Advanced Design of Interactive Systems

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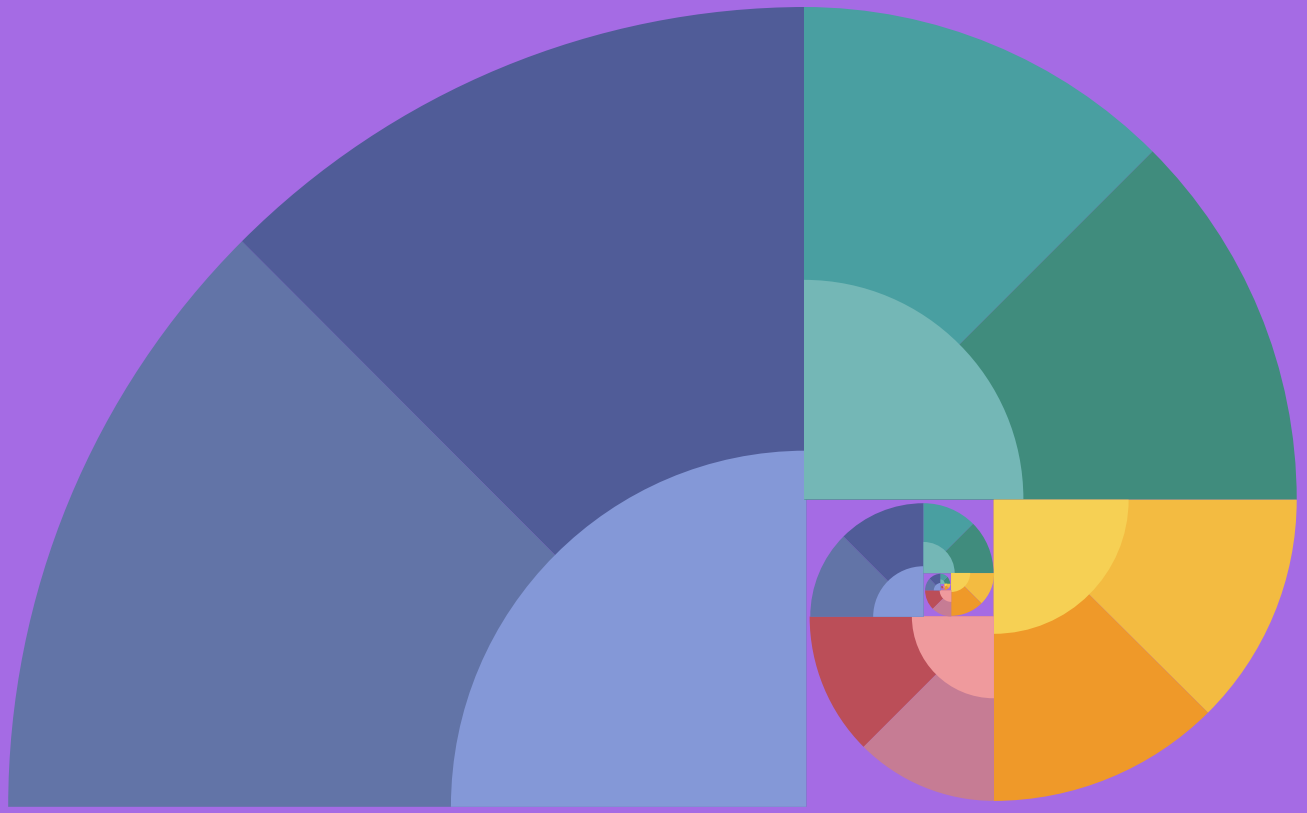
Storyboards



Scenario → Storyboard → Video Prototype

Design scenarios use words to describe situations

Create multiple paragraphs to explore options

Storyboards break up the action and illustrate it

forcing you to think more deeply about interaction

They take more time, so select options carefully

Video prototypes are dynamic sketches of interaction

Acting out the interaction

enhances thinking deeply,

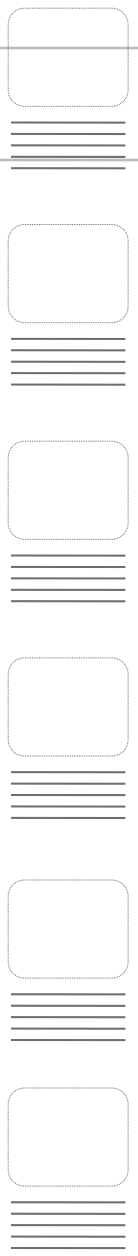
remembering ideas

sharing with users, designers, management, stakeholders

deciding what to program or test

Regular storyboard

- Identify key interaction points
  in the scenario
- Examine the key ideas from
  the design space
  (brainstormed ideas)
- Illustrate the interaction
  between user and
  novel system
- Describe key issues
  on the right



