

## Usability Evaluation

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# Usability Evaluation Methods

- Heuristic evaluations
- Cognitive walkthroughs
- Usability testing
- Comparison against guidelines

# Usability Testing

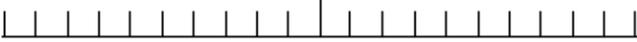
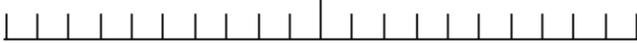
## System Usability Scale

© Digital Equipment Corporation, 1986.

	Strongly disagree				Strongly agree
1. I think that I would like to use this system frequently	1	2	3	4	5
2. I found the system unnecessarily complex	1	2	3	4	5
3. I thought the system was easy to use	1	2	3	4	5
4. I think that I would need the support of a technical person to be able to use this system	1	2	3	4	5
5. I found the various functions in this system were well integrated	1	2	3	4	5
6. I thought there was too much inconsistency in this system	1	2	3	4	5
7. I would imagine that most people would learn to use this system very quickly	1	2	3	4	5
8. I found the system very cumbersome to use	1	2	3	4	5
9. I felt very confident using the system	1	2	3	4	5
10. I needed to learn a lot of things before I could get going with this system	1	2	3	4	5

## NASA Task Load Index

Hart and Staveland's NASA Task Load Index (TLX) method assesses work load on five 7-point scales. Increments of high, medium and low estimates for each point result in 21 gradations on the scales.

Name	Task	Date
<p><b>Mental Demand</b>      How mentally demanding was the task?</p> <p style="text-align: center;">  </p> <p style="text-align: center;">Very Low      Very High</p>		
<p><b>Physical Demand</b>      How physically demanding was the task?</p> <p style="text-align: center;">  </p> <p style="text-align: center;">Very Low      Very High</p>		
<p><b>Temporal Demand</b>      How hurried or rushed was the pace of the task?</p> <p style="text-align: center;">  </p> <p style="text-align: center;">Very Low      Very High</p>		
<p><b>Performance</b>      How successful were you in accomplishing what you were asked to do?</p> <p style="text-align: center;">  </p> <p style="text-align: center;">Perfect      Failure</p>		
<p><b>Effort</b>      How hard did you have to work to accomplish your level of performance?</p> <p style="text-align: center;">  </p> <p style="text-align: center;">Very Low      Very High</p>		
<p><b>Frustration</b>      How insecure, discouraged, irritated, stressed, and annoyed were you?</p> <p style="text-align: center;">  </p> <p style="text-align: center;">Very Low      Very High</p>		

A vertical bar on the left side of the slide, transitioning from dark red at the top to orange at the bottom.

# 10 Usability Heuristics

by Jakob Nielsen

# 1. Visibility of system status

*The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.*

United Airlines Flight 410			
On-time - departs in 1 hour 41 mins			
PDX		→	DEN
Departs Portland, today			
Time	Terminal	Gate	
11:48 AM	-	E2	
Arrives Denver, today			
Scheduled 3:18 PM	Terminal	Gate	
3:17 PM	-	B27	

United Airlines Flight 410			
Delayed (21 mins) - arrives in 57 mins			
PDX		→	DEN
Departs Portland, today			
Scheduled 11:48 AM	Terminal	Gate	
11:49 AM	-	E2	
Arrives Denver, today			
Scheduled 3:18 PM	Terminal	Gate	
3:39 PM	-	B27	



# 1. Visibility of system status

*Like how Twitter tells you when it's publishing a tweet and makes a chirp sound when it's done*

The image shows two side-by-side flight status cards for United Airlines Flight 410 from Portland (PDX) to Denver (DEN). The left card shows the flight is 'On-time' with a green plane icon and a red arrow pointing to the departure time '11:48 AM'. The right card shows the flight is 'Delayed (21 mins)' with a red plane icon and a red arrow pointing to the departure time '11:49 AM'. To the right of the cards is a Twitter notification bar with a black top section saying 'Sending Tweet' and a blue bottom section with the Twitter logo and a share icon. A red arrow points from the text above to the 'Sending Tweet' notification.

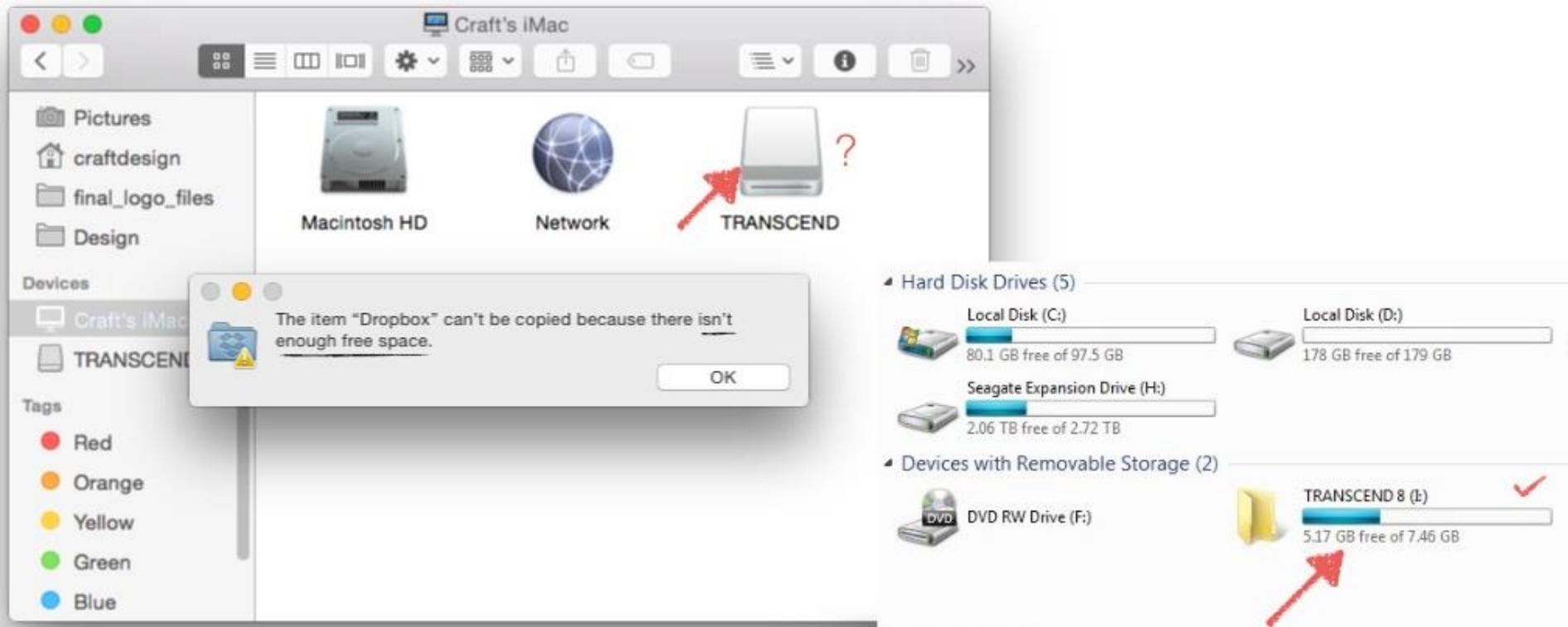
Flight	Status	Departure Time	Arrival Time
United Airlines Flight 410	On-time	11:48 AM	3:17 PM
United Airlines Flight 410	Delayed (21 mins)	11:49 AM	3:39 PM

