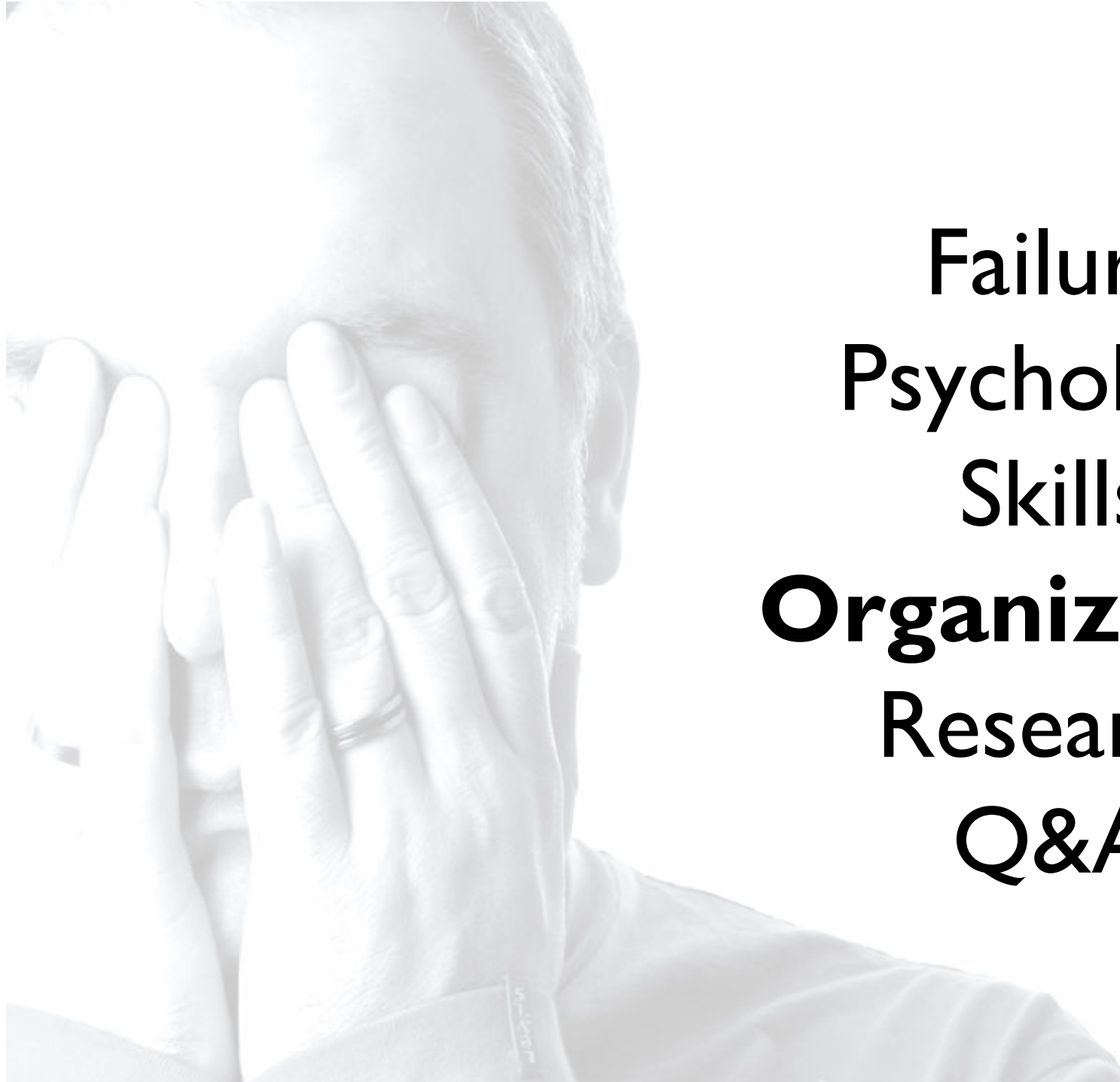
How will we close the gap?