Title
User(s)
Situation

Establishing shot
First interaction

Closeup shot
Second interaction

Mid-range shot
Third interaction

Wide shot
Forth interaction

Final credits

Storyboard structure

Buena Vista CommApp	*System title* *Group*		*close-up* show the interaction
Ann and Pierre are engaged, but live in different towns. He's in a meeting …	*intertitre* explain the situation		*close-up* show the interaction
	*establishing shot* show the situation	Pierre leaves a message	*intertitle* continue the story
	*mid-shot* show Pierre and the technology	Anne Dubois Bob Martin Charles Smith	*credits* Group members

Storyboards

Moment Highlight what matters, omit the rest
Interaction points

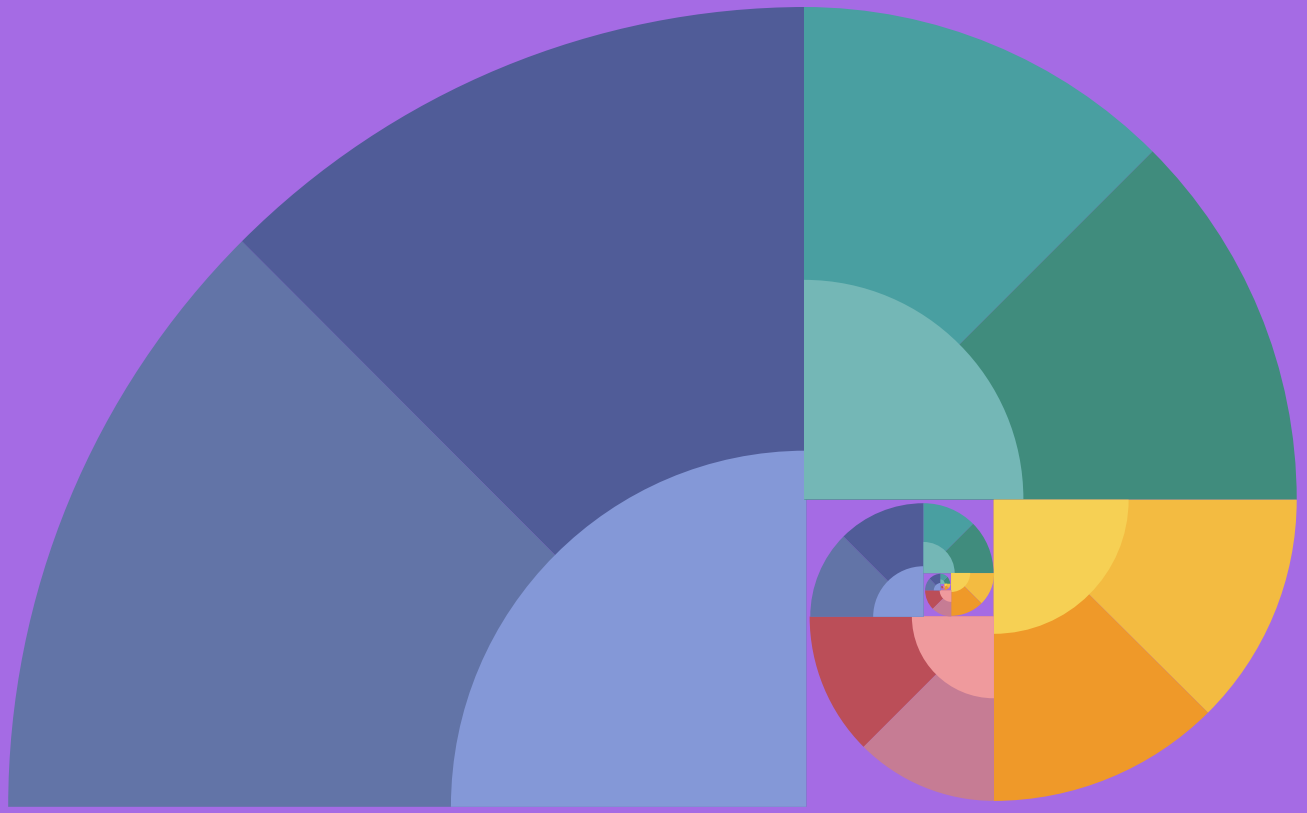
Frame Sense of place, position & focus
Start with overview, then show details
Intertitles, wide shots, close-ups

Image Evoke characters, objects, environments
Focus on the user's interaction
Use simple special effects

Words Communicate ideas, voices
Intertitle (silent film)
voice-over (narrated), dialogue

Flow Guide reader
Linear or branching

Branching Storyboards



Create a storyboard

Write a tiny, branching one-act play,
    sub-divided into one-paragraph micro scenes
    that describes the interaction
Create one or more characters, each with:
    name, age, gender, motivation
    usually with a profession, expertise
    usually with a goal or motivation
Create one or more realistic setting(s):
    date, time, place, context
Identify a series of events over a period of time

Create a branching storyboard

The first set of interaction points
represent how people *currently*
interact with an existing system

Create a use scenario,
composed of these interaction points
then suggest design alternatives
in a branching storyboard

current interaction points,
derived from data,
organized into a story (scenario)