*Or how the colour and position of the plane changes on Google search results to indicate if a flight is on time*

# 1. Visibility of system status

 *Don't keep your users guessing.*

*Would it be better if the system told you how much space you have on your drive before you begin a file transfer?*

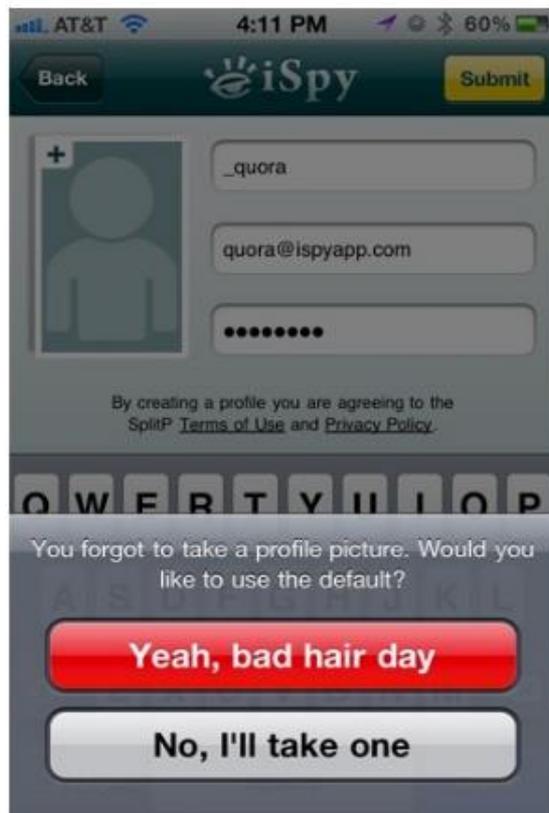


The screenshot illustrates a user interface problem. On the left, a Finder window titled "Craft's iMac" shows a sidebar with "Devices" containing "Craft's iMac" and "TRANSCEND". A red arrow points to the "TRANSCEND" device, which has a question mark icon. A dialog box is open in the foreground, stating: "The item 'Dropbox' can't be copied because there isn't enough free space." with an "OK" button. On the right, a "System Status" window shows storage information:

- Hard Disk Drives (5)**
  - Local Disk (C:): 80.1 GB free of 97.5 GB
  - Local Disk (D:): 178 GB free of 179 GB
  - Seagate Expansion Drive (H:): 2.06 TB free of 2.72 TB
- Devices with Removable Storage (2)**
  - DVD RW Drive (F:)
  - TRANSCEND 8 (I:): 5.17 GB free of 7.46 GB (marked with a red checkmark and a red arrow pointing to it)

## 2. Match between system and the real world

*The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.*



## How can we help you?

Search help

### Live Updates

#### Delayed Response from Customer Care

We're really busy at the moment which means it may take a little longer than usual to get back to you. [More Info](#)



#### ORDERS

- Amend order
- Cancel order
- Sizing and care guides

SEE ALL



#### PAYMENT

- Payment types
- Promo codes
- When will I be charged?

SEE ALL



#### DELIVERY

- Where's my order?
- International deliveries
- UK deliveries

SEE ALL



#### RETURN

- Have you
- Have you
- International
- Can I ex

## 2. Match between system and the real world

*Buttons can be like real world conversations instead of labels.*



*Clearer and more effective than "FAQs"*



### Live Updates

#### Delayed Response from Customer Care

We're really busy at the moment which means it may take a little longer than usual to get back to you. [More Info](#)



## 2. Match between system and the real world



*Refrain from confusing people with system oriented language and design.*



**oops, there is a problem**

Target.com requires **cookie** to be enabled.

**continue if enabled**

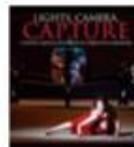
### 3. User control and freedom

*Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.*

Sending... [Cancel](#)

Your message has been sent. [Undo](#) [View message](#)

#### Your Cart



#### Lights, Camera, Capture

12th edition. Bob Davis  
ISBN-10: 047054953X  
ISBN-13: 9780470549537

- |                          |                               |        |
|--------------------------|-------------------------------|--------|
| <input type="checkbox"/> | Chapter 1: Introduction       | \$1.99 |
| <input type="checkbox"/> | Chapter 4: Lighting Equipment | \$1.99 |

Enter promo code

APPLY

Amount Due: **\$3.98**

### 3. User control and freedom

*Allow people to change or delete items in a shopping cart as seen in this example from Inkling. It's also useful to allow them to continue shopping.*

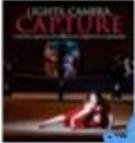
Sending... [Cancel](#)

Your message has been sent. [Undo](#) [View message](#)

*Ever felt the need for an undo button after sending an email to the wrong person?*

*It's a good thing Gmail allows that.*

Your Cart

 **Lights, Camera, Capture**  
12th edition. Bob Davis  
ISBN-10: 047054953X  
ISBN-13: 9780470549537

 Chapter 1: Introduction	\$1.99
 Chapter 4: Lighting Equipment	\$1.99

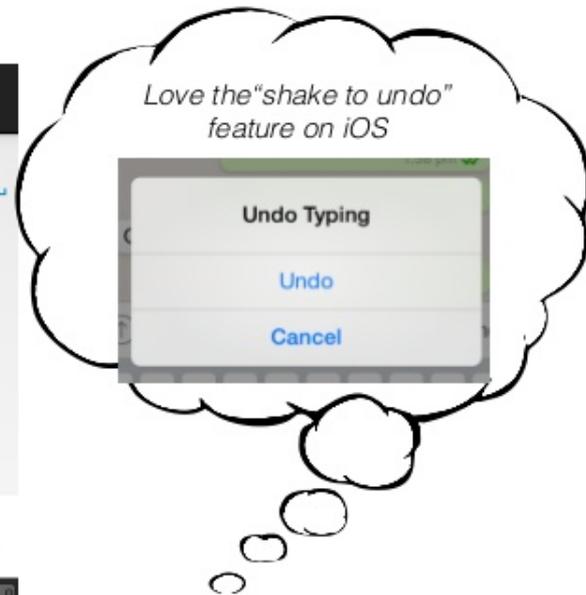
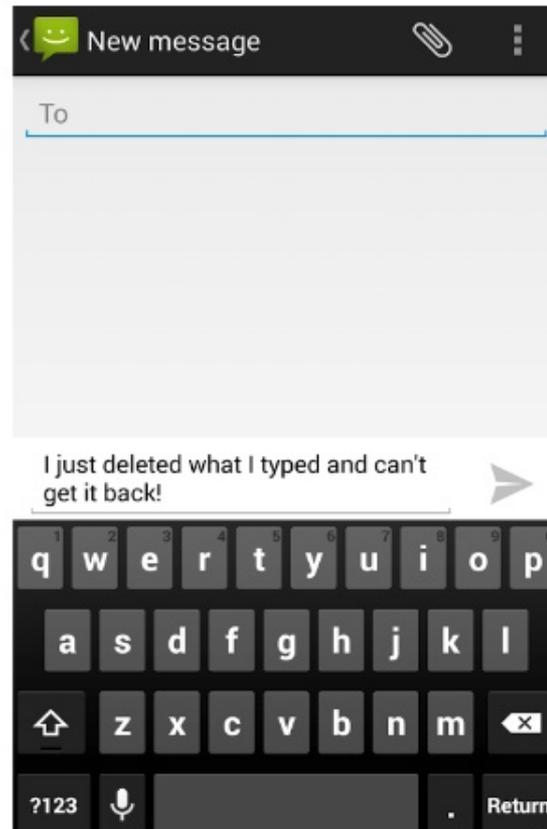
Enter promo code