?

All designers are
ambassadors for
good ideas

How to pitch ideas

- Persuasion is a skill: can be learned
- Explains the idiot who always gets more \$\$\$
- Half of battle: willingness to pitch many times
- All creators face rejection:
 - Frank Lloyd Wright, Rem Koolhaas, Hemmingway...
 - Artists, painters, programmers, writers, you name it
- Learn something in every pitch
 - “What could I have done differently that might have helped me convince you?”



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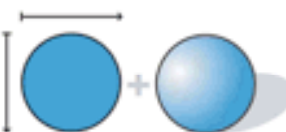


Question of O

- What power do I need vs. what I have?
- How will I make up the difference?
- Who has the power / how do I get it?
- How can I work around the system? (Maignot)
- How can I translate what I want into what boss / client wants?
- How much responsibility do I take?

Organizational issues

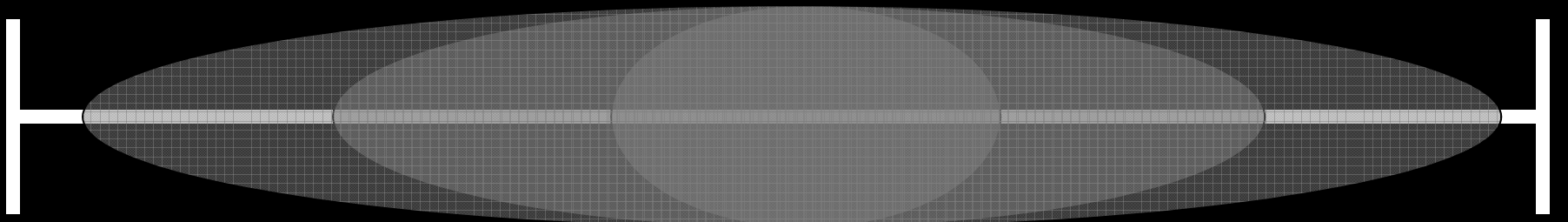
- Too much chaos for good design to happen
- It's never made safe to fail or experiment
- Managers are incompetent
- Wrong people given power
- No real power granted to designers
- Insistence on using latest tech despite UX impact
- Managers / Clients are conservative (make it blue)
- Pressure to use 1st solution, not good solution
- Only lip service is paid to “user centered” or “usability”

DESIGN AS

FRAMING		<p>Design redefines the challenges facing the organization.</p> <p>Framing sets the agenda, outlines the boundaries and axes of interest, and moves design from executing strategy to shaping strategy. Disruptive innovation lives here.</p>
PROBLEM SOLVING		<p>Design finds new opportunities by solving existing problems.</p> <p>Design process generates alternatives within a problem space. Design also narrows down those options to a specific solution.</p>
FUNCTION AND FORM		<p>Design makes things work better.</p> <p>This is the classic practice of design - but it's still commonly limited to incremental improvements through iteration over existing solutions.</p>
STYLE		<p>Design is the gateway to be hip and cool.</p> <p>Design is stylish, but too often is perceived and practiced as a cosmetic afterthought.</p>
NO CONSCIOUS DESIGN		<p>Design value isn't recognized.</p> <p>This attitude fosters design by default - however things come out is fine, because there are more important issues to deal with.</p>