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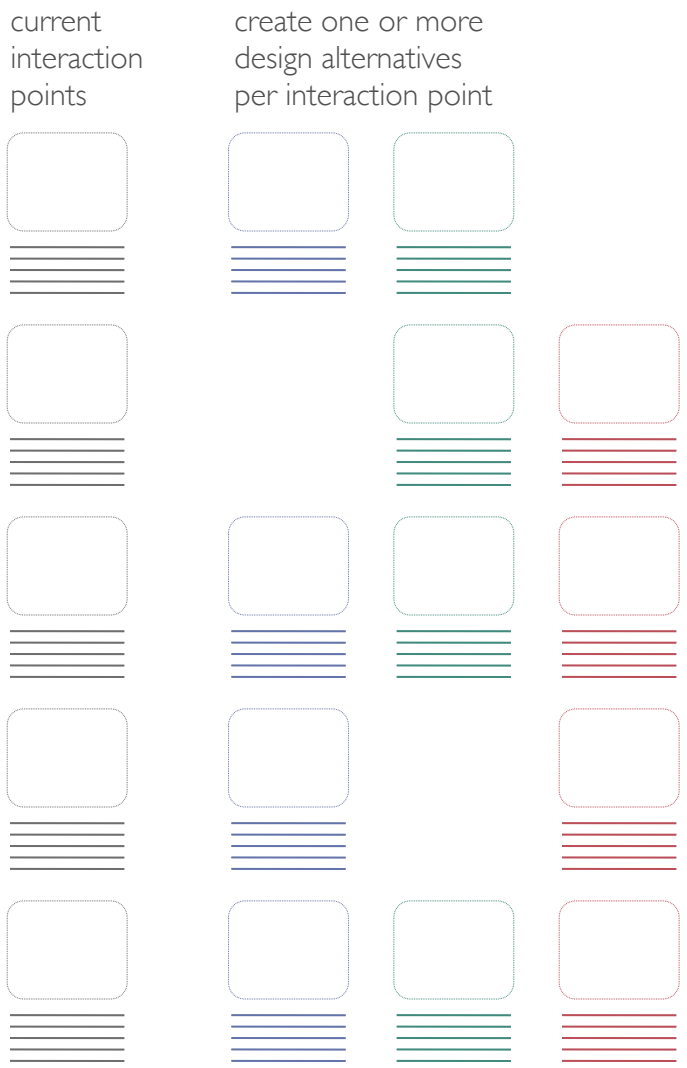


Design Space Dimensions

Revisit your design dimensions:

How can you systematically explore alternatives along several dimensions?

For example: Remote communication

Shared data (4):

activity level, text, photo, video

Synchronicity (3):

live synchronous, back&forth, asynchronous

Access control (4):

sender, recipient, shared, system

Creates a combinatorial explosion of possibilities:

4 x 3 x 4 = 48 possibilities

Latin Square example

Shared data:

activity level, text, photo, video

Synchronicity:

live synchronous, back&forth, asynchronous, live synchronous

Access control:

sender, recipient, shared, system

Combine alternatives, one per category:

shared activity level, live synchronous, sender control

shared text, back & forth, recipient control

shared photo, asynchronous, shared control

shared video, live synchronous, system control

Use combinations for the branching storyboard

Branching storyboard

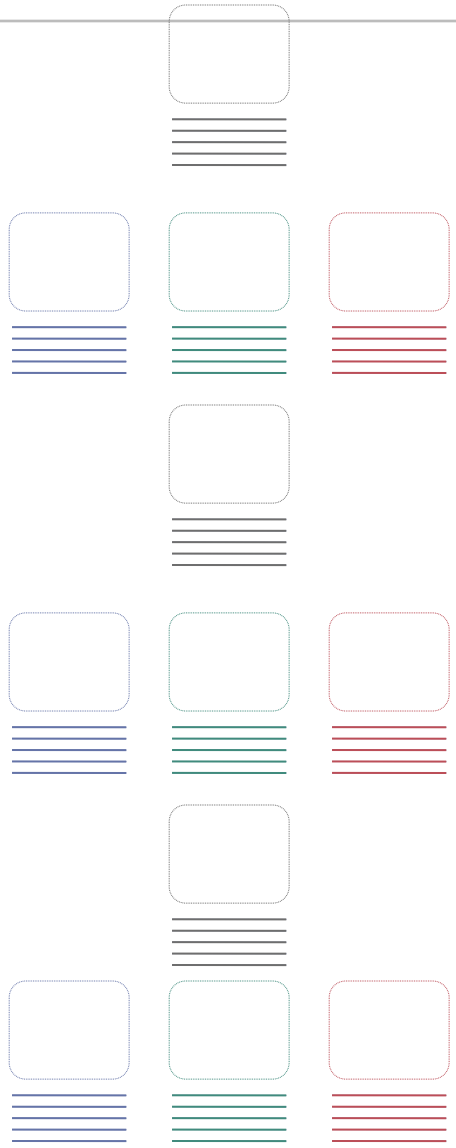
At each interaction point, consider:

- alternative ideas
- extreme uses
- effects of different situations
- breakdowns

Create an instrument

- explore new options

Did you change your design space?
Can you justify your design choices?



