

Design with Intent

101 patterns for influencing
behaviour through design

1.0

Dan Lockton
with
David Harrison
& Neville A. Stanton

Design with Intent:

101 patterns for influencing behaviour through design

Dan Lockton with David Harrison & Neville A. Stanton

Cleaner Electronics Research Group
Brunel Design, Brunel University

Transportation Research Grp
University of Southampton

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Your feedback is very welcome: dan@danlockton.co.uk

designwithintent.co.uk

Architectural Lens

The Architectural Lens draws on techniques used to influence user behaviour in architecture, urban planning and related disciplines such as traffic management and crime prevention through environmental design (see also the Security Lens).

While most of the techniques have been developed in the built environment, many of the ideas can also be applied in interaction and product design, even in software or services; they are effectively about using the "structure of systems" to influence behaviour. Some of the patterns, such as *Simplicity*, *Feature deletion* and *Hiding things* are really fundamental to all kinds of design.



Image for Pave the Cowpaths is a screenshot of an annotated Google Map on Kittelson & Associates' website (<http://prj.kittelson.com/tigardtrails>)

All other photos by Dan Lockton

Angles

A

3.ly/Arch

Can you slant or angle things so some actions are easier than others?

Some cigarette bins are sold to authorities using the sloping top as a feature, discouraging people leaving litter on top



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Converging & diverging

A

3.ly/Arch

Can you channel people so they come together (or split up)?



Gates (and gatehouses) channel visitors through a narrow opening, allowing a toll to be levied, or to help control potential threats

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Conveyor belts

A

3.Ly/Arch

Can you bring a feature to the users, or move the users to where you want them to be?

Moving walkways in airports help travellers move more quickly, but also prevent people blocking corridors, especially in groups

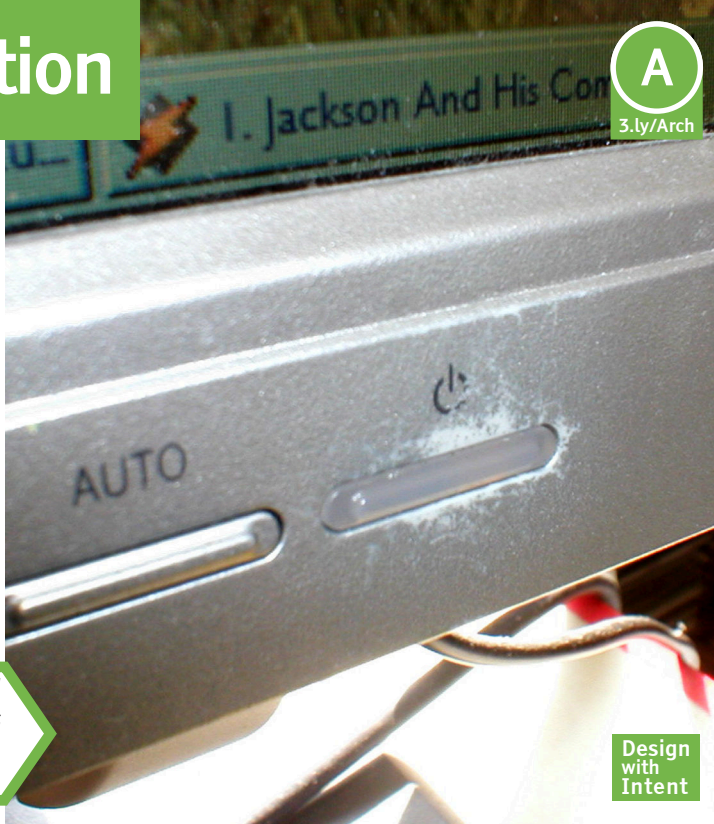


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Feature deletion

What would happen if you simply took away features you don't want people to use?

Various politicians have proposed simply removing standby buttons from consumer electronic products, to reduce energy use



A

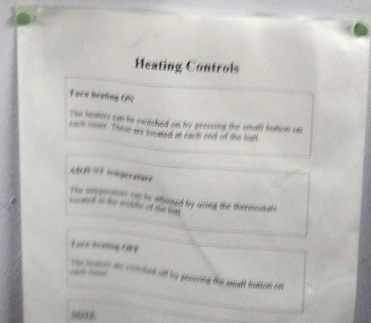
3.ly/Arch

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Hiding things

Can you hide functions or elements you'd prefer people didn't use?

These church hall heating controls have been hidden (leaving only the timer accessible) to reduce errors by users unfamiliar with them



Material properties

Can you use the properties of different materials to make some actions more comfortable than others?

Rough-textured paving can act as a subtle barrier between cycle and pedestrian tracks: stray over the line on a bike and you'll feel it



A

3.ly/Arch

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Mazes

Can get people to follow the path *you* want them to, on the way to reaching something *they* want?

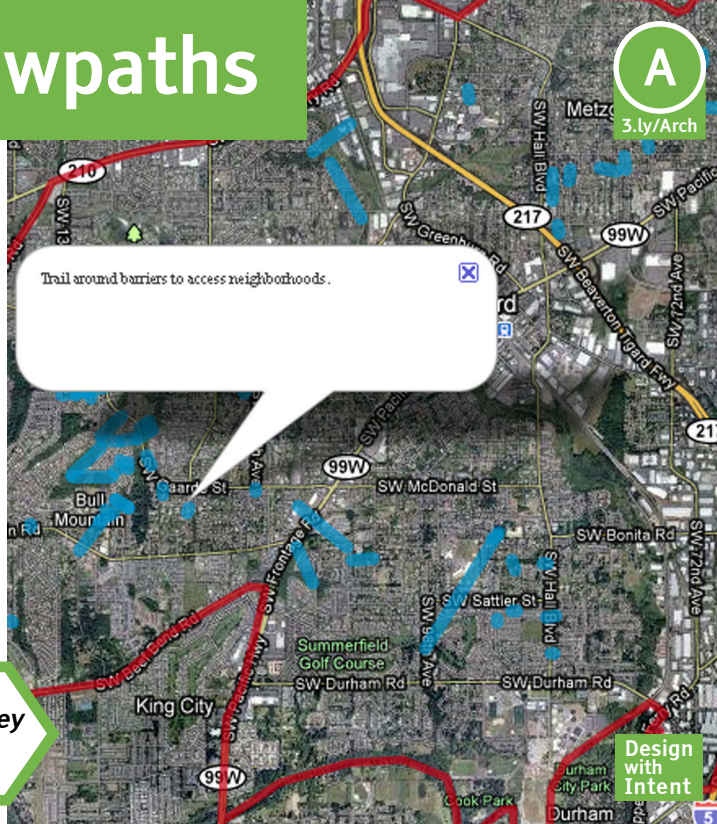
Some store layouts route or channel shoppers past 'impulse purchase' items—often snacks—on their way to the checkouts



Pave the cowpaths

Can you recognise the 'desire paths' of some of your users, and then codify them into your system, so others follow too?

In Tigard, OR, residents marked informal 'neighbourhood trails' they used on a map, so the city could prioritise ones to 'formalise'



Positioning

Can you rearrange things so people interact with them in the locations you want them to?

Positioning pedestrian crossing push-button units on the right-hand side (UK) makes it more likely that users turn to notice oncoming traffic



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Roadblock

Can you put things in users' way, so they take an alternative route, or adjust their speed?

'Chicanes' can slow down drivers, pedestrians and cyclists; the crossing chicanes prevent running or cycling straight across the road



Segmentation & spacing

Can you divide your system up into parts, so people only use one bit at a time?

These individual seats replace a bench on the Paris Métro – spaced so that someone cannot lie down or occupy more than one



A

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Simplicity

How simply can you structure things, to make it easier for users to do what you'd like them to do?

EcoButton allows a user to put a computer into a low-power state with just one press, making it much easier for users to save energy.



Errorproofing Lens



The Errorproofing Lens represents a worldview treating deviations from the target behaviour as 'errors' which design can help avoid, either by making it easier for users to work without making errors, or by making errors impossible in the first place. It's often found in ergonomics, health & safety-related design, medical device design and manufacturing engineering (as *poka-yoke*): where, as far as possible, one really doesn't want errors to occur at all.

A key difference between errorproofing and some other views of influencing user behaviour which imply attitude change leading to the target behaviour, is that errorproofing doesn't care whether or not the user's attitude changes, as long as the target behaviour is met. Attitude change *might* be an effect of the errorproofing, but it doesn't have to be.

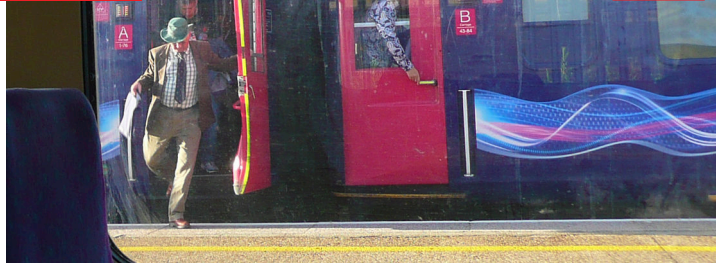
Images for Defaults, Did you mean? and Opt-outs are screenshots of CIB PDF Brewer software, a Google search for 'recursion' and Yorkshire Building Society website respectively.

All other photos by Dan Lockton

Are you sure?

Can you design an extra 'confirmation' step before an action can be performed?