Amount Due: **\$3.98**

### 3. User control and freedom

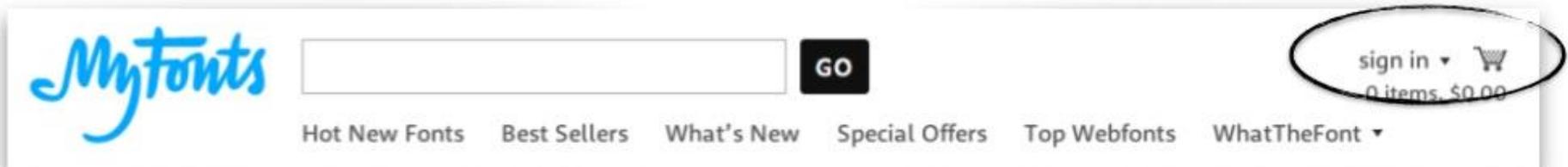


*There is no way to undo a text edit on Android!  
Avoid pissing the user off by giving him no choice to revert to an earlier state.*



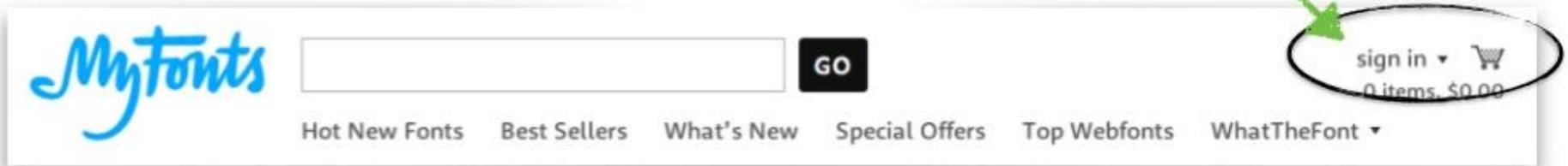
## 4. Consistency and standards

*Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.*



## 4. Consistency and standards

*As a convention, people expect call to actions like Sign In to be at the top right on any website*

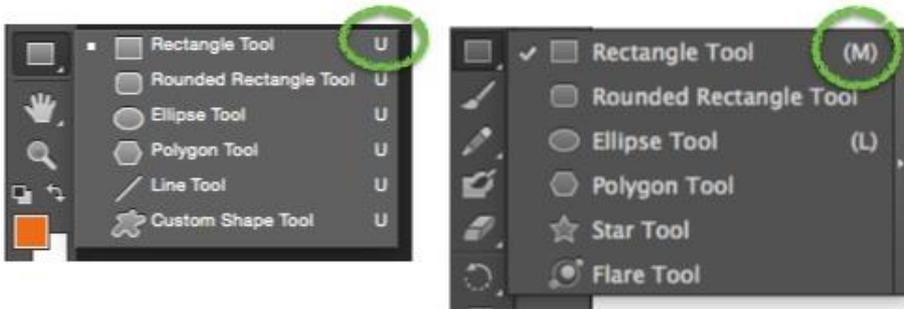


## 4. Consistency and standards



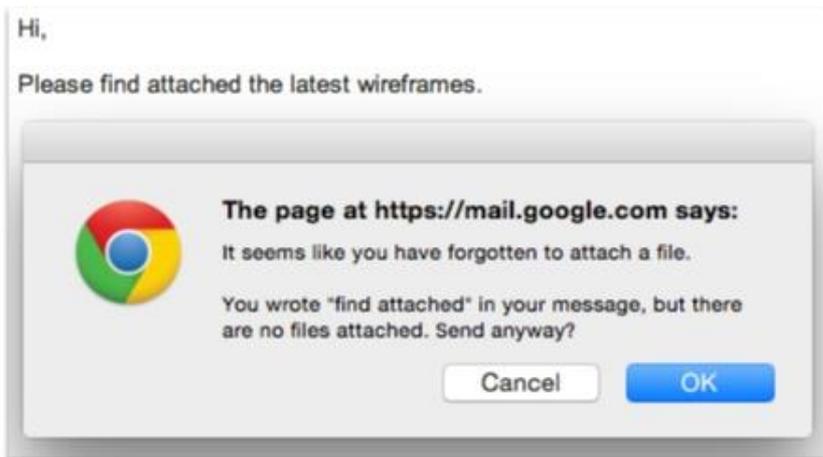
*One would expect the knob to be the volume control, but it's not.*

*Similar functions have different shortcuts in Adobe's various software.*



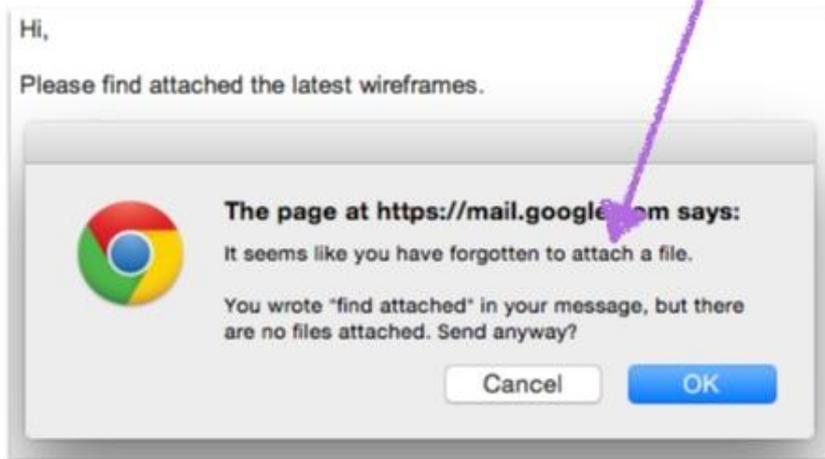
## 5. Error prevention

*Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.*



## 5. Error prevention

*Gmail prompts you when you forget to insert an attachment*



*On Google Ads, if you input a budget much larger than your previous one, the system checks with you if you really meant to do so.*

## 5. Error prevention



*Facebook does not try and prevent you from posting an ad that is against its guidelines. e.g. There is no way for a first time user to assume that his ad might get pulled off mid-campaign because Facebook might later find it inappropriate.*

The screenshot displays the Facebook Ads Manager interface. A table lists a post titled "Thursday Facebook Special One Day O...". The table has columns for "Post", "Total Reach?", "Paid Reach?", and "Promotion". The "Promotion" column for this post shows an "Error" icon. A red arrow points to this error icon. A modal window is open over the error, displaying the following text:

Your Post wasn't boosted because it uses too much text in its image, which violates Facebook's ad guidelines. Sponsored images that show in the News Feed can't include more than 20% text. The post remains published, but it is not running as an ad. You'll still be charged for any impressions or clicks your ad received before it was disapproved.