Stanford – Cognitive Aids in the Operating Room

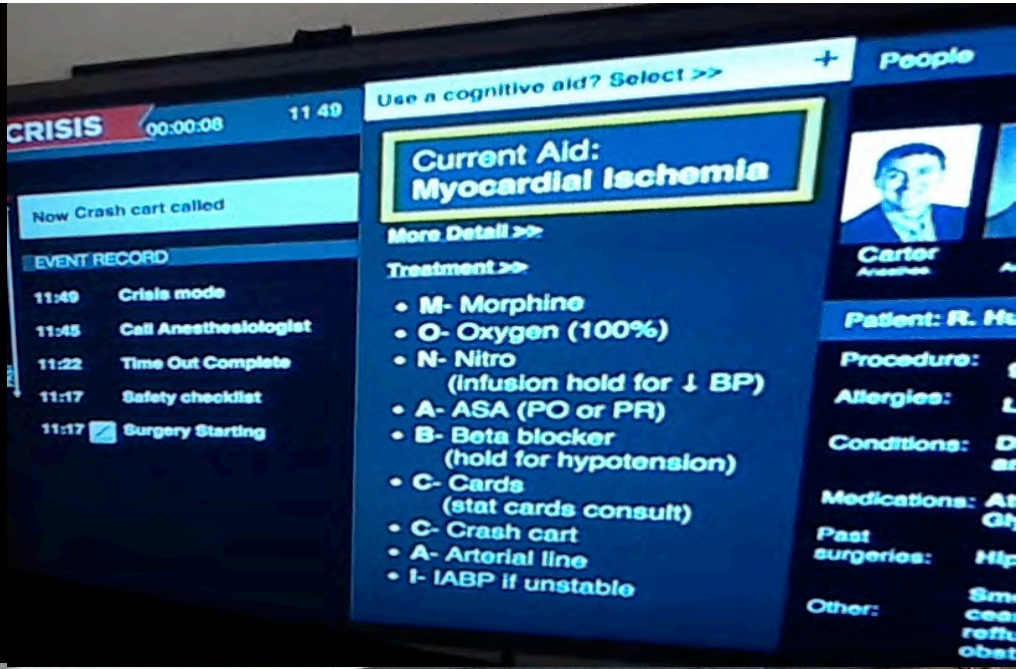
Provide cognitive aids to doctors in crisis situations

Observational studies and interviews in real operating rooms
Observational and controlled experiments in OR simulator
Participatory design workshops to create prototypes

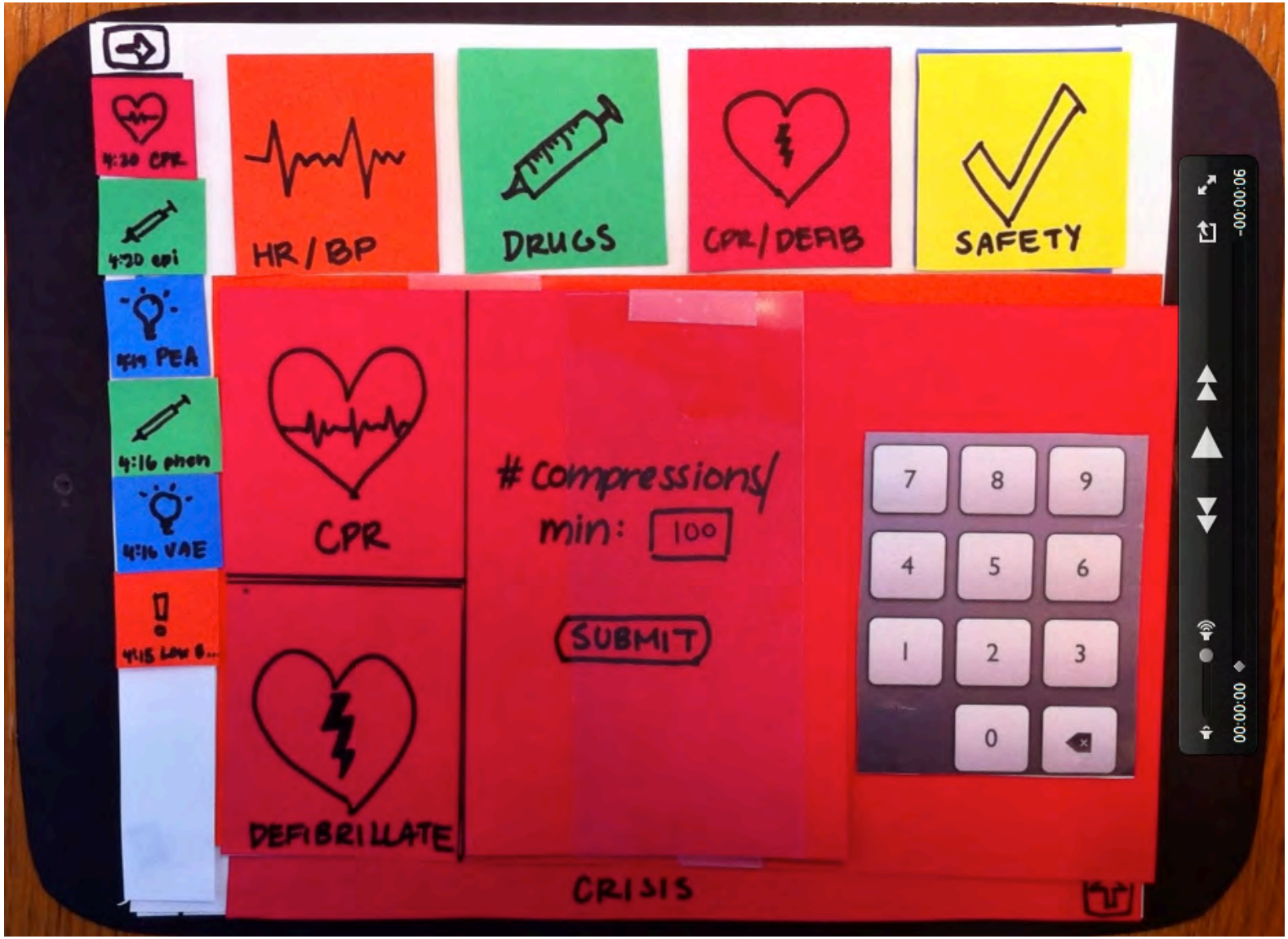
Shift from "cognitive aids" and "checklists"
to resource management for people, data, processes