Some British Rail train doors require passengers to lower the window to get access to the handle, mounted on the outside



E
3.ly/Erro

 **To open door**

 **Door unlocked**





1. Wait for 'Door unlocked' sign above door

2. Lower window

3. Open door using outside handle

Call No: 96 057154

Danger

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Choice editing

Can you edit the choices presented to users so only the ones you want them to have are available?

Choice editing can be driven by legislation, e.g. leaded 4-star petrol being phased out in the EU by 2000 (when this photo was taken)



Conditional warnings



Can you give users warnings based on detecting the error they've made, or might be about to make?



The parking brake warning light on a car's dashboard is a warning to the driver: don't drive off without releasing the brake!

Defaults

Can you make the default setting the behaviour you'd prefer users to perform?

In this software 'nag' screen, the default button (pressed if the user just hits 'enter') is information on licensing rather than 'I agree'



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Did you mean?

Can you detect and suggest a better option to users when it looks like they're making an error?

Google's suggestion algorithm is continually evolving to take account of search trends; it also includes this nice 'easter egg'!

The screenshot shows a Google search interface. At the top, there are navigation links: View, History, Bookmarks, Tools, and Help. Below that is a search bar with the text "recursion". The search results are displayed below the search bar. The first result is a suggestion: "Did you mean: [recursion](#)". Below this is a result from Wikipedia: "Recursion - Wikipedia, the free encyclopedia". The text of the result reads: "Recursion, in mathematics and computer science, is a method of defining fun... the function being defined is applied within its own definition; ... en.wikipedia.org/wiki/Recursion - 4 hours ago - Cached - Similar". Below this is another result from Wikipedia: "Recursion (computer science) - Wikipedia, the free encyclo...". The text of this result reads: "Recursion in computer science is a method where the solution to a pro... solutions to smaller instances of the same problem. ... en.wikipedia.org/wiki/Recursion_(computer_science) - Cached - Similar". At the bottom of the screenshot, there is a result from Wolfram MathWorld: "Recursion -- from Wolfram MathWorld". The text of this result reads: "A recursive process is one in which objects are defined in terms of other objects". In the top right corner of the screenshot, there is a red circle with a white letter 'E' inside it, and a red box with the text "3.ly/Error" next to it.

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Interlock

E
3.ly/Erro

Can you set things up so one action can't be performed until another is completed?

Most modern cash machines don't dispense cash until you remove your card, making it less likely you'll leave it behind



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Matched affordances

E

3.ly/Erro

Can you make parts fit only when the right way round, or only with the products they should do?

The bevelled corner on SIM cards, memory cards and floppy disks ensures that they can't be inserted the wrong way round



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Opt-outs

What happens if you make an option something people opt out of, rather than opt in to?

This building society asks new savers if they want to opt out of donating part of their interest to charity – by default it is donated

The screenshot shows a web browser window with the URL `http://www.ybs.co.uk/`. The browser's address bar contains the text "Tools Help". A red circular icon with a white 'E' and the URL "3.ly/Erro" is overlaid in the top right corner. The page header features the logo for "ybs B U" with the tagline "With you". Below the logo is a navigation menu with tabs for "savings", "investments", "insurance", "conveyancing", "shares", "loans", and "share p". The main content area is titled "E-ISA Application - Small Change Big Difference". A green bar highlights the heading "Make a Big Difference". Below this, the text reads: "The Small Change, Big Difference Scheme is a way in which you can support Yo". Further down, it states: "For all customers opening a new investment account from 1st May 2001, an an... This donation will be the same as the pence of your net interest payment or gro". Another section says: "For details on when your donation will be collected, please refer to your accoun your local branch or call 0845 1200 300." At the bottom of the form, there is a checkbox labeled "Check this box if you would not like to make a big difference" which is currently unchecked. A green "Cancel" button is visible below the checkbox.

Portions

Can you change the size of the portions or the units of 'stuff' you give users?

'Portion packs' for snacks give customers the 'right' amount of food to eat in one go (sometimes a particular amount of calories)



E

3.ly/Erro

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Task lock-in/out

E

3.ly/Erro

Can you keep a task going that needs to be, or prevent one being started inadvertently?

To prevent accidentally engaging reverse gear, most gearboxes include a 'gate' over/under which the stick must be lifted or pressed



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Interaction Lens

All the patterns are really about interaction design in one form or another, but the Interaction Lens brings together some of the most common design elements of interfaces where users' interactions with the system affect how their behaviour is influenced. So there are some core Human-Computer Interaction patterns here, such as kinds of *feedback*, *progress bars*, and *previews*, and some currently less-used such as *feedforward*.

This lens also includes some patterns from the growing field of Persuasive Technology, where computers, mobile phones and other systems with interfaces are used to persuade users: changing attitudes and so changing behaviour through contextual information, advice and guidance. Among these are *kairos*, *tailoring* and *tunnelling*, identified in BJ Fogg's seminal book *Persuasive Technology: Using Computers to Change What We Think and Do*.



Images for Feedback through form, Summary feedback and Tailoring are taken from promotional videos/demos by Royal VKB, GreenPrint and Pam, available at
<http://shop.royalvkb.com/shopexd.asp?id=423&menu=2>,
<http://www.printgreener.com> and
<http://www.pam.com/indexc.php?demo=1&f=1&ClientTZ=-60> respectively.

Images for Partial completion, Peer feedback, Progress bar, Simulation & feedforward and Tunnelling & wizards are screenshots of Amazon, Slashdot, Digg, LinkedIn, Wikipedia, Yahoo! savings calculator and Foxit PDF reader.

Other photos by Dan Lockton

Feedback through form

Can you use the form of your object itself as a kind of interface, giving feedback or suggestive cues?



Royal VKB's 100g/250g Balancing Bowls are weighted so they tilt noticeably and audibly when the 'portion size' is reached when filling

Kairos

Can you give users a suggestion at exactly the right moment for them to change their behaviour?

Automatic warning signs can alert drivers to upcoming dangers at the right point for them to respond and slow down accordingly



Partial completion

I

3.ly/Inte

Can you show that the first stage of a process has been completed already, to give users confidence to do the next?

amazon.co.uk

WELCOME ADDRESS ITEMS WRAP DISPATCH PA

Choose a delivery address

Is the address you'd like to use displayed below? If so, click the corresponding "Dispatch to this address" button. Or you can enter a new delivery address:

MR E SHOPPER'S Address Book

Dispatch to this address

Brian Brains
PO Box 45
NOWHERE, Bucks SL0 1AA
United Kingdom

Edit

Delete

Dispatch to this address

Miss Penelope Pigg
Rose Cottage
Turnip Lane
SWINDON, Wiltshire SN3 4DD
United Kingdom

Edit

Delete

Dispatch to this address

Dispatch to this address

Pre-filled details such as delivery addresses can be an effective way of speeding up an order process and reducing 'shopping cart abandonment'

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Peer feedback

Can you give users feedback on their behaviour from other users of the system, equal in status to themselves?

Peer feedback on comments and stories is central to sites such as Slashdot ('karma' scores) and Digg ('digging' and 'burying')

The screenshot shows a Digg news item titled "Walmart shopper takes a bat to 29 TVs (Video)". The article text reads: "engadget.com — Look, we've all had rough days. Ones that we wish we could skip in fact. But we've yet to be pushed to the brink where the only logical solution in steam would be to take an aluminum baseball bat to nearly three dozen TVs in our store." The article has 185 diggs and 36 comments. A comment from "GamingForever" says "Everyone just watches, no one tries to stop him..." and has 4 replies. The interface includes navigation links like "Join Digg", "About", "Login", and "Connect with Facebook".

Examples of user feedback on the page:

- Please Explain (Score:2, Informative)** by Anr...
- Re:Please Explain (Score:2)** by stoborro...
- Apache anf RFID? (Score:1, Offtopic)** by Chasuk (62477) Could...
- Same technology as proximity cards... (Score:5, Insightful)** by stienman (51024) <adavis@@@ubasics...com> on Tuesday August 0...

Peer feedback elements shown:

- 185 diggs
- 36 Comments
- +2 diggs
- 4 Replies — best has 13 diggs

Design with Intent logo is visible in the bottom right corner.

Progress bar

Can you let users know their progress towards achieving a goal?

As demonstrated by examples from LinkedIn and Wikipedia, progress bars showing 'nearly complete' can make a goal seem more achievable

...ur profile to a connection

...ct Settings

Profile Settings

3.ly/Inte

→ Create your profile in another language

85% profile completeness

Complete your profile quickly

Import your **résumé** to build a complete profile in minutes.

Profile Completeness 85%

Adding a recommendation will bring you to 90%

article discussion edit this page history

We're almost there. Thank you.

\$6.9M \$7.51

Donate Now

Autotelic

From Wikipedia, the free encyclopedia

Autotelic^[1] is defined by one "having a purpose in and not apart from itself". It is a broad term...

Real-time feedback

Can you let users know how what they're doing is affecting the system?