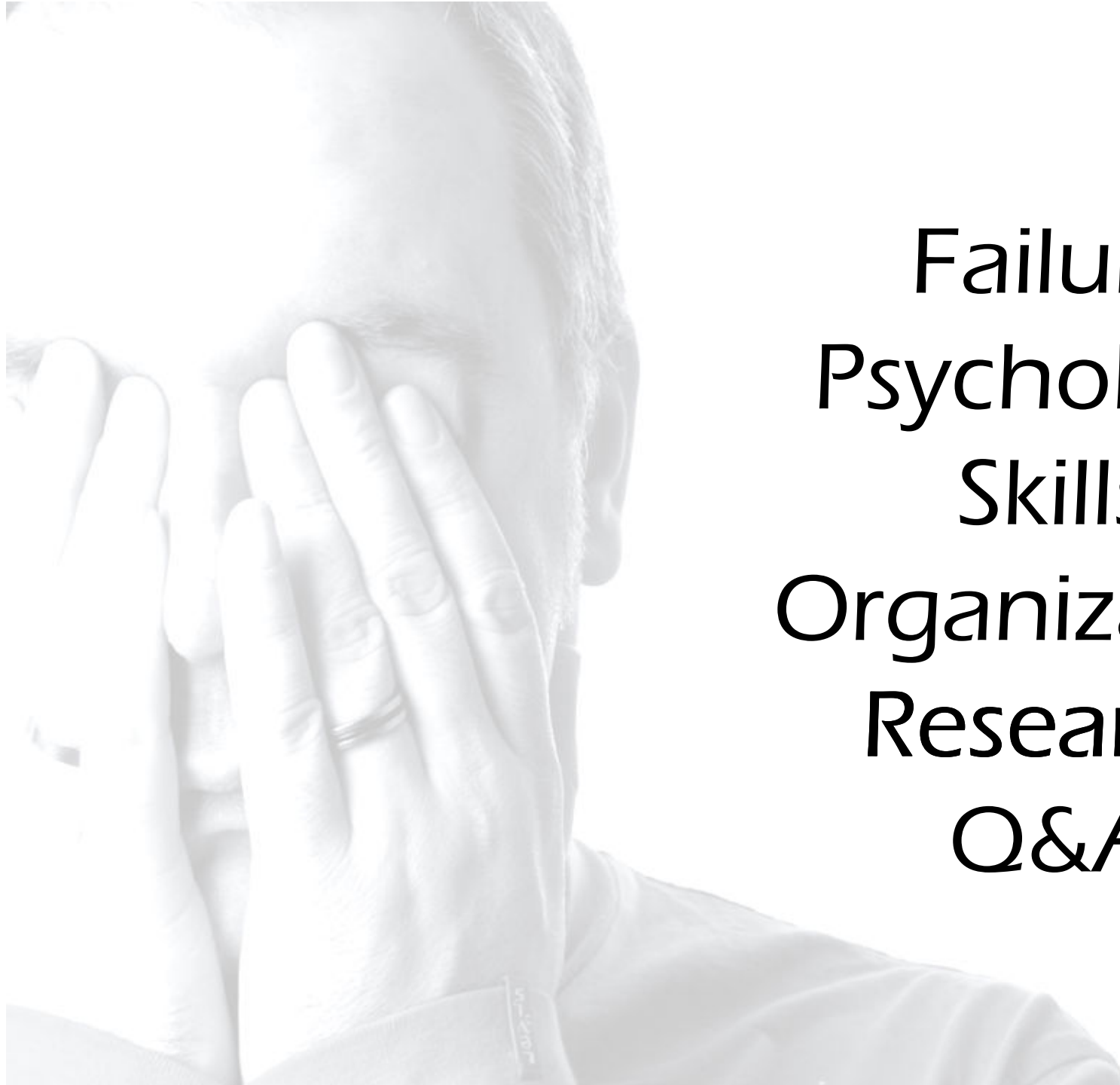
First
decision

Last
decision



Force tradeoffs from day 1

- Is <thing you want> explicitly stated in goals?
- If not, do not expect it to happen
- If yes, ask:
 - Will schedule slip to make this goal?
 - What resources will be dedicated?
 - How will we prioritize Design issues against others?