VISITOR

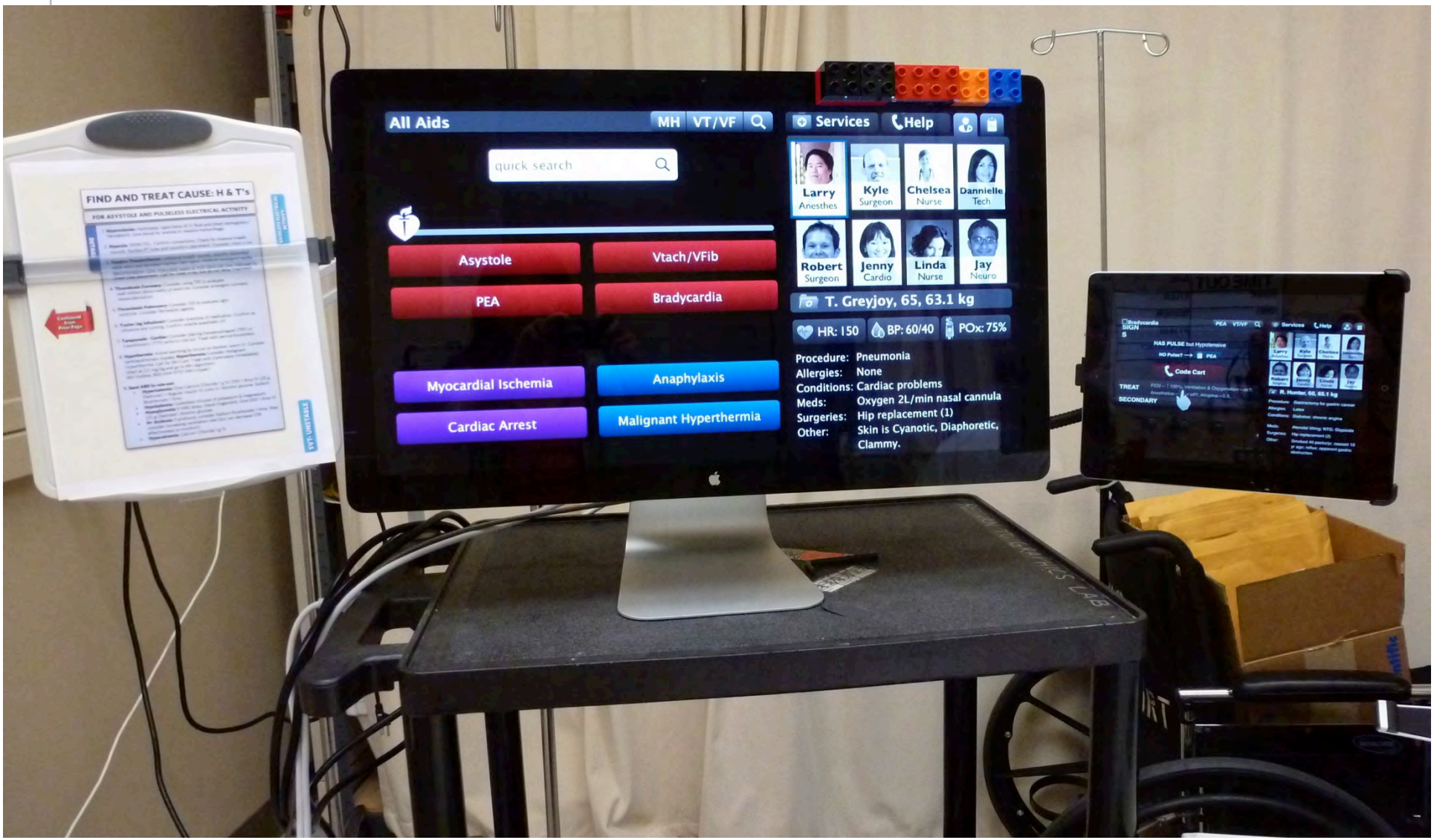

OR SIM Floorbox
129
38


CRISIS
00:00:08
11 49
Use a cognitive aid? Select >>
People
Now Crash cart called
EVENT RECORD
11:49 Crisis mode
11:45 Call Anesthesiologist
11:22 Time Out Complete
11:17 Safety checklist
11:17 Surgery Starting
Current Aid:
Myocardial Ischemia
More Detail >>
Treatment >>
• M- Morphine
• O- Oxygen (100%)
• N- Nitro
(infusion hold for ↓ BP)
• A- ASA (PO or PR)
• B- Beta blocker
(hold for hypotension)
• C- Cards
(stat cards consult)
• C- Crash cart
• A- Arterial line
• I- IABP if unstable
Carter
Procedure:
Allergies:
Conditions:
Medications:
Past surgeries:
Other:

Prototyping the screen



Prototyping the crash cart



Exercise: Storyboard

Convert your design scenario into a storyboard
to illustrate the key aspects of your design concept