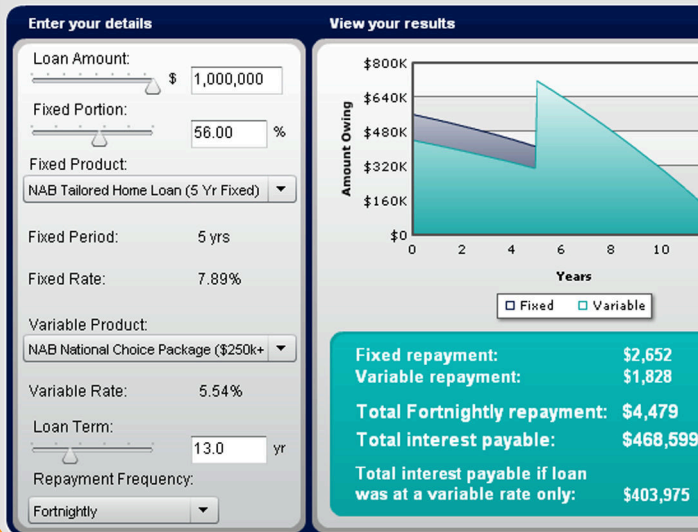
Energy meters can allow householders to see which appliances use the most electricity, and how much this is costing



Simulation & feedforward

Can you give users a preview or simulation of the results of different actions or choices?

Interactive savings / loan simulators such as this from Yahoo! are increasingly common, and can influence customer decisions



Start ahead and stay ahead

Find
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Summary feedback

I
3.ly/Inte

Can you give users a report on what they've been doing, or its effects?



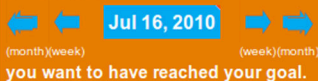
GreenPrint, software that reduces wasted prints through better usability, provides users (and their bosses!) with a summary of resources saved

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Tailoring

Could your system adapt what it offers to match individual users' needs and abilities?

The Pam personal activity monitor suggests exercise regimes tailored to the user—something approaching the role of a 'personal trainer'



So from this date onwards you do this (e.g.) extra per day:

Walking: 57 min/day or

Running: 21 min/day

To reach your weight goal:

Eat less: 270 Cal/day

(from today!)

This will be your goal line ...

Pam Score (now) ← 46

Pam Score (goal) ← 45

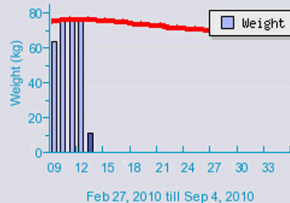
Weight (now 75) ← 69 kg →

BMI (now 23.7) 22.1 (kg/m²)

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Progress of your weight



Advice

You're coming right along. Suggestion: try adding one or more of your favorite activities:

- Daily 104 minutes extra walking (3km/h)
- Daily 104 minutes extra cycling to work
- Daily 42 minutes extra walking downstairs
- Daily 15 minutes extra walking upstairs
- Daily 21 minutes extra Cycling (25 km/h)

Dietary advice:

You'll lose weight faster. Do you want that? (323 Cal/day

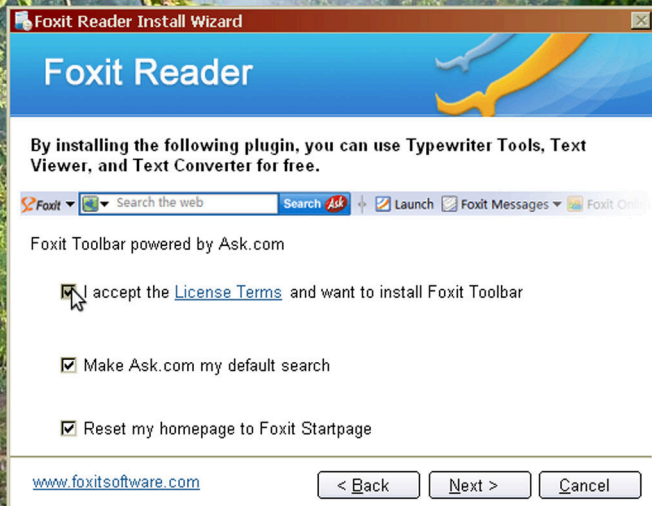
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Tunnelling & wizards

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3.ly/Inte

Can you offer users a wizard to 'tunnel' them through a decision process in the way you'd like?



This installation wizard tries to get users to 'choose' to install additional (and irrelevant) software by presenting them as default parts of the process

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Ludic Lens

Games are great at engaging people for long periods of time, getting them involved, and, if we put it bluntly, influencing people's behaviour through their very design. Yet this potential has (so far) been underexplored in application to other kinds of situations outside 'recreation'.

The Ludic Lens includes a number of techniques for influencing user behaviour that can be derived from games and other 'playful' interactions, ranging from basic social psychology mechanisms such as goal-setting via *challenges & targets*, to operant conditioning via *unpredictable reinforcement and rewards*, to common game elements such as *scores, levels and collections*.



Images for Collections are screenshots of the University of Washington's UbiFit software, developed in collaboration with Intel Labs Seattle, available at <http://dub.washington.edu/projects/ubifit>

Images for Levels and Rewards are screenshots of Facebook/FarmVille and KPT5 software.

Images for Playfulness and Role-playing are promotional photos kindly supplied by Steve Divnick (<http://www.spiralwishingwells.com>) and Tim Holley (<http://timholley.de>)

Image for Make it a meme is a screenshot of Regretsy's story on Gooseontheloose's chicken ponchos (<http://www.regretsy.com/2009/10/20/ke ntucky-frilled-chicken>)

Other photos/images by Dan Lockton

Challenges & targets

L

3.ly/Ludi

What happens if you set people a challenge, or give them a target to reach through what they're doing?

Whoever laid out this coffee tub as a target for throwing coins knew a lot about influencing people to donate generously and enjoy it

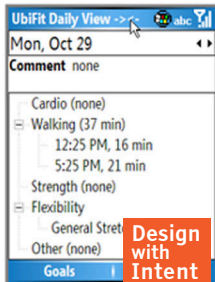


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Collections

What happens if you encourage users to collect a set of things (friends, activities, places, objects, etc) through using your system?

UbiFit Garden encourages users to maintain a regular variety of exercise activities, in order to 'collect' different types of flower



Leave gaps to fill

Can you leave deliberate gaps (in a design, message, etc) which users will want to fill, becoming engaged in the process?

Deliberate use of red links on Wikipedia, signifying articles which should be written, "encourage[s] new contributors in useful directions"

Ludic Lens

Ludic design patterns for influencing

- Challenges & targets
- [Leave gaps to fill](#)
- Levels
- Make it a meme
- Playfulness
- Provoke curiosity
- Rewards
- Role-playing
- Storytelling
- Unpredictable reinforcement

Eight lenses on influencing behaviour t

Levels

Can you split your system up into achievable levels which help users feel like they're making progress?

Easy-to-reach levels lower the barriers to participation and encourage continued engagement for games such as FarmVille

- Status Updates
- Photos
- Links
- More

The screenshot shows a Facebook profile page for a user named 'me'. The top navigation bar includes 'Profile', 'Friends', and 'Inbox 96'. The profile picture is a red circle with a white 'L'. The main content is a list of FarmVille status updates. Each update features a FarmVille logo, a user profile picture, and a text announcement. The updates include: 'just completed level 1 of Soybean FarmVille!', 'is movin' on up in FarmVille!', 'is movin' on up in FarmVille!', and 'just earned the 'Crop Whisperer' red ribbon in FarmVille!'. Each update also includes a timestamp, the source 'via FarmVille', and interaction options like 'Comment', 'Like', and 'Find a collectable'.

me Profile Friends Inbox 96

L 3.ly/Ludi

FarmVille

FARMVILLE just completed level 1 of Soybean FarmVille!
earned a huge reward for being such a dedicated farmer and wants to share their success with you!
14 hours ago via FarmVille · Comment · Like · Find a collectable

FARMVILLE is movin' on up in FarmVille!
attained the level of Great Farmer in FarmVille!
Thu at 10:02pm via FarmVille · Comment · Like · Play FarmVille now

FARMVILLE is movin' on up in FarmVille!
attained the level of Cream of the Crop in FarmVille!
January 4 at 9:21pm via FarmVille · Comment · Like · Play FarmVille now

FARMVILLE just earned the 'Crop Whisperer' red ribbon in FarmVille!
got a big ol' reward for being such a great farmer and wants to share their success with you!
January 4 at 9:06pm via FarmVille · Comment · Like · Get a bonus from

FARMVILLE just earned the 'Tree Hugger' blue ribbon in FarmVille!
got a big ol' reward for being such a great farmer and

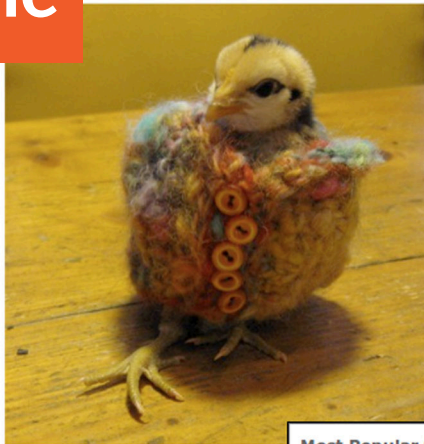
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Make it a meme

What happens if you plan your design to be something people want to spread, and make it easy for them to do so?

ShareThis and similar quick-access social sharing services can mean rapid 'viral' or 'meme' status for interesting or amusing stories

Chicken Poncho or Knitted Wrist Cuff



\$15.00 USD 1 in stock

Description

This isn't a joke.

This poncho/human wrist cuff is being modeled by Dayna. I made it specifically for her. She's so beautiful than her nine sisters. I'm making ponchos and

folks say that on a cold night, when the moon is a-ho-ho-ho, you can still see her at the old farm house, knitting shrugs for the chickens."