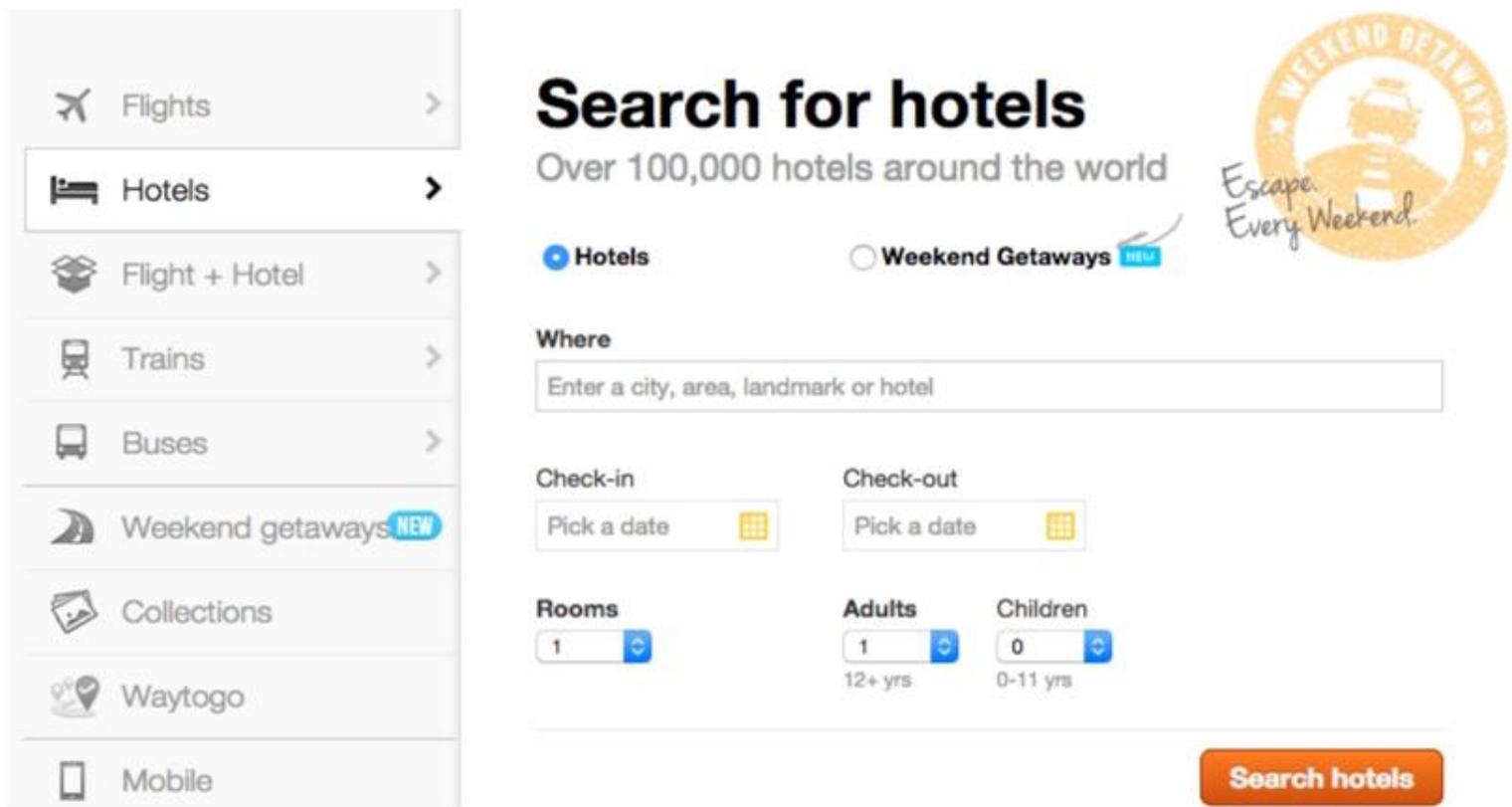
Learn more or upload your ad image to see why it is considered 20% text. Get in touch if you need help.

<b>435</b> Paid Reach [?]	<b>19</b> Engagement [?]	<b>\$4.07</b> Budget Spent
------------------------------	-----------------------------	-------------------------------

The background shows a blue banner with the text "WE'RE HIRING" and engagement metrics: Like · Comment · Share · 38 1 3. On the right, a "Boost your post to reach more people. Learn more." dialog is visible, showing targeting options for Audience, Location (Bangalore, India, Mumbai, India, Pune, India), Age (20 - 31), and Gender (All, Men, Women).

## 6. Recognition rather than recall

*Minimise the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.*



The screenshot shows a travel website's search interface. On the left is a vertical navigation menu with icons and text for: Flights, Hotels (highlighted with a blue bar), Flight + Hotel, Trains, Buses, Weekend getaways (with a 'NEW' badge), Collections, Waytogo, and Mobile. The main content area is titled 'Search for hotels' and includes the text 'Over 100,000 hotels around the world'. Below this are two radio buttons: 'Hotels' (selected) and 'Weekend Getaways' (with a 'NEW' badge). To the right of these is a circular logo for 'WEEKEND GETAWAYS' with the text 'Escape. Every Weekend.' and an image of a car. Below the radio buttons is a 'Where' section with a text input field containing the placeholder 'Enter a city, area, landmark or hotel'. Underneath are 'Check-in' and 'Check-out' sections, each with a 'Pick a date' label and a calendar icon. At the bottom of these sections are 'Rooms', 'Adults', and 'Children' sections, each with a dropdown menu showing the current selection (1, 1, and 0 respectively) and a '12+ yrs' or '0-11 yrs' label. A large orange 'Search hotels' button is positioned at the bottom right of the main content area.

## 6. Recognition rather than recall

The image shows a screenshot of a travel website's search interface. On the left is a vertical navigation menu with options: Flights, Hotels, Flight + Hotel, Trains, Buses, Weekend getaways (marked with a 'NEW' badge), Collections, Waytogo, and Mobile. The main content area features a large, bold heading 'Search for hotels' with the subtext 'Over 100,000 hotels around the world'. Below this are two radio buttons: 'Hotels' (selected) and 'Weekend Getaways' (with a 'NEW' badge). A 'Where' search box contains the placeholder text 'Enter a city, area, landmark or hotel'. Further down are 'Check-in' and 'Check-out' date pickers, and 'Rooms', 'Adults', and 'Children' selection controls. At the bottom right is an orange 'Search hotels' button. Annotations include: a teal arrow pointing to the 'Search for hotels' heading with the text 'Clear proposition'; a teal arrow pointing to the 'Weekend Getaways' badge with the text 'Instructions prompting the user to explore'; a teal arrow pointing to the 'Search hotels' button with the text 'A single bold call to action leaves no room for distraction'; and a circular graphic on the right with the text 'WEEKEND GETAWAYS' and 'Escape. Every Weekend.'.