Goal

Illustrate the design scenario, emphasizing interaction

Procedure

Divide the design scenario into a series of interaction points
Create a series of images and text to illustrate each point

Exercise: Branching Storyboard

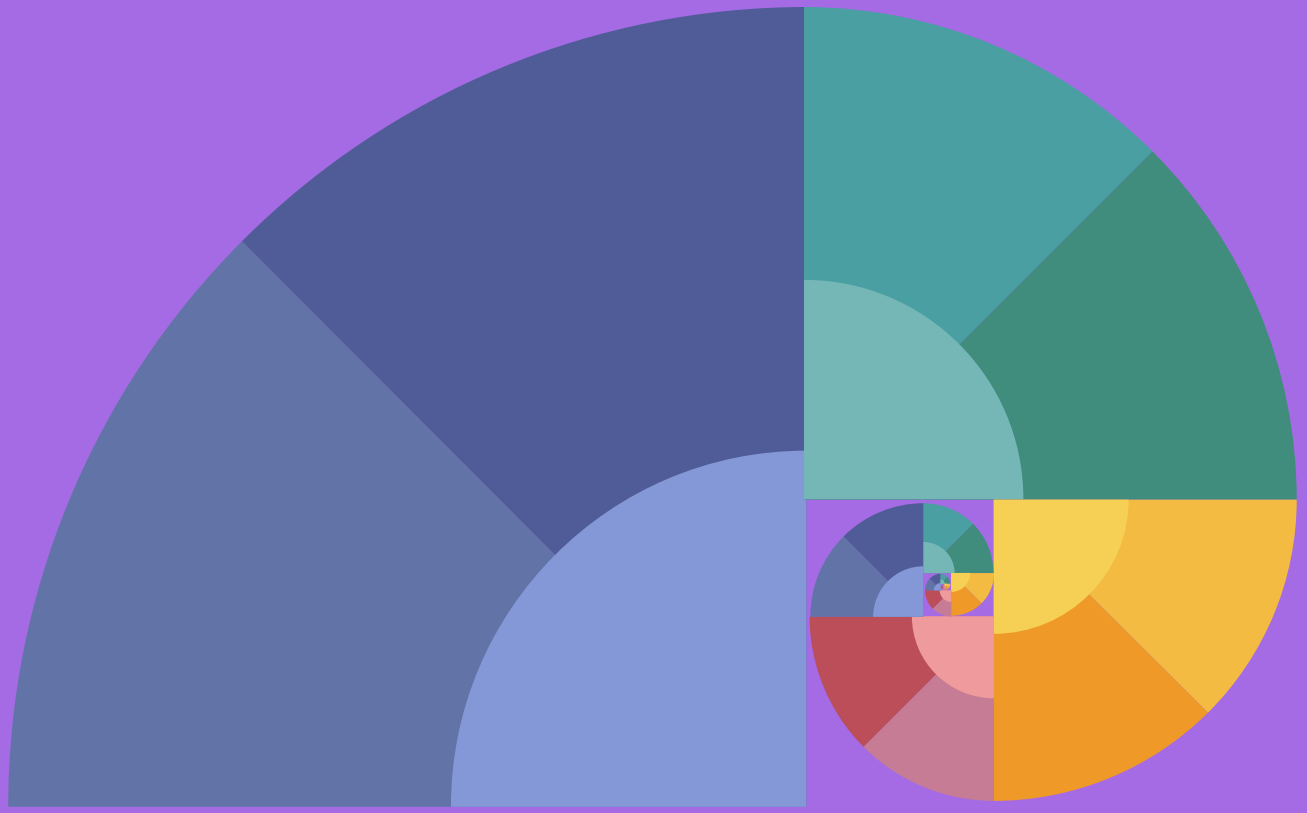
Begin with your storyboard
- Identify a set of interaction points
- Create at least one instrument

Examine your design space dimensions
- Update it as necessary to match the current design
- Generate 3 interaction methods per design dimension

Use a latin square approach to recombine the interaction points along multiple dimensions

Record your storyboard on the interaction point forms

Story Portraits



Representing a story or process

How do you capture the key elements of
a story, activity or process?