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Share - 703

ShareThis

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Playfulness

Can you design something which 'plays' with its users, provoking curiosity or making interactions into a game?

Spiral wishing wells turn giving money to charity into something actively fun for donors, and provoke curiosity of passers-by



L

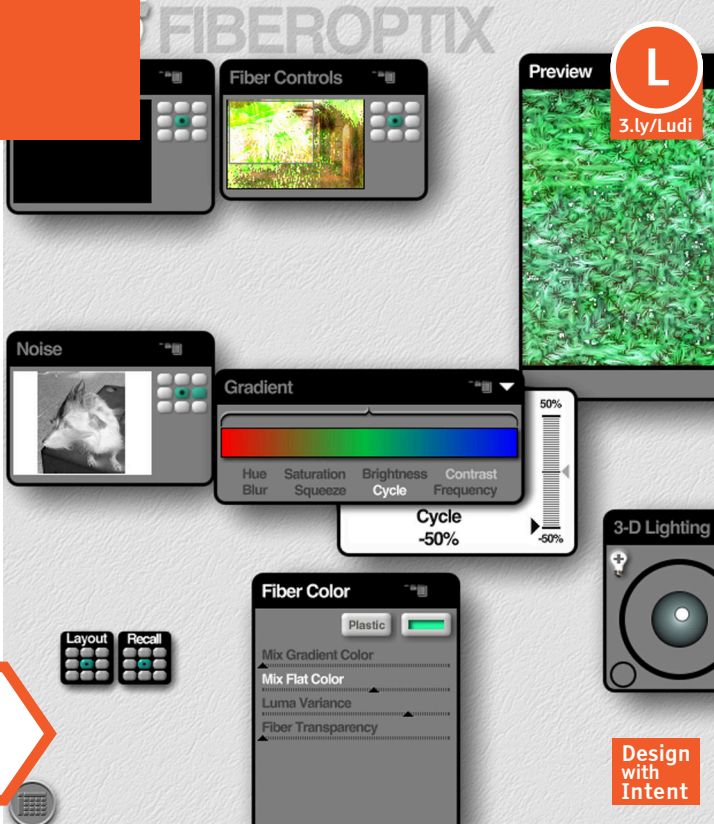
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Rewards

Can you encourage users to take up or continue a behaviour by rewarding it, through the design of the system?

Kai's Power Tools (pioneering visual effects software) revealed 'bonus functions' to reward users who developed their skill level



Role-playing

What happens if your system gives users particular roles to play, or makes them feel like they're playing a role?

Tim Holley's Tio encourages children to become 'energy champions' for their household, influencing parental behaviour



Scores

Can you give users feedback on their actions as a score or rating allowing comparison to a reference point ?

The 'Brain Age' score given by Dr Kawashima's games for Nintendo gives users a clear incentive to keep using the software



Storytelling

Can you tell a story via your design, which interests users and keeps them engaged?

Dyson uses narrative booklets drawing customers (and potential customers) into the story behind the company and its technology



Unpredictable reinforcement

What happens if you give rewards or feedback on an unpredictable schedule, so users keep playing or interacting?

Arcade games such as this coin pusher usually employ a strong element of unpredictable reinforcement, to keep users playing/paying



Perceptual Lens

The Perceptual Lens combines ideas from product semantics, semiotics, ecological psychology and Gestalt psychology about how users perceive patterns and meanings as they interact with the systems around them, and puts them into forms which invite the designer to think about how they might influence people's behaviour. Most are predominantly visual, but they need not be: sounds, smells, textures and so on can all be used, individually or in combination.

These techniques are often applied by interaction designers in the course of doing a job without necessarily considering how they can influence user behaviour.



Images for Implied sequences and Nakedness are from Sludgegulper's and ITDP-Europe's Flickr streams, CC-BY-SA and CC-BY licensed respectively (<http://www.flickr.com/photos/sludgegulper/4188746062> and <http://www.flickr.com/photos/38607288@N03/3836906872>)

Images for Metaphors, Mimicry & mirroring and Similarity are screenshots of Tipjar.com from the Wayback Machine, Eliza chatbot from <http://nlp-addiction.com> and a Microsoft Bing search

Other photos by Dan Lockton

(A)symmetry

Can you use symmetry to make elements look related, or asymmetry to show difference and focus attention?

The symmetrical holes on this lifebuoy, even without the text, suggest that it should be gripped with both hands simultaneously



Colour associations

Can you use colour to suggest associations between particular behaviours and outcomes?

This racecourse bookmaker's keyboard has a detailed language of colour-coded groups of functions, to aid rapid action-taking



Contrast



Can you create an obvious contrast between parts of your design or the context in which it's used?

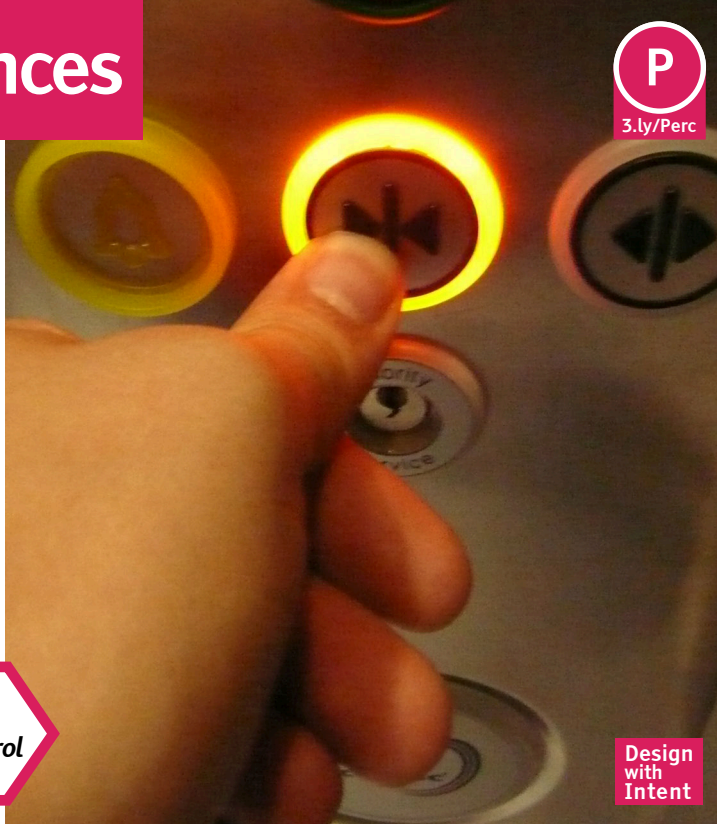


In 2004, Britain's Royal Mail switched to using red rubber bands for bundling post, to make them easier to spot if dropped accidentally

Fake affordances

Is there anything to be gained from making something look like it works one way, while actually doing something else (or nothing at all)?

Many elevator/lift 'door close' buttons are reputedly 'placebo buttons', giving an illusion of control but not speeding up the process



Implied sequences

Can you make it look like there's a sequence for users to follow, through the layout of elements?



This East German rail ticket machine makes very clear the order in which the interface should be used, with a sequential layout

Metaphors

Can you employ a metaphor / analogy of something familiar, so people understand or use your system the same way?

Tipjar.com, launched in the late 1990s, was one of the first simple micropayment systems, using the familiar metaphor of a tip jar



"... put some bread in the jar..."

Your e-mail address:

Recipient's e-mail address:

Amount:

Message:

Anonymous

put some bread in someone's jar

Mimicry & mirroring

Can your system mirror or mimic a user's behaviour or mood in some way, to increase the engagement a user feels?

Chatbots have evolved beyond the classic ELIZA, and are being used in social engineering attacks to extract information and deliver malware

**Eliza
Chat bot**

P

3.ly/Perc

Is she a Rogerian psychotherapist, a semi intelligent chat bot, or just a toy?

```
* Should I buy a house now or wait and see if the
market falls any further?
> That is quite interesting.
* Whyt do you say it is interesting?
> You're not really talking about me, are you?
* No I'm not. I suppose I'm just stressed at work
> Do you believe it is normal to be not. you suppose
you're just stressed at work?
* Everyone else seems to be, too.
> Say, do you have any psychological problems?
```

Talk to Eliza:

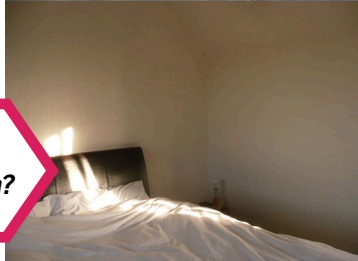
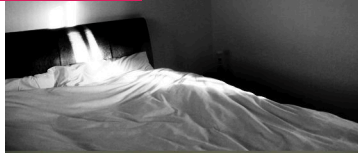
I do sometimes, to be honest

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Mood



Can you use colour, images or other sensory stimuli to set a particular mood for a user's interaction with your system?



Changes in hue, saturation and brightness can set moods: which room would you choose to stay in? (assuming the bed was made!)

Design
with
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Nakedness

Can you remove cues that people take for granted, to get them to think more about what they're doing?

'Naked roads' with signage and markings removed can encourage pedestrians, cyclists and drivers to be more aware of each other's presence



Perceived affordances

Can you design the form of your system to suggest particular actions (or constraints on action) to users?