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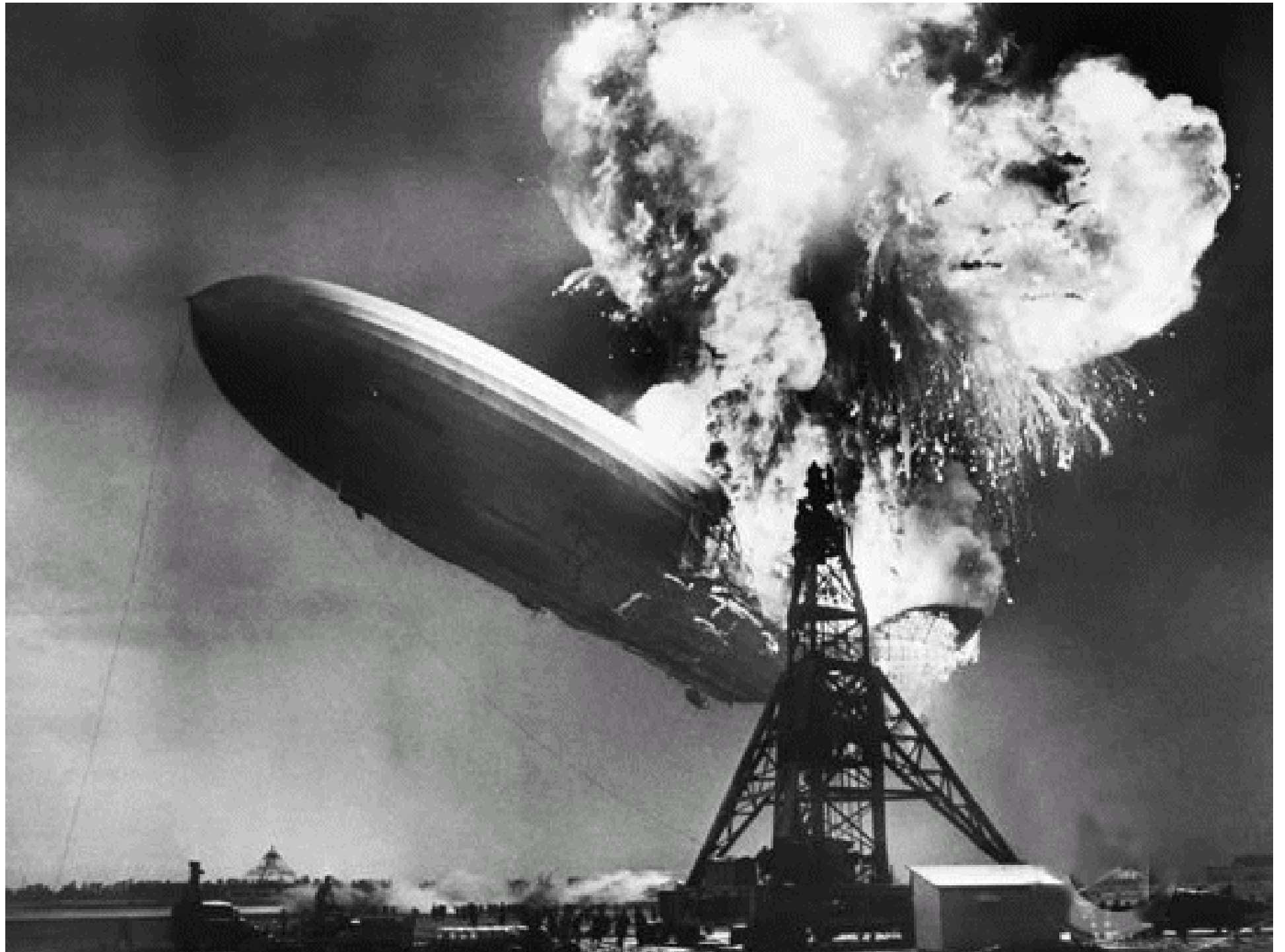


The Approach

- Goal: provoke conversation, provide baseline
- Survey of 300: Approx breakdown
 - 35% designers
 - 16% Project managers
 - 13% Programmer / Tester
 - 8% usability
 - 6% Group managers
 - 3% Marketing
 - 18% Other
- 49% manage or lead a team
- Sources: IXda mailing list, pmclinic list, my blog