Start with critical object or incident interviews to elicit stories:

- Capture images, audio, video, hand-written notes

Summarize the process as a 'Story Portrait'

- Step-by-step, illustrate the story with sketches

Story portraits

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Capture images, audio, video, hand-written notes

Summarize the process as a 'Story Portrait'

Step-by-step, illustrate the story with sketches

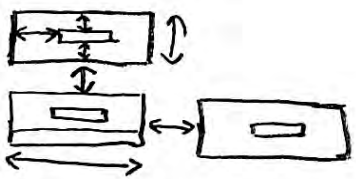
I worked with
two developers
on this project

1 2

the first one asked me
to specify everything

so we lost
a lot of time

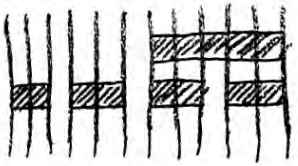
for example, all the
distances between
elements



I wasn't using any
at that time
so I set up one:

-12 columns
-gutter size
-max: 1200px

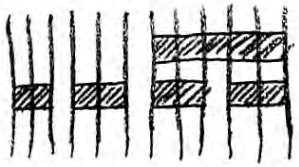
the second developer
asked me which grid
I was using



Now we have
the same, each
one in our tool

it is the basis
of our work

he can express
dimensions with %



Overriding the grid

I have a well defined grid

1

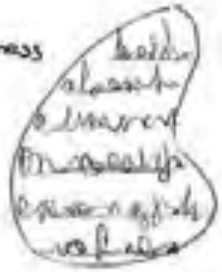
2

The text remains inside the grid but changes its orientation

3

The grid is completely overridden by the "crazy" typography

4



the zombie crazyness is contained in a shape

Shades of yellow
to reveal my process

« I didn't want to go far away from white but I wanted another color with subtle boundaries »

I made different shades of yellow batch-dyed porcelain

I pour some

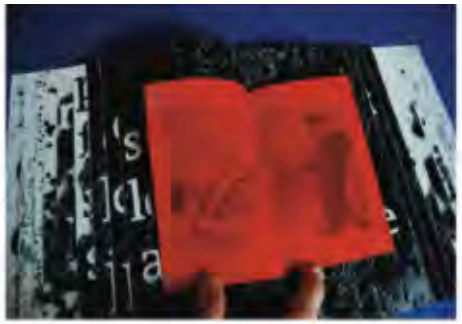
and then reject it to have only a very thin layer

« I used colors to reveal the process underneath and the time spent on it »

quick process

long process

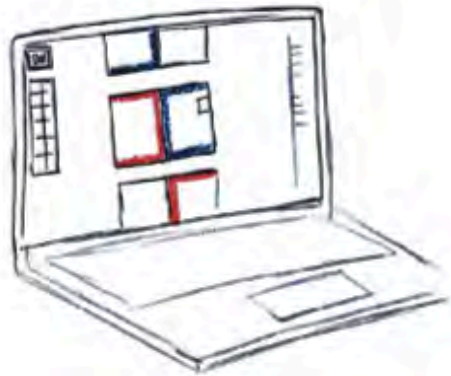
An inverted process:
Creating a book about being strip-searched



"I see the book as an architecture, the structure is at the object level"

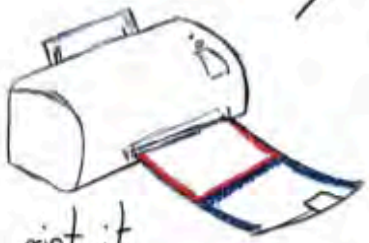
You have to rip apart the book, page by page, to read it.