*Clear proposition*

### Search for hotels

Over 100,000 hotels around the world

Hotels  Weekend Getaways NEW

Where  
Enter a city, area, landmark or hotel

Check-in: Pick a date

Check-out: Pick a date

Rooms: 1

Adults: 1 (12+ yrs)

Children: 0 (0-11 yrs)

**Search hotels**

*Instructions prompting the user to explore*

*Escape. Every Weekend.*

*A single bold call to action leaves no room for distraction*

## 6. Recognition rather than recall



*Important actions should be easy to access and identify.*

*In an earlier version of Windows 8, it was almost impossible to shut down the computer without googling how to do it.*

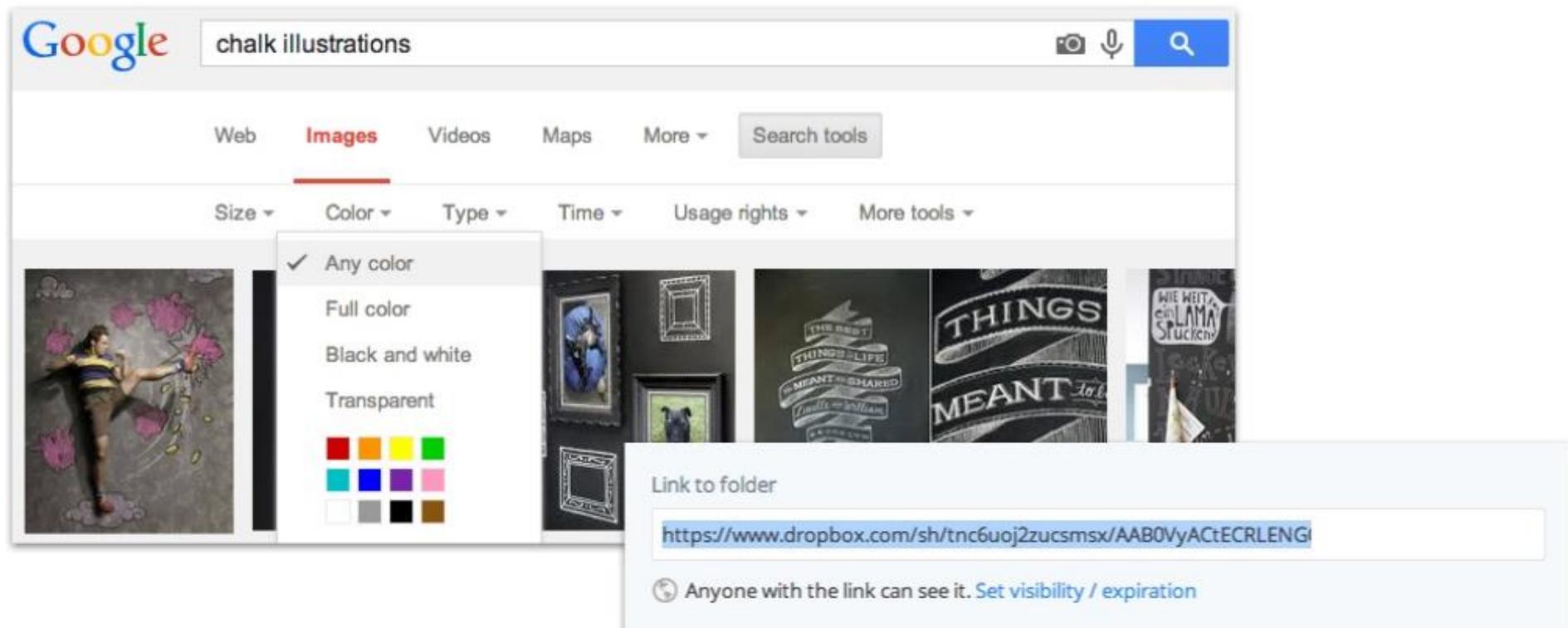
### *How To Shutdown Windows 8*

1. Close all desktop apps you have opened.
2. Swipe in from the right edge of the screen, and then tap Settings. If you're using a mouse, point to the upper-right corner of the screen, move the mouse pointer down, and then click Settings.



## 7. Flexibility and efficiency of use

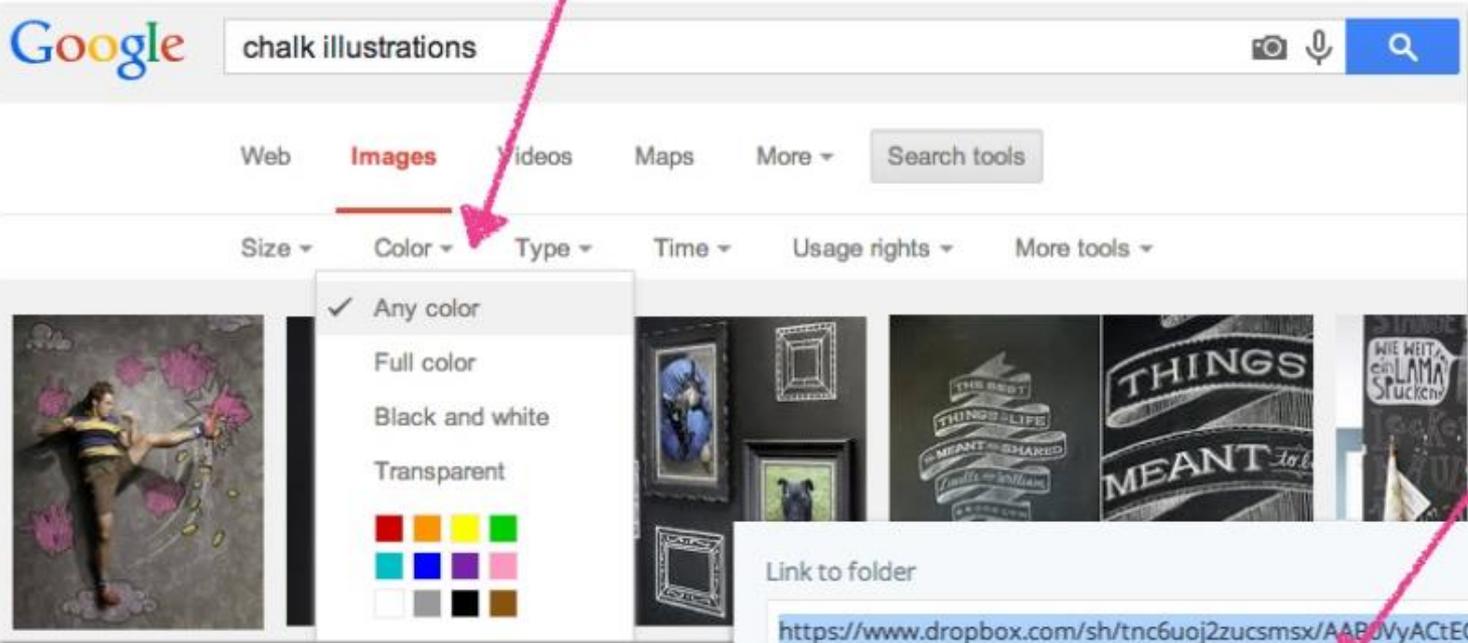
*Accelerators - unseen by the novice user - may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.*



The image shows a Google search interface for 'chalk illustrations'. The search bar contains the text 'chalk illustrations'. Below the search bar, there are tabs for 'Web', 'Images', 'Videos', 'Maps', and 'More', with 'Images' selected. A 'Search tools' button is also visible. Below the tabs, there are filters for 'Size', 'Color', 'Type', 'Time', 'Usage rights', and 'More tools'. The 'Color' filter dropdown is open, showing options: 'Any color' (checked), 'Full color', 'Black and white', and 'Transparent'. Below these options are color swatches for red, orange, yellow, green, cyan, blue, purple, pink, white, gray, black, and brown. The search results show several chalk illustrations, including a woman in a black and white outfit, a dog in a blue frame, and various text-based illustrations. A share link overlay is visible in the bottom right corner, showing the text 'Link to folder' and the URL <https://www.dropbox.com/sh/tnc6uoj2zucsmsx/AAB0VyACtECLENG>. Below the URL, it says 'Anyone with the link can see it. Set visibility / expiration'.