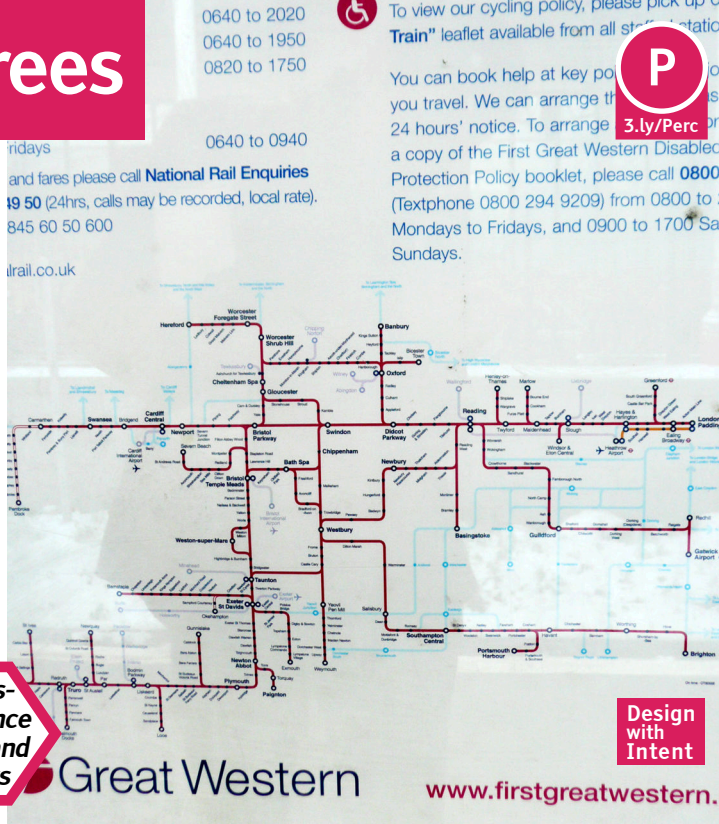
Reshaping the holes on bins to match the 'form' of different types of waste has been shown to increase recycling levels significantly



Possibility trees

Can you give people a 'map' of the routes or choices they can use to achieve different goals?

Presenting a simplified set of possibilities, transport maps can influence users' perceptions of geography, and promote certain routes over others



P

3.ly/Perc

Design with Intent

www.firstgreatwestern.

Prominence

Can you direct your users' attention to what you want, by making it more prominent, obvious or exaggerated?

The 'big red button' is a common way of making a control prominent. Here on London's DLR, it is recessed to help avoid accidental presses



Proximity & grouping

P

3.ly/Perc

Can you group elements so that users perceive they have similar functions or should be used together?

This power supply has controls often used in pairs (coarse & fine voltage adjustment, and output terminals) explicitly grouped



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Seductive atmospherics

Can you use ambient sensory effects (sound, light, smell, etc) to encourage users to interact or behave in the way you'd like?

The distinctive 'Subway smell' may only be a by-product of baking, but intentional 'scent branding' is increasingly common in retail design



Similarity

Can you make elements look similar so users perceive them to share characteristics, or that they should be used together?

Paid-for links on Microsoft's Bing look very similar to the real search results, to increase the chance of users clicking them

Tools Help

www.bing.com/search?q=Pay+Per+Click+Advertising+MSN&FORM=R5FD6

Design w... The sem... Gestalt Pr... Amazon...

Shopping News Maps More MSN Hotmail

Pay Per Click Advertising MSN

Show all Only from United Kingdom

ALL RESULTS 1-10 of 6,310,000 results · [Advanced Search](#)

[Pay-Per-Click Agency](#) · [www.WestcomSearchMarketing.com](#) Sponsored
Full PPC Management Services, Advanced Optimisation For High ROI.

[Pay Per Click Management](#) · [www.Periscopix.co.uk](#)
Specialist Pay Per Click design, management and analysis services

[PPC Coaching \\$1 Trial](#) · [http://ppc-coach.com](#)
PPC Coaching For \$1 For 14 Days Of Full Access

[Search Advertising](#)
Every month, over 15 million people type keywords into Bing to find products and services they're interested in. **Pay-per-click advertising** with Microsoft gives you access to ...
[advertising.microsoft.com/uk/microsoft-adcenter](#) · [Cached page](#)

[Google Adwords, Yahoo! & MSN Pay Per Click \(PPC \) Advertising Agency ...](#)
Top Click Media offers potential clients 3 core services; **Pay Per Click** Management, Search Engine Optimisation and Web Design & Branding Solutions
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Transparency

Can you (perhaps selectively) reveal what's going on under the surface, to influence users' perceptions and behaviour?

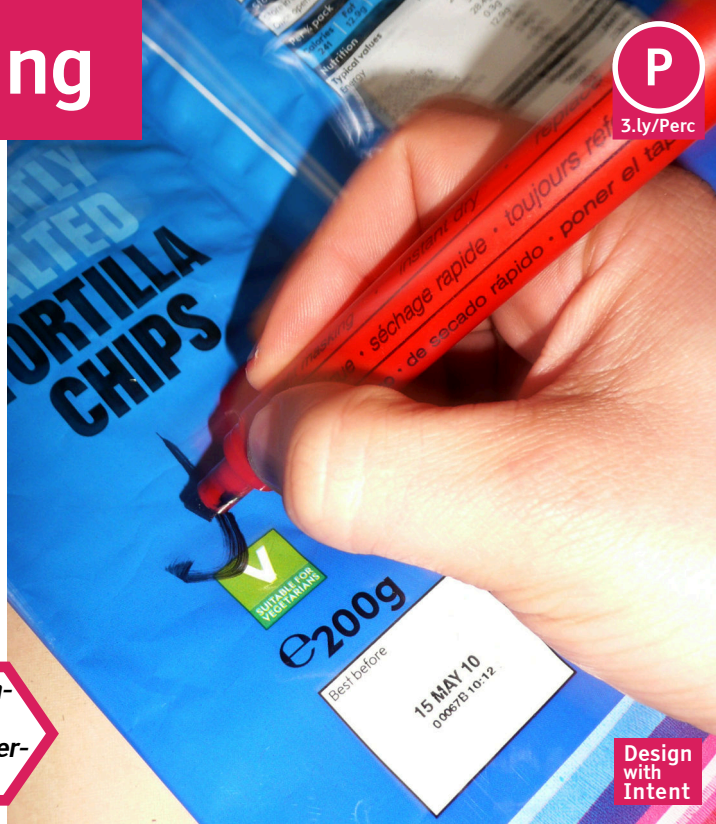
Dyson's transparent dust container both demonstrates the vacuum cleaner's effectiveness, and makes it likely to be emptied more often



Watermarking

Can you make a user feel like he or she (or someone else) 'owns' or has responsibility for something?

One UK shopkeeper writes customers' names on the packaging of snacks they buy, discouraging littering through 'taking ownership'



Cognitive Lens



The Cognitive Lens draws on research in behavioural economics and cognitive psychology looking at how people make decisions, and how this is affected by 'heuristics' and 'biases'. If designers understand how users make interaction decisions, that knowledge can be used to influence interaction behaviour. Equally, where users often make poor decisions, design can help counter this, although this may lead to a 'we know what's best for you' attitude.

Dozens of cognitive biases and heuristics have been identified which could potentially be applied to design. The patterns detailed below are some of the most commonly used; this selection draws heavily on the work of Robert Cialdini, Richard Thaler and Cass Sunstein.

Images for Desire for Order and Personality are promotional photos from the Interactive Institute's AWARE project (<http://www.tii.se/aware/designConcept.html>) and Philips robotics (<http://www.research.philips.com/technologies/projects/robotics.html>)

Images for Decoys, Do as you're told, Provoke empathy, Rephrasing & renaming and Social proof are screenshots of Magazines.com, the US DHS ESTA website, Twitterfall.com, Twitter.com and Amazon.co.uk respectively.

Other photos by Dan Lockton

Assuaging guilt



Can you influence users by helping them reduce feelings of guilt about their behaviour?

Our coffee won't leave a bitter taste in your mouth. It's Fairtrade.

This message both implies that one should feel bad about the ethics of coffee production, and offers an easy way to take away the guilt

Commitment & consistency

Can you get users to commit to an idea or goal, so they feel they should behave consistently with this commitment?

In a 1976 study, householders sent a 'We are saving oil' sticker subsequently used 10% less heating oil than groups not sent the sticker



Decoys

Can you add 'decoy' choices, making the others (which you want people to pick) look better in comparison?

Would you choose the \$79.88 option here, when the other two offer you a free gift AND save you slightly more money?



3.ly/Cogn

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Home : Entertainment & TV : Celebrity : People Magazine Subscription



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53 issues per year

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Desire for order



Can you use people's desire for tidiness to influence them to rearrange elements or take actions you want them to?

The AWARE Puzzle Switch, a light switch design by Looove Broms and Karin Ehrnberger, is visibly 'disordered' when in the 'on' position



Do as you're told



Can you use an authority figure or authoritative instruction to tell users what they should (or should not) do?