Disclaimers

- Not intended for rigorous quantitative analysis – purely qualitative
- Some issues overlap, by design
- Some questions are leading, by design
- This presentation edits issue descriptions to fit on screen



Top Psychological Issues

Don't seek enough data before designing	3.9
Not receptive to critical feedback	3.7
Don't realize their own skill limitations	3.4
Expect others to cater to their whims	3.4
Lack of willingness to fight for a position	3.1

Each issue was rated on 1 to 5 scale, 5 = most significant

Top Skill Issues

Lack of awareness of the business fundamentals	3.6
Poor persuasion / idea pitching skills	3.5
Over-reliance on one kind of design style	3.5
Poor understanding of domain	3.5
Poor communication / collaboration skills	3.5
Poor schedule estimation skills	3.4
Unaware of informal user-research methods	3.2
Weak bonds with non-design team members	3.2
Weak interaction design skills	3.2



Movie Time:
Windmill goes wrong

Top Organizational Issues

Non-designers making design decisions	4.2
No time is provided for long term thinking	3.8
Only lip-service is paid to "User centered design"	3.6
Dilution of design by letting everyone have their say	3.6
It's never made safe to fail or experiment	3.6
Pressure to use first solution, not a good solution	3.4
Design team is understaffed	3.3



• LACK OF ANY "HAT-SECTION" REAR FRAME RAILS TO HELP PROTECT THE FUEL TANK (ESP. IN 1971-72 PINTOS)