## 7. Flexibility and efficiency of use

*Advanced users can use filters on Google Images to narrow down their search results.*



The screenshot shows a Google search for "chalk illustrations". The "Images" tab is selected. A "Color" filter dropdown is open, showing options: "Any color" (checked), "Full color", "Black and white", and "Transparent". Below these are color swatches for red, orange, yellow, green, cyan, blue, purple, pink, white, grey, black, and brown. A sharing overlay is visible at the bottom, titled "Link to folder", with a text input field containing the URL <https://www.dropbox.com/sh/tnc6uoj2zucsmsx/AABoVyACTeCRLENGI>. Below the URL, it says "Anyone with the link can see it. Set visibility / expiration".

*When you share a file on Dropbox, you can simply copy the link, or set advanced options.*

## 7. Flexibility and efficiency of use



*This feature request highlights the frustration of an advanced user not being able to customise default features.*

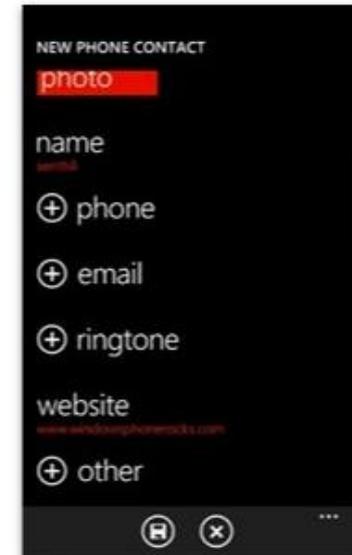
**810**  
votes

**Please allow custom labels for phone numbers, emails, addresses. home 1, home 2, work 1, work 2 just doesn't cut it any more.**

**Vote**

Please allow custom labels for phone numbers, emails, addresses. home 1, home 2, work 1, work 2 just doesn't cut it any more.

I want to label multiple telephone numbers for a frequent traveler as "mobile (usa)" or "mobile (aus)" or mobile (eur). Or for my favorite pizza chain as downtown and midtown. Or I don't want to create my customer's secretary as a separate contact instead I want to put her under my customer's contact card and label her phone as "Cindy".



## 8. Aesthetic and minimalist design

*Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.*

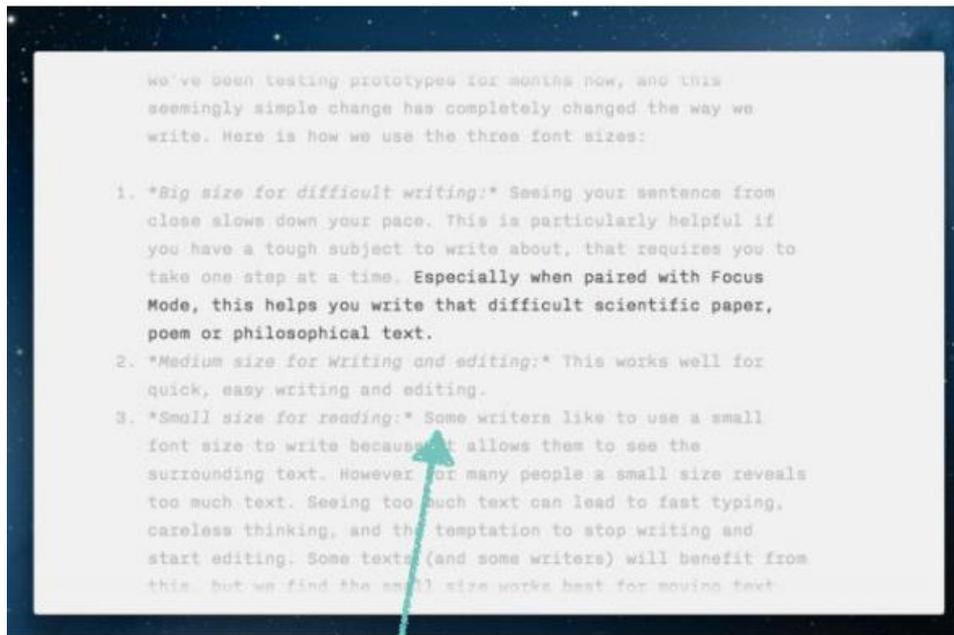
We've been testing prototypes for months now, and this seemingly simple change has completely changed the way we write. Here is how we use the three font sizes:

1. *\*Big size for difficult writing:\** Seeing your sentence from close slows down your pace. This is particularly helpful if you have a tough subject to write about, that requires you to take one step at a time. Especially when paired with Focus Mode, this helps you write that difficult scientific paper, poem or philosophical text.
2. *\*Medium size for Writing and editing:\** This works well for quick, easy writing and editing.
3. *\*Small size for reading:\** Some writers like to use a small font size to write because it allows them to see the surrounding text. However for many people a small size reveals too much text. Seeing too much text can lead to fast typing, careless thinking, and the temptation to stop writing and start editing. Some texts (and some writers) will benefit from this, but we find the small size works best for moving text



## 8. Aesthetic and minimalist design

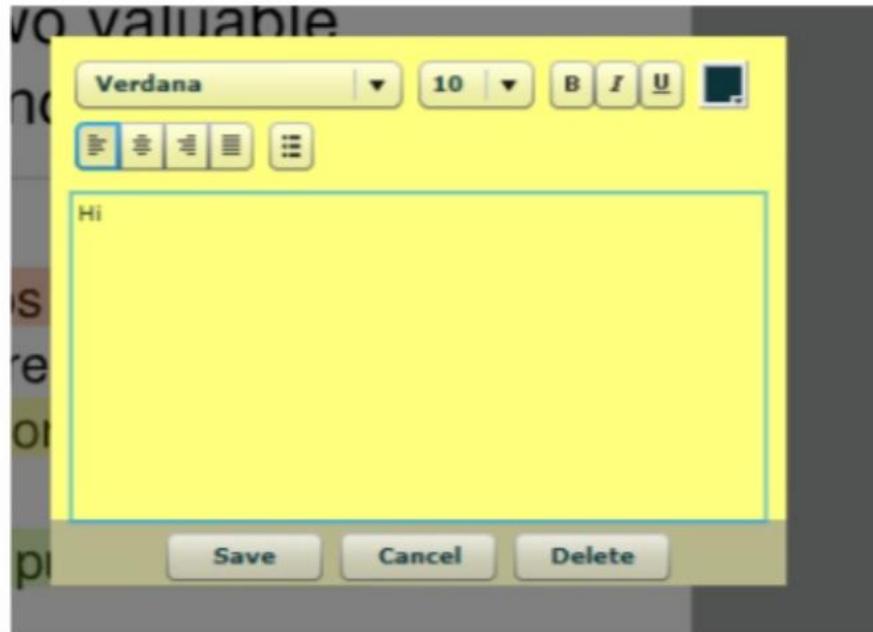
*Dieter Ram's designs reflect this principle. "Less, but better – because it concentrates on the essential aspects, and the products are not burdened with non-essentials."*



*The iA Writer app is a clean typing sheet with no distractions in the interface. It allows you to focus on what you're writing and hides everything else.*