The page at <https://esta.cbp.dhs.gov> says:

! You are about to access a Department of Homeland Security computer system. This computer system and data therein are property of the U.S. Government and provided for official U.S. Government information and use. There is no expectation of privacy when you use this computer system. The use of a password or any other security measure does not establish an expectation of privacy. By using this system, you consent to the terms set forth in this notice. You may not process classified national security information on this computer system. Access to this system is restricted to authorized users only. Unauthorized access, use, or modification of this system or of data contained herein, or in transit to/from this system, may constitute a violation of section 1030 of title 18 of the U.S. Code and other criminal laws. Anyone who accesses a Federal computer system without authorization or exceeds access authority, or obtains, alters, damages, destroys, or discloses information, or prevents authorized use of information on the computer system, may be subject to penalties, fines or imprisonment. This computer system and any related equipment is subject to monitoring for administrative oversight, law enforcement, criminal investigative purposes, inquiries into alleged wrongdoing or misuse, and to ensure proper performance of applicable security features and procedures. DHS may conduct monitoring activities without further notice.

OK

Impenetrable 'agreements' such as this often make heavy use of authority (and threats) to reinforce their message: do as you're told

International travelers who are seeking to travel to the United States are now subject to enhanced security requirements. All eligible travelers under the Visa Waiver Program must apply for authorization using

Emotional engagement

Can you design your system to engage people's emotions, or make them emotionally connected to their behaviour?



The open beak of these 'baby bird' litter bins at a city farm (visited by lots of children) suggests that they are hungry and would like to be fed

Expert choice

Is it possible to show users the choices that an expert or authority figure would make when in the same situation they're in?

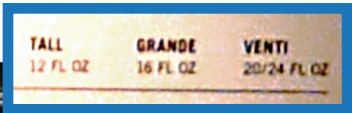
Endorsements where the celebrity is an 'expert' (such as chef Heston Blumenthal in this Waitrose campaign) can lend credibility



Framing

Can you selectively present choices in a way which frames the range available in a more positive light?

Starbucks' drink sizes start with 'tall', framing the range further up the scale and avoiding any mediocre implications of 'small' or 'medium'



Espresso			
100% Responsibly Grown and Ethically Traded Espresso			
	TALL	GRANDE	VENTI
	12 FL OZ	16 FL OZ	20/24 FL OZ
HOT OR ICED			
Caffè Latte	3.40	4.05	4.45
Caffè Mocha	3.80	4.40	4.80
Iced Caffè Mocha	3.80	4.40	4.80
Caffè Americano	2.50	2.80	3.20
Cappuccino	3.40	4.05	4.45
Caramel Macchiato	3.95	4.60	5.00
Vanilla Latte	4.00	4.60	5.00
Skinny Vanilla Latte	4.00	4.60	5.00
White Chocolate Mocha	3.80	4.40	4.80
Espresso	SOLD 1 FL OZ 2.20	2.50	DOPPIO 2 FL OZ 2.50

Make It Your Drink

Flavor Regular or Sugar-Free (80¢)
Vanilla, Hazelnut, Cinnamon Dolce, Caramel

Espresso Extra Shot
Soymilk (60¢)

Habits

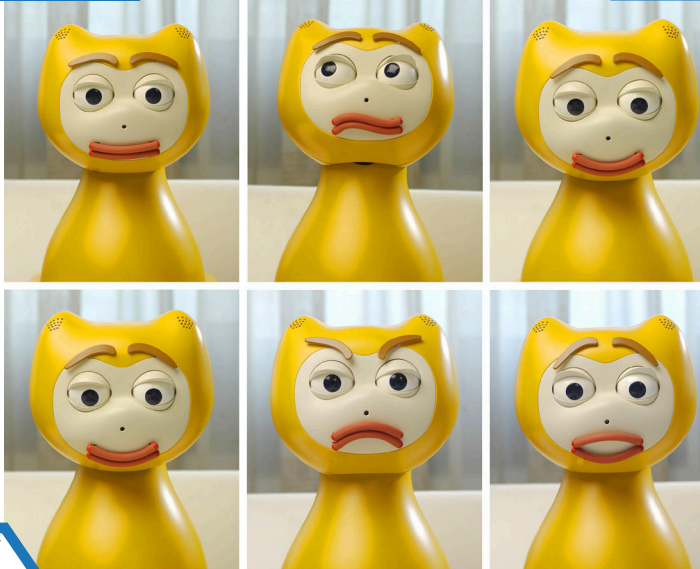
Can you make it easy for a new behaviour to become habitual, by building it into an existing routine?

Simply choosing to take the stairs rather than the lift / elevator can quickly become part of a daily routine at home or work



Personality

Can you give your system a personality or character that engages users, becoming a 'social actor'?



Dutch researchers have used Philips' iCat robot to influence users' decision-making with washing machines, advising and expressing opinions

Provoke empathy

Can you help users see other people's perspectives and thought processes, by revealing them through the design of your system?

Twitter, Facebook et al allow us to see at any moment the problems and concerns of millions of others just like us (or not) all over the world



brandieatslava Headache. Also, I don't understand my math homework. I am going to faaaail.



marty33072 so bored in math, I don't understand lol



iKaulitz13 @melaniae Ooh I hate math, I don't understand anything about it. -_- u there now? :-D



MikeS_Photo @friskywhiskey I don't even understand why you're complaining. Sounds like the math is right. <http://myloc.me/5idIZ>



DemiL_FC @IsADisneyThing haha, don't understand math or what I said?'cause other time I try to use the translator haha, so trying, I can talk..



IsADisneyThing Who can help me with math? : | i really don't understand anything!! :s



luxurious_xo I don't understand how I'm taking the "easiest" college math course possibly & I still can't pass a dayuum quiz ; #fml. I MUST be stupid.

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Reciprocation

Can you make users feel they've been done a favour (by the system, or by other users) and want to return it?

This busker's postcards may be 'free', but the social norms of reciprocation mean most people will give him some tip in return



Rephrasing & renaming



Can you rephrase or rename what you'd like users to do, so it aligns better with what they already want to do?

twitter

Home Profile



danlockton's settings

Account

Password

Devices

Notices

Profile

Design

Connect



Use Twitter with Text Messaging!

Twitter is more fun when used through your mobile phone. Set yours up. It's easy!

1. Choose your country

United States

twitter

Home Profile



danlockton's settings

Account

Password

Mobile

Notices

Profile

Design

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Twitter changed the name of the 'Devices' tab to the more easily understandable 'Mobile' to encourage more users to set up their phones



Use Twitter with Text Messaging!

Scarcity

home living



Can you emphasise that a resource is valuable, limited in quantity, or running out (or actually limit it artificially)?

We're used to retailers emphasising that 'everything must go' and then not actually closing; in this case, however, the shop did close down



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Social proof

Can you show people what other users like them are doing in this situation, and which choices are most popular?

Amazon's recommendations can be helpful to buyers by expanding the scope of their knowledge, while increasing sales for Amazon

RRP: Our Price: Other Offers:

[Order it used](#)

4 used & new from £30.00

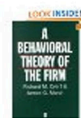


Frequently Bought Together

Customers buy this book with [Behavioral Theory of the Firm](#) by R



+

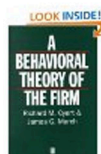


Price For Both: **£26.40**

Add both to Basket

[Show availability and delivery details](#)

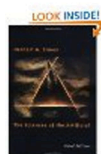
Customers Who Bought This Item Also Bought



[Behavioral Theory of the Firm](#) by Richard M. Cyert

★★★★☆ (3)

£18.29



[Sciences of the Artificial](#) by Herbert A. Simon

★★★★☆ (2)

£16.52

Sciences of

Product details

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Machiavellian Lens

The Machiavellian Lens comprises design patterns which, while diverse, all embody an 'end justifies the means' approach of the kind associated with Niccolò Machiavelli. These will often be considered unethical, but nevertheless are commonly used to control and influence consumers through pricing structures, planned obsolescence, lock-ins and so on, and are central to work by authors such as Vance Packard and Douglas Rushkoff, revealing the 'hidden' structures which shape our everyday behaviour. In technology contexts, Benjamin Mako Hill and Chris Nodder have both done great work exploring this area.

Elements of game theory are present in some of the patterns, and this is worth further investigation.



Image for Antifeatures & crippleware is from Orin Zebest's Flickr stream, CC-BY-SA licensed (<http://www.flickr.com/photos/orinrobertjohn/68106611>)

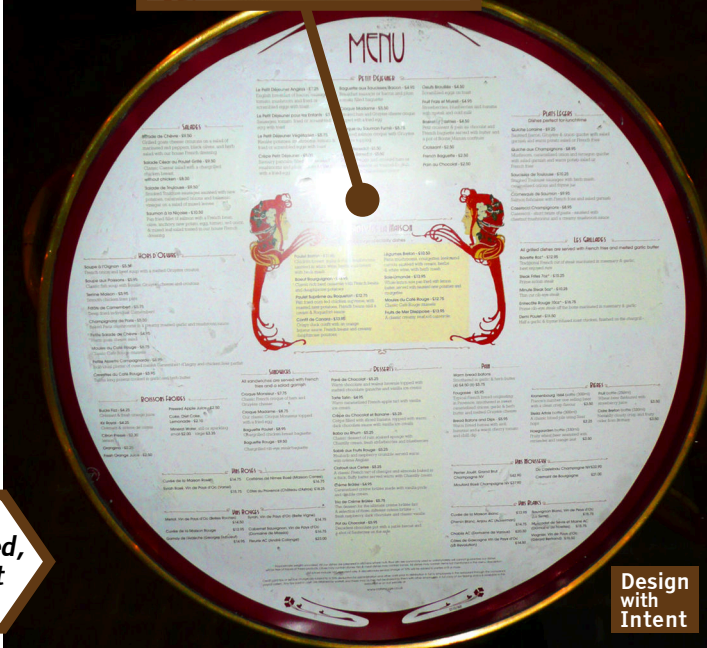
Images for First one free, Forced dichotomy and Slow/no response are screenshots of Bill Moggridge's 'Designing Interactions' website (<http://www.designinginteractions.com/book>), an example survey built using [surveymonkey.com](http://www.surveymonkey.com), and a registration form on the Univadis website (http://www.univadis.co.uk/medical_and_more/Registration?locale=en_GB) respectively.