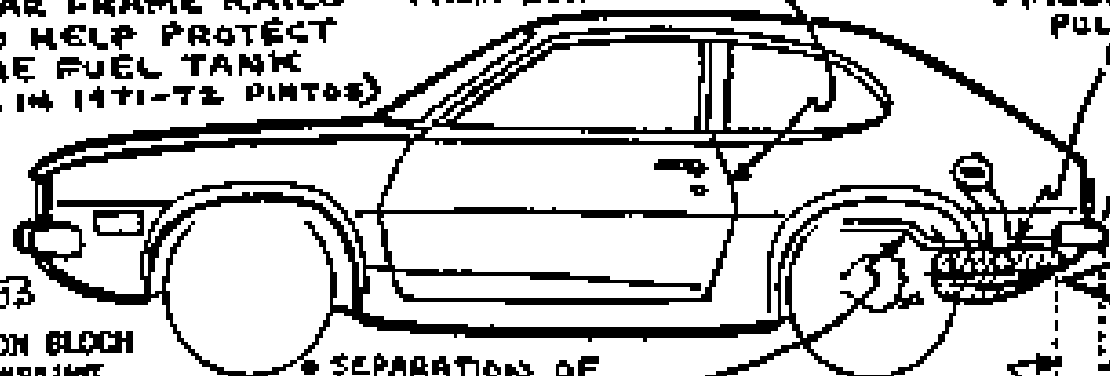
• FRONT DOORS JAM SHUT ... PREVENTING ESCAPE OR RESCUE FROM BURNING CAR

• FILLER TUBE PULLS OUT OF FUEL TANK

• WEAK BUMPER

• "EXPOSED" FUEL TANK VULNERABLE TO DIRECT IMPACT, CRUSHING, AND PUNCTURING IN REAR-IMPACT COLLISIONS

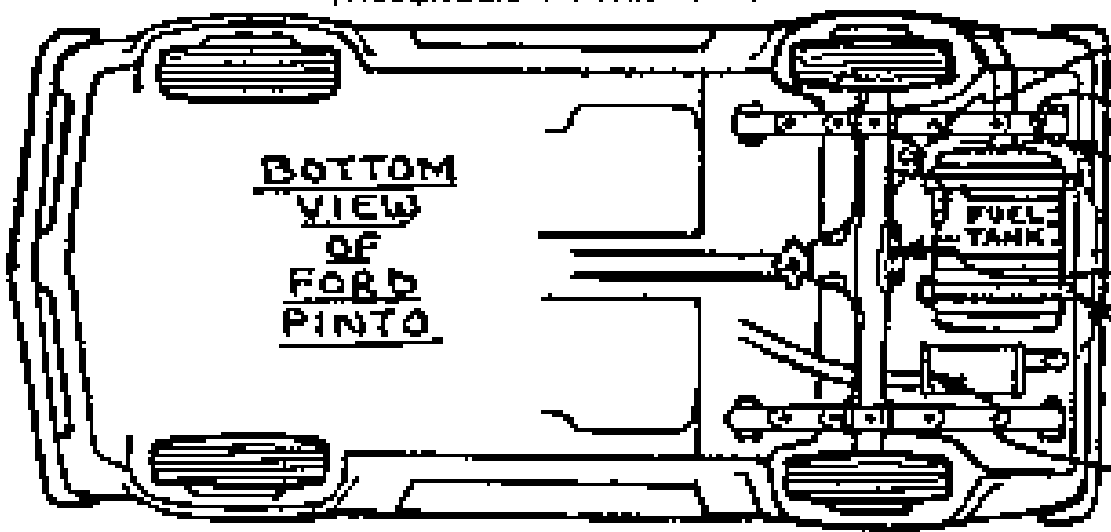
BYRON BLOCH
CONSULTANT
AUTO SAFETY DESIGN



• SEPARATION OF VEHICLE FLOORPAN AT WHEELWELLS ALLOWS FIRE ENTRY INTO THE PASSENGER COMPARTMENT

• FUEL TANK TOO CLOSE TO REAR PERIMETER OF VEHICLE

• PUNCTURE SOURCES "HOSTILE ENVIRONMENT"



BOTTOM VIEW OF FORD PINTO

- SHOCK ABSORBER BRACKET
- INNER EDGE OF SUBFRAME MEMBER (IN 1973 AND LATER)
- REAR LEAF SPRING SHACKLE PLATE AND BRACKET
- DIFFERENTIAL HOUSING EDGES AND BOLTS
- MOUNTING STRAP BRACKETS AND BOLTS
- EXHAUST MUFFLER BRACKETS