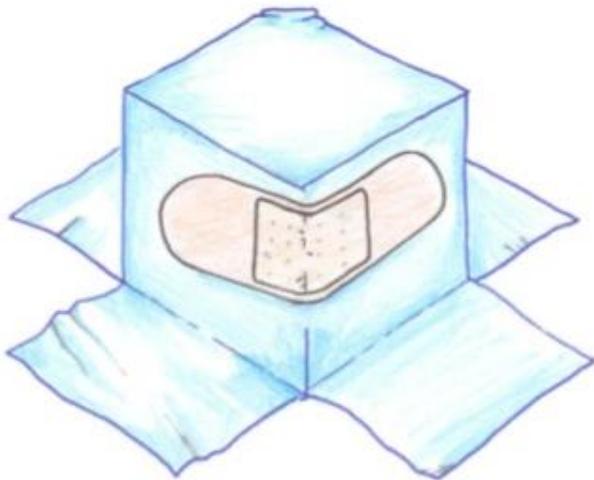
## 8. Aesthetic and minimalist design

- ⊘ *Avoid overloading the interface with features . Examine every element and ask - is this really needed?*



## 9. Help users recognize, diagnose, and recover from errors

*Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.*



### Error

Something went wrong. Don't worry, your files are still safe and the Dropboxers have been notified. Check out our [Help Center](#) and [forums](#) for help, or head back to [home](#).

**mint.com**

ERROR 404

# Page not available. But Justin is.

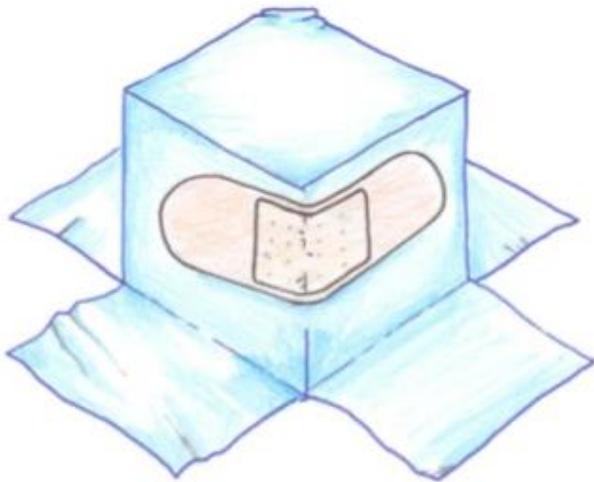
Justin is a Mint developer who likes slow cars, sharp crayons, reheated pizza and awkward silence. Email him at [justin \[ at \] mint.com](mailto:justin@mint.com).

But if you're more interested in personal finance than in Justin, try the links below:

- 
- 
-

## 9. Help users recognize, diagnose, and recover from errors

*An assuring error message on Dropbox*



### Error

Something went wrong. Don't worry, your files are still safe and the Dropboxers have been notified. Check out our [Help Center](#) and [forums](#) for help, or head back to [home](#).

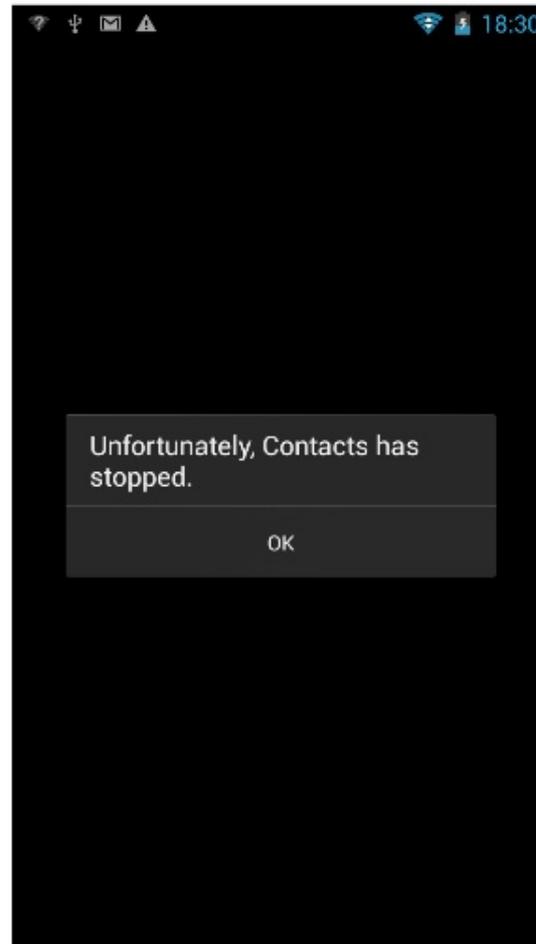
*A funny message keeps the audience engaged, while relevant links make sure they stay on your website.*

The screenshot shows a 404 error page from mint.com. At the top left is the mint.com logo. Below it, the text reads "ERROR 404" in a small box, followed by "Page not available. But Justin is." in large, bold text. Below this, a paragraph describes Justin, a Mint developer, and provides an email address: "justin [at] mint.com". A green arrow points from the word "Justin" in the paragraph to the word "Justin" in the headline. Below the paragraph, another line of text says "But if you're more interested in personal finance than in Justin, try the links below:". At the bottom, there are three icons: a colorful circular chart, a tablet and smartphone displaying the chart, and a blue speech bubble icon. On the right side of the screenshot, a man with glasses is shown from the chest up, looking towards the viewer with a slightly surprised or playful expression.