Other photos by Dan Lockton

Anchoring

Can you affect users' expectations or assumptions by controlling the reference points they have?

Restaurant menus may use 'anchor' items: prominently placed, higher-priced dishes, raising what customers expect to be paying



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Antifeatures & crippleware

M

3.ly/Mach

Can you deliberately disable some functions even though they're still present, to drive users to upgrade, or to allow price discrimination?

Sony's cheaper 60-minute MiniDiscs were identical to the 74-minute ones except for a pre-written portion of code preventing full use of the space



Recordable MiniDisc
High Quality Digital Sound
Quick Random Access

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Bundling



Can you include something *you* want users to do, along with something *they* want to do, so *both* get done?

Crushing up pills or tablets in a spoonful of peanut butter can be a good way to get dogs to take medicines they would otherwise refuse



Degrading performance

Can you degrade the performance of a product or system until users comply with some behaviour change you want?

Some Nokia phones allegedly sense when a 3rd-party battery is used and switch into a high-power mode so it runs out more quickly



First one free



Can you give something away which gets people interested or addicted, so they come back and pay for more?

Offering one chapter (often the introduction) free has become increasingly common as a way of promoting new books more widely

DESIGNING INTERACTIONS

THE BOOK

CHAPTERS

INTERVIEWS

DVD

REVIEWS

Download the Introduction– *Two Personal Stories*

Download the interview:



[Bill Moggridge \(24MB\)](#)

Download the Chapter:



[Download Chapter PDF](#)

For more information [visit the Chapter page](#)

To play the interviews you will need [Quicktime 7](#) or higher.

To view the chapter you will need [Acrobat Reader](#).

NOTE: Over the past few weeks, the site has slowed due to file size. We apologize for any inconvenience this has caused. We have since optimized the situation. (01/16/2007)

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Forced dichotomy

Can you configure a system so there is no 'middle ground' possible, and users must make a choice one way or the other?

An even-numbered (e.g. four-point) rating scale does not allow a 'middle' value: it forces respondents into making a 'good or bad?' choice

Test

[Exit this survey](#)

1. Default Section

	Very useful	Quite useful	Almost useless	Completely useless
Are these Design with Intent cards useful?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Done

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Format lock-in/out

Can you design your system so users become committed to a particular format or way of doing things?

Panasonic cameras include a 'battery authentication' system, which prevents using cheaper non-Panasonic replacements



Functional obsolescence

M

3.ly/Mach

Can you design things to become technologically superseded (or even wear out) quickly, so people replace them?

While new models do bring real technological advances, Apple has managed to create an 'upgrade treadmill' for iPhone buyers



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I cut, you choose



Can you structure a system so that no one user can get an advantage over others simply by being first to act?



If person 1 cuts a cake into halves, and person 2 chooses the half he or she wants, there is no advantage in person 1 cutting the cake unfairly

Poison pill

Can you arrange things so that an otherwise attractive option has an unpleasant, self-defeating deterrent side-effect?

Security ink tags release indelible ink if removed incorrectly, in an attempt to make it simply not worth stealing the clothes



Serving suggestion

M

3.ly/Mach

Can you direct users to use a product or system in a particular way through examples or demonstrations?

Alka-Seltzer reportedly introduced the 'two tablets per dose' direction to users as part of a 1960s TV ad; before that, only one was taken



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Slow / no response



Can you get users to try different actions or repeat a behaviour by making the system respond or give feedback slowly?

A screenshot of a web registration form. At the top right, there is a profile icon with the letter 'M' and the text '3.ly/Mach'. Below it, there are two empty text input fields. The first field is followed by the text: "We may need to contact you if there are problems with your registration details. Please provide us with a number where we can contact you or leave a message." The second field is followed by the text: "updates in my clinical area, forum debates, reviews, disease occasional email about other medical content that might be of". At the bottom right, there are two buttons: "Cancel" and "Submit". A mouse cursor is hovering over the "Submit" button. Below the buttons, a red banner contains the text: "(Registration can take a few minutes. Please click Submit only once)".

Duplicate orders can be a problem where web forms are slow to submit and users click multiple times: this kind of instruction is common

Top

Style obsolescence

Can you design things to become unfashionable or undesirable quickly, to spur the desire for replacement or upgrades?

Fashions and trends are obvious in high-street retailing, but are also prevalent (and can be deliberately created) in other fields



£25
£20
£10

**BE THE
TREND**

Worry resolution

Can you help users overcome worry about their behaviour (perhaps after having suggested it in the first place)?

The term 'halitosis' was allegedly introduced in a 1921 Listerine ad, part of a series making people worried about bad breath, then offering a solution



Security Lens

The Security Lens represents a 'security' worldview, i.e. that undesired user behaviour is something to deter and/or prevent through 'countermeasures' designed into products, systems and environments, both physically and online, with examples such as digital rights management.

From a designer's point of view, this can often be an 'unfriendly' – and in some circumstances unethical – view to take, effectively treating users as 'guilty until proven innocent'. However, thinking further about the patterns, it's possible to think of ways that they could be applied to help users control their own habits or behaviour for their own benefit – encouraging exercise, reducing energy use, and so on.



Image for Sousveillance is a screenshot of TheyWorkForYou (<http://www.theyworkforyou.com>)

Other photos/images by Dan Lockton, including photo of Mentor Teaching Machines textbook

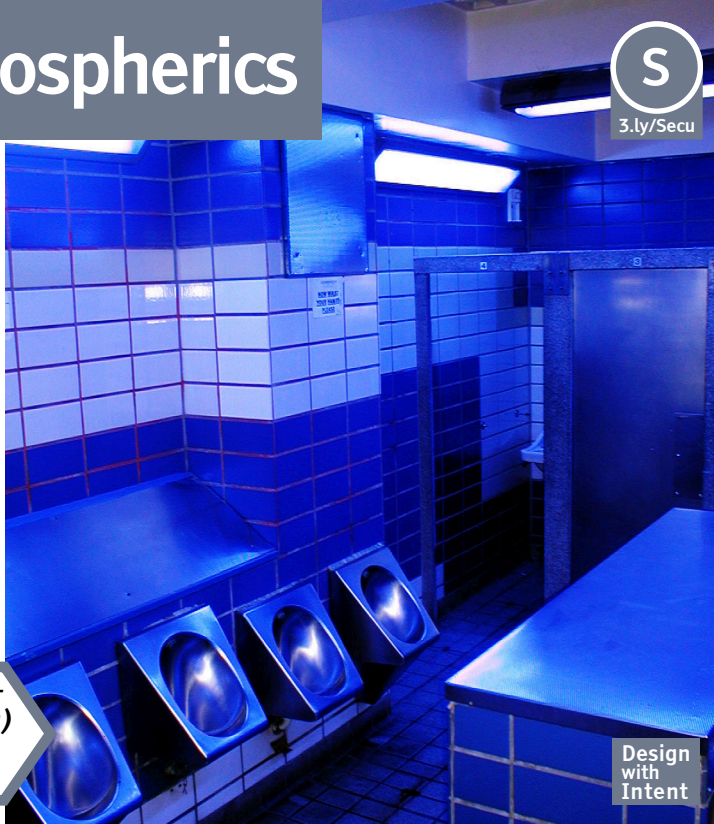
Coercive atmospherics

S

3.ly/Secu

Can you use ambient sensory effects (sound, light, smell, etc) to make it harder for users to behave in certain ways?

Blue lighting is used in some public toilets (e.g. here, in Edinburgh) to discourage drug injection by making veins difficult to see

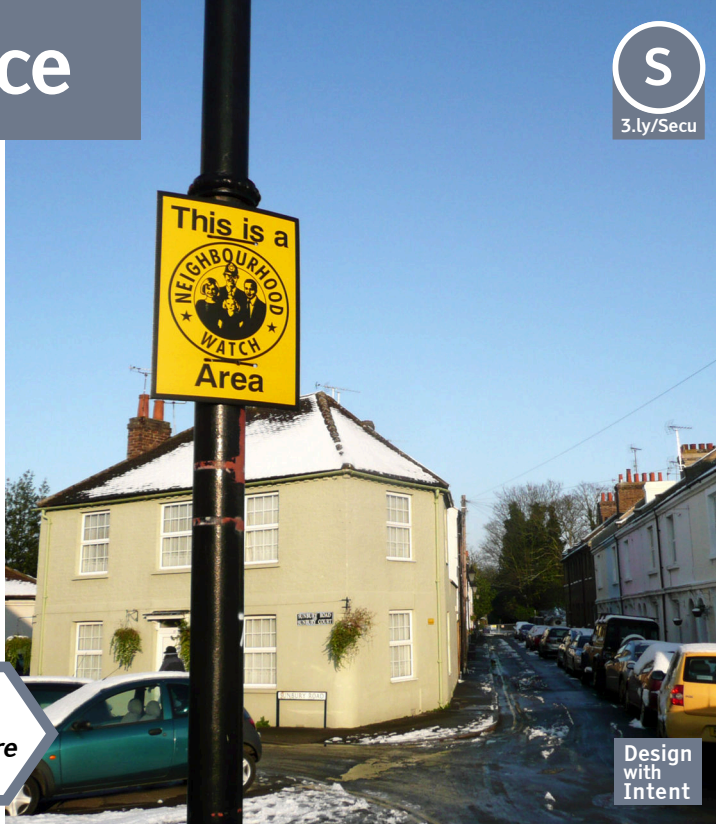


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Peerveillance

What happens if users know (or believe) that what they're doing is visible to their peers also using the system?