When designing the book I had to imagine what it was going to look like



bind it

fold it



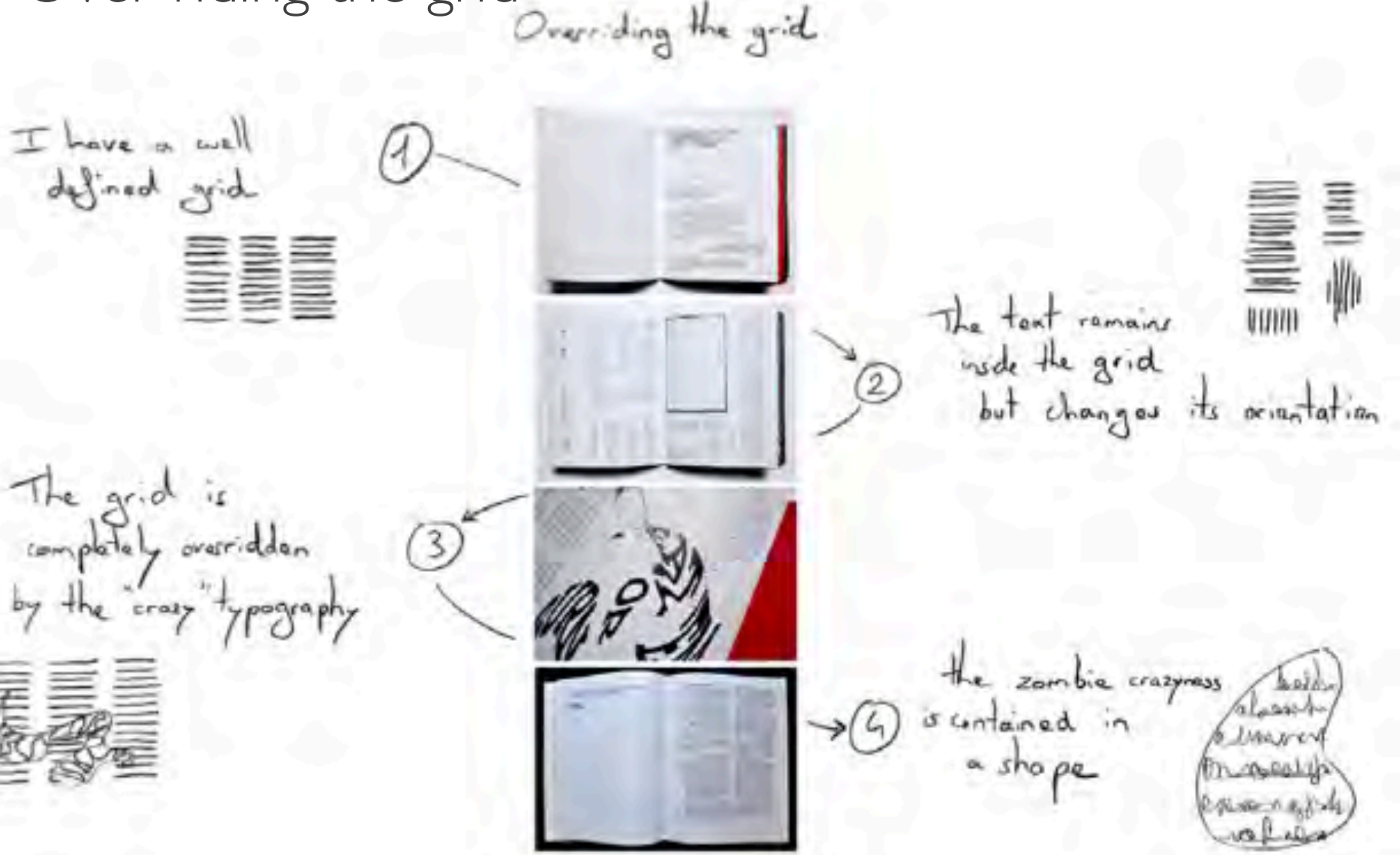
print it

the [Id] document was just a set of A4 pages, it made no sense

Story Portraits

Ask users to respond to them and give feedback

Over-riding the grid



Design Walkthrough

Design Walkthrough

Based on Structured Walkthroughs (Yourdon, 1979)

Goal:	Find bugs in code
Technique:	Systematic step-by-step analysis of a document by a small group
Principles:	Line-by-line analysis Constructive criticism Limited time

Design Walkthrough

Structured Walkthroughs
Yourdan, '77

Step-by-step evaluation of sequential material
    to identify as many problems as possible at each step

Similar to brainstorming:
    Goal is to identify maximum quantity of problems
Contrast with brainstorming:
    Do *not* defer judgement

Design Walkthrough

Types of comments:

- Focus on material, not author
- Constructive not destructive
- Specific, not general
- Problems then questions then suggestions

Examples:

- "The text is too small to read"
- "The user can't see where to change the setting"
- "That task takes four steps"

Authors: Accept the problems, but do not discuss solutions!

- Try to find as many issues as possible – don't solve them.

Design Walkthrough

Appropriate for many types of material

Originally for programmers and their code

However it works well for:

- Text documents:
  - *articles, manuals, specifications, reports*
- Design resources:
  - *design scenarios, storyboards,*
  - *paper prototypes, video prototypes*

Design Walkthrough

Group characteristics:

peers	bosses should do other types of evaluations
small	4-8 works well
diverse	include diverse perspectives

In addition to your personal opinion adopt specific roles:

technical	Is there an error or problem?
user	Is it hard to do?
manager	Is this function necessary?

or apply a set of design rules, principles or perspectives:

- Norman's rules
- Shneidermans' rules
- others…

Design Walkthrough Roles

Each group evaluates and isevaluated by another group

When your group is evaluated:

- Choose a moderator who:
  - ensures everyone in both groups participate
  - stops discussions
- Choose a scribe who:
  - takes notes

Everyone, in both groups, contributes critiques and suggestions

Design Walkthrough

Group A presents their video prototype to Group B

Group A: Choose a moderator and a scribe

Show the full video

Show each interaction point

- Any critiques?
- Any suggestions?

Remember:

DO NOT DISCUSS: clarifications only

DO NOT DEFEND: just note problems

Goal: Group A gets as many critiques as possible

Group A decides which, if any, to implement