## 9. Help users recognize, diagnose, and recover from errors

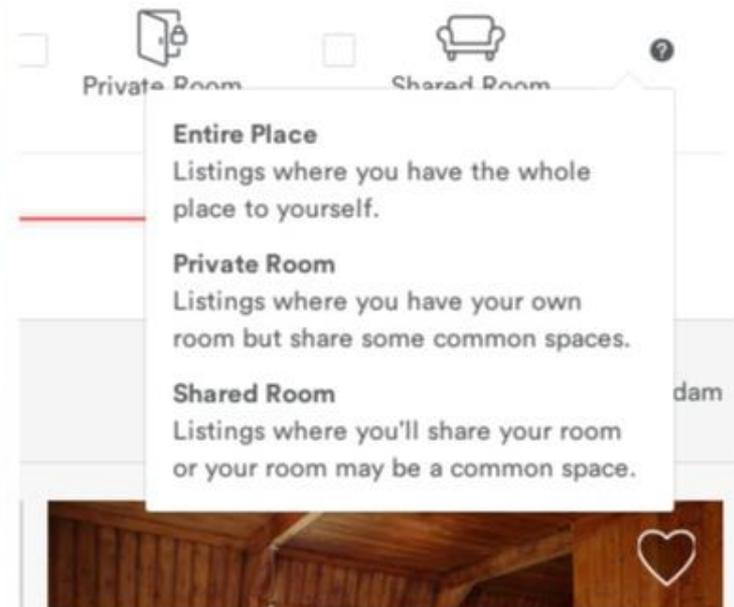
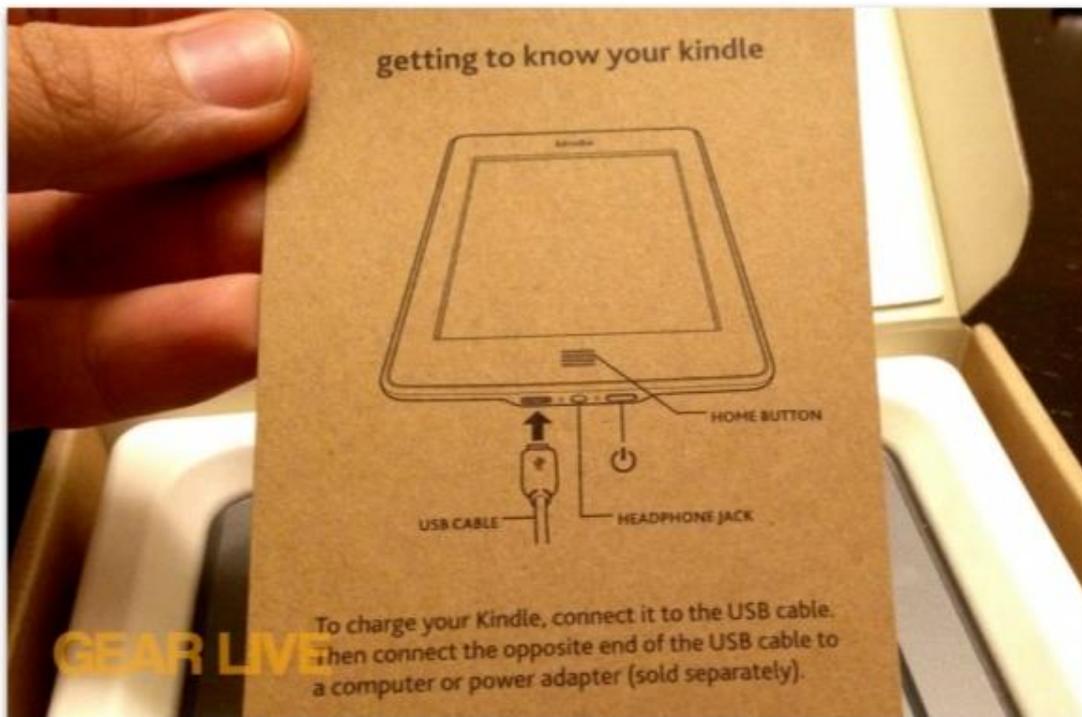


*Don't tell people that something's broken and can't be fixed.*



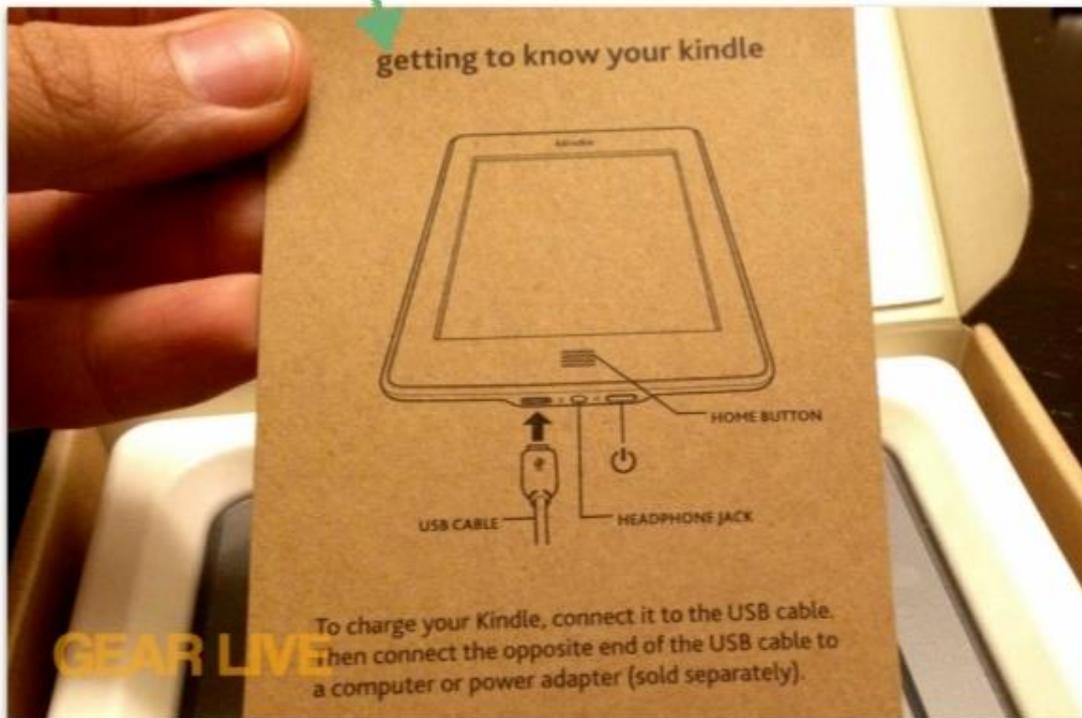
## 10. Help and documentation

*Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.*

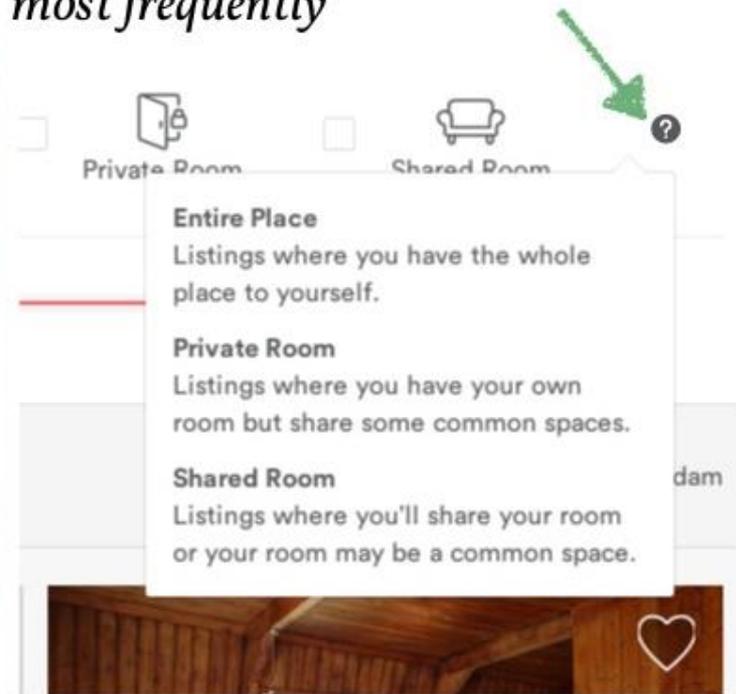


## 10. Help and documentation

*The Kindle comes with an instruction card tucked inside the box flap, instead of a long boring manual*



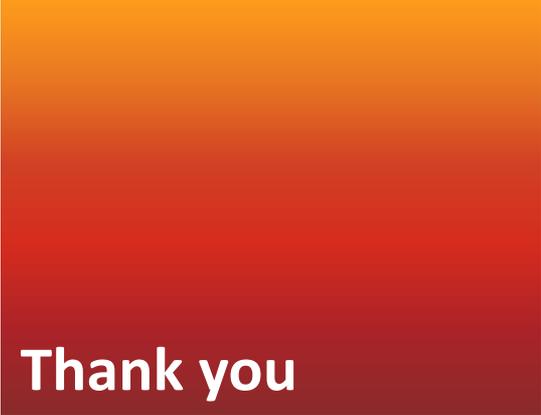
*Contextual help on AirBnB provides explanations where they are needed most frequently*



## 10. Help and documentation

 *If only diapers came with an easy tutorial!*





**Thank you**