Neighbourhood Watch schemes are signed so that they provide a deterrent effect—"people here are vigilant about what's going on"



Can you give people
'lower down' a
hierarchy the
ability to observe
and monitor the
behaviour of
people above them?

TheyWorkForYou allows the public to monitor politicians' activities easily: transparency leading to better accountability



TheyWorkForYou.com

Keeping tabs on the UK's parliaments & assemblies

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Overview

MPs

Lords

Debates

Written Answers and Statements

Bill Co



Tom Watson

Labour MP for West Bromwich East

- Entered Parliament on 7 June 2001 — General election
- Majority: 11,652 votes. — 92nd out of 643 MPs.
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Surveillance

What happens if users know (or believe) their behaviour is visible to or monitored by people in positions of power / authority?

CCTV is often presented as a crime deterrent, influencing public behaviour, whether or not it is switched on or actually monitored



Threat of injury

What happens if your design threatens to (or actually does) harm users who behave in the 'wrong' way?

Spikes on walls—such as these stick-on plastic ones—can act as a deterrent to climbing or sitting, with varying effectiveness



Threat to property

What happens if your design threatens to damage users' property if they use it the 'wrong' way?

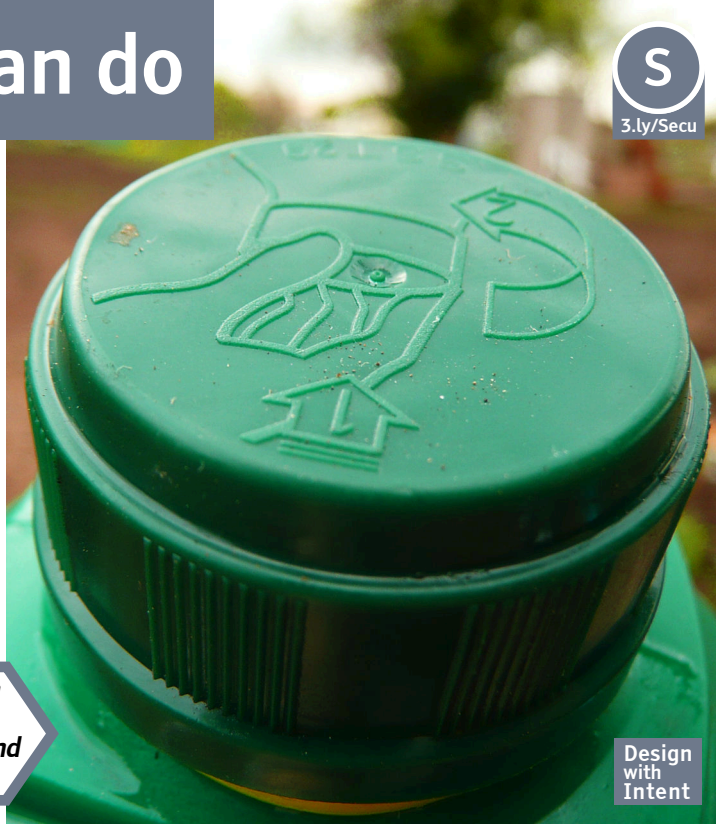
'Traffic control spikes' are an attempt to enforce one-way traffic at entrances to car parks (etc): the threat is made very clear



What you can do

Can you give users different choices or access to functions depending on the capabilities they can demonstrate?

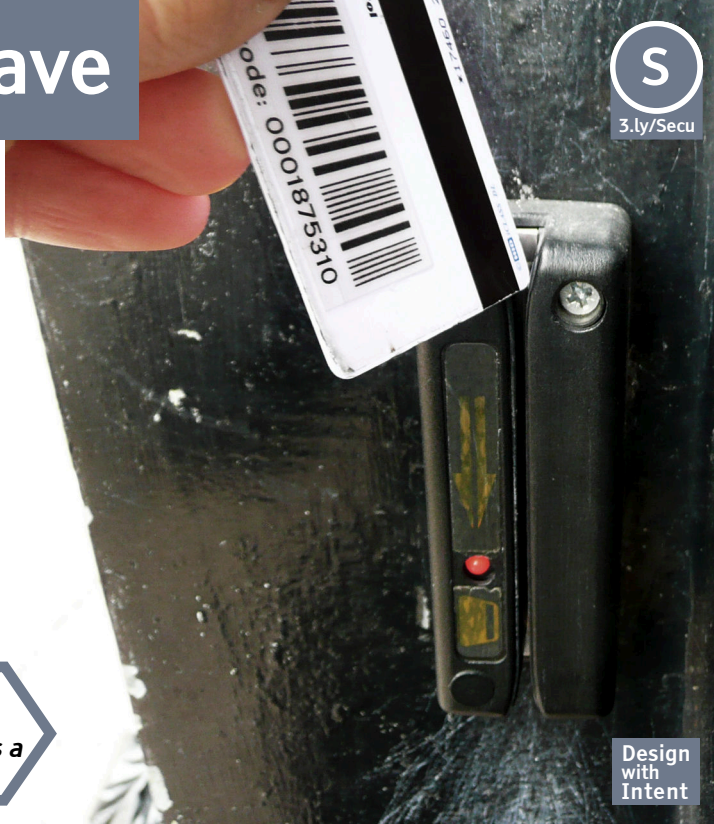
Child-proof lids are often used on containers for dangerous substances, such as medicines and garden and cleaning products



What you have

Can you give users options or access to different functions depending on their possession of a special tool, key, device or token?

Access cards allow the issuer to restrict entrance to certain buildings or areas to whoever has a card with the right permissions



What you know

Can you test what users know (information, passwords, etc) to give them access to different functions?

Remembering usernames, passwords and answers to security questions is increasingly part of our everyday lives, on- and offline

```
dan@dan-laptop:~$ ftp
ftp> open
(to) ██████████
Connected to ██████████
220----- Welcome to Pure-FTPd [privsep] [TLS] -----
220-You are user number 2 of 100 allowed.
220-Local time is now 21:40. Server port: 21.
220-This is a private system - No anonymous login
220 You will be disconnected after 15 minutes of inactivity.
Name (██████████:dan): ██████████
331 User ██████████ OK. Password required
Password: ██████████
230-User ██████████ has group access to: ██████████
230 OK. Current restricted directory is /
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
200 PORT command successful
150 Connecting to port 38509
drwx--x--x 62 67630 ██████████ 8192 Nov 2 21:20 .
drwx--x--x 62 67630 ██████████ 8192 Nov 2 21:20 ..
drwxr-xr-x 2 67630 ██████████ 6 Apr 26 2005 .AppleDoub
-rw-r--r-- 1 67630 ██████████ 1625 Mar 11 2009 .htaccess
-rwxr-xr-x 1 67630 ██████████ 9645 Mar 12 2006
-rwxr-xr-x 1 67630 ██████████ 10935 Mar 12 2006
-rwxr-xr-x 1 67630 ██████████ 39003 Mar 12 2006
-rwxr-xr-x 1 67630 ██████████ 3142880 Sep 29 2005
-rwxr-xr-x 1 67630 ██████████ 9545 Dec 22 2005
-rwxr-xr-x 1 67630 ██████████ 17727 Dec 22 2005
-rwxr-xr-x 1 67630 ██████████ 4388 Dec 22 2005
-rwxr-xr-x 1 67630 ██████████ 8351 Dec 22 2005
-rwxr-xr-x 1 67630 ██████████ 3036 Dec 22 2005
-rwxr-xr-x 1 67630 ██████████ 3333 Dec 22 2005
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What you've done



Can you change the options available to users based on their current or previous behaviour?

'Teaching machine' textbooks allow students to progress in different orders depending on which concepts need more explanation

You have made a common error.

You made a mistake in the first question of the last asked to define 1 mg in SI coherent terms and you de the answer was 10^3kg .
You made this mistake because you failed to distinguish m (milli) and the prefix M (mega):

$$1 \text{ mg} = 10^{-3}\text{g} = 10^{-6}\text{kg}$$

It may well be that this error was the result of a casual conversant with use of upper case and lower case symbols and prefix symbols.
If you are not sure that you are conversant, you will page viii at the back of this book.

Now tackle the exercise below.

Where you are

Can you make different choices available to users depending on their location?

Some supermarket trolleys have devices fitted to lock the wheels when taken outside a defined area, usually an adjacent car park



Who or what you are



Can you use criteria innate to particular individuals, groups or objects to block or make different options available?

Artificial height restrictors attempt to allow only certain types of vehicles into a car park, by discriminating on vehicle height