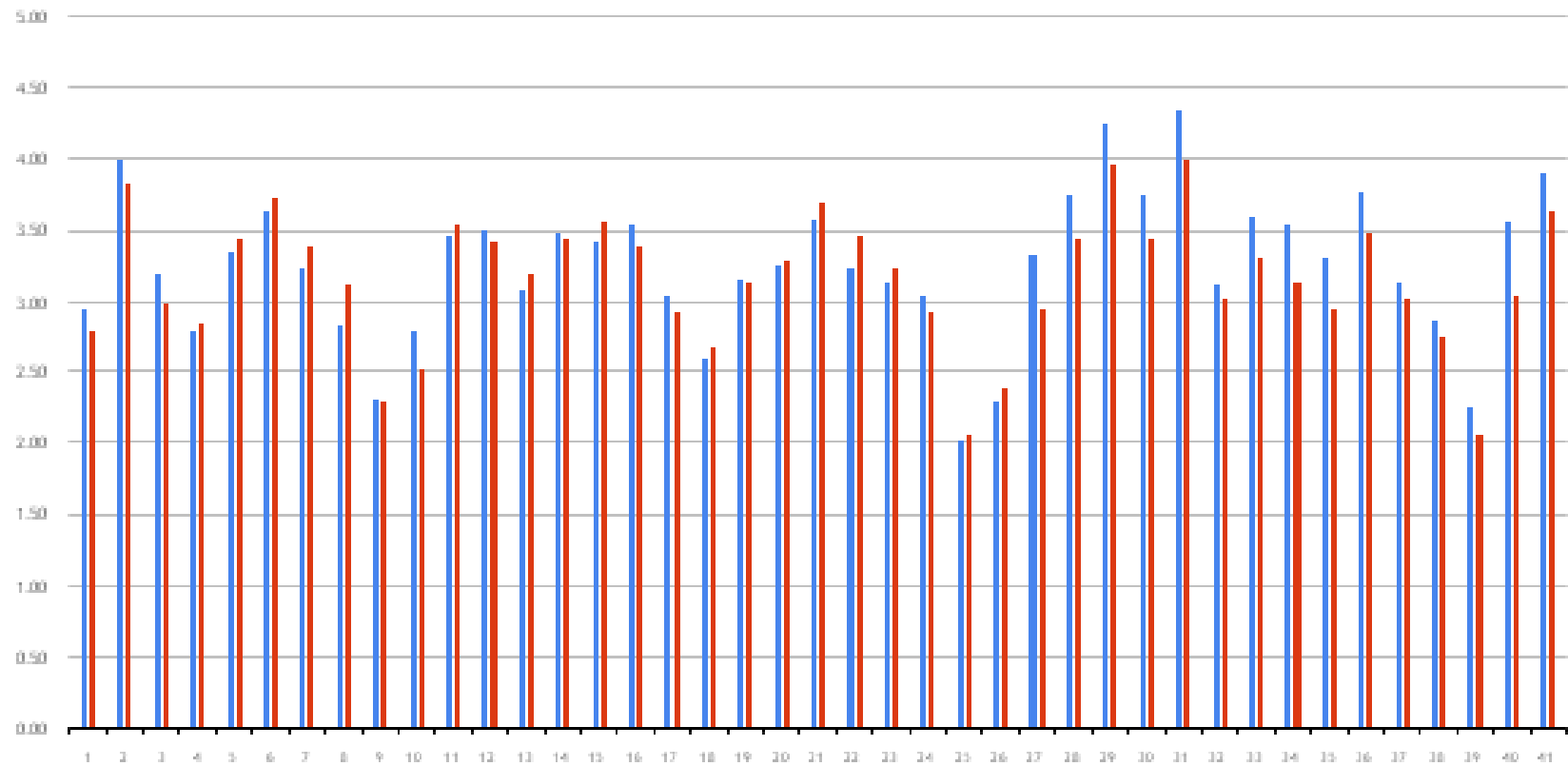
DESIGN DEFECTS OF THE FORD PINTO FUEL TANK SYSTEM

• INADEQUATE CONSTRUCTION OF THE FUEL TANK

Top 10 overall issues

Non-designers making design decisions	4.2
Designers do not seek enough data before starting	3.9
No time is provided for long term thinking	3.8
Designers not receptive to critical feedback	3.7
Designers ignorant of business fundamentals	3.6
Only lip-service is paid to "User centered design"	3.6
Everyone on team has their say on design issues	3.6
It's never made safe to fail or experiment	3.6
Designers have Poor persuasion / idea pitching skills	3.5

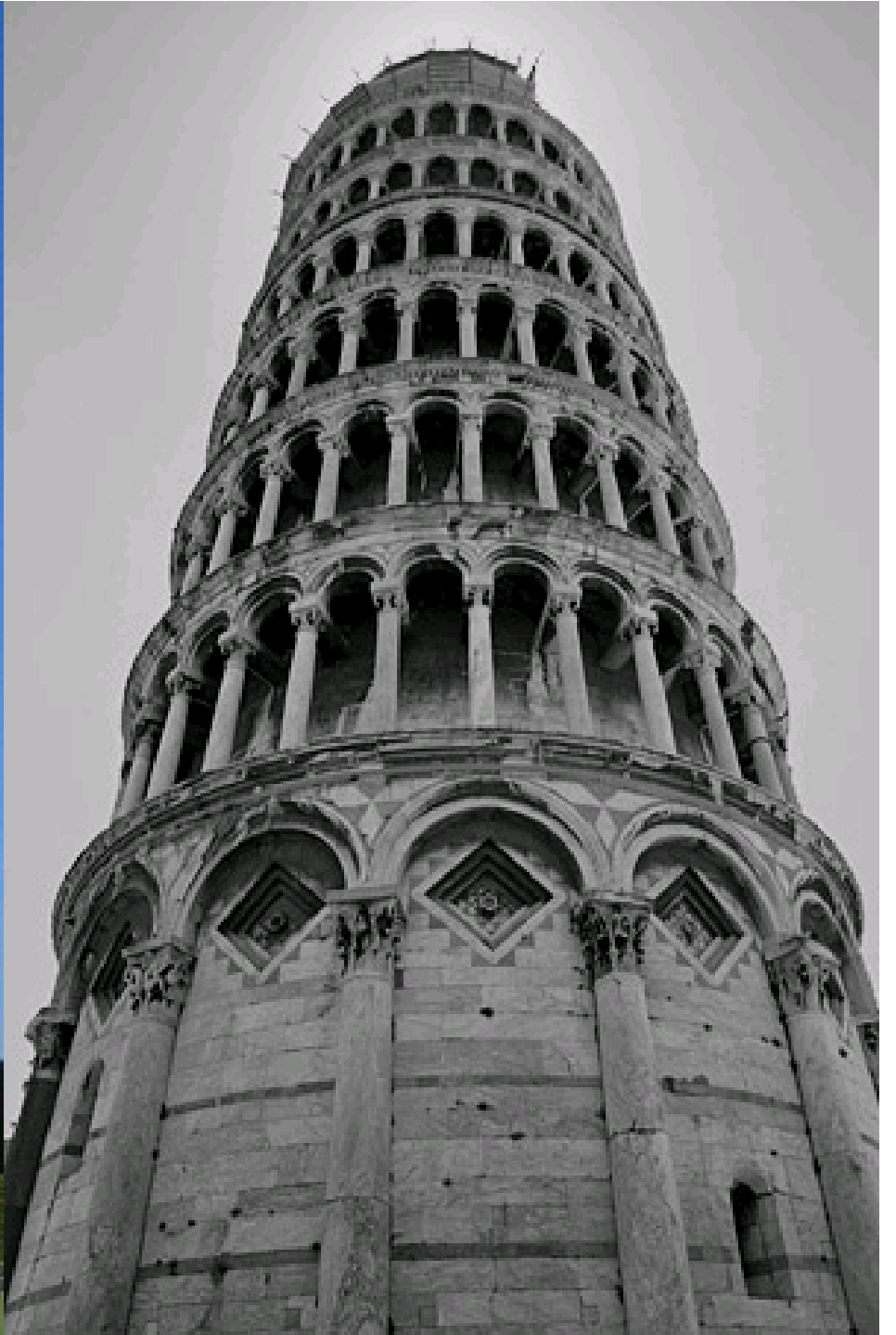
Designers vs. Non-Designers



In my oversimplified view, the keys are: passion, dedication to the idea, willingness to see it through technical implementation, and the skills to share & convince people of your vision.

If there are a handful of problems, a good team can compensate, [But] once you have issues at too many levels in a team, then yes, the designer is destined to fail.

- Project Manager



“In many organizations, design is not seen as a critical thinking skill, it is thought of as a process for execution once the hard decisions are made. “

- Designer



Conclusions

- Consensus across roles on top issues
- Design is a failure prone activity
- Learn more from failures than successes
- One frame: psychology, skill, organization
- Top issues: Persuasion & ownership

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- <http://www.flickr.com/photos/mathowie/2642695/in/set-66424/> (Restroom)
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- <http://www.theharrowgroup.com/articles/20020513/TacomaBridge.gif>
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- <http://www.eightyeightynine.com/games/rubiks-cube-cheating.html>
- <http://www.sxc.hu/photo/74493> (Ship)



Q&A

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