



Evidence-Based User Experience Research, Training, and Consulting

Flat Design: Its Origins, Its Problems, and Why Flat 2.0 Is Better for Users

by [KATE MEYER](#) on September 27, 2015

Topics: [Visual Design](#) [Web Usability](#)

Summary: Flat design is a web-design style that became popular around 2012. It is still widely used today, and its overuse can cause serious usability problems.

One of the biggest usability issues introduced by flat design is the lack of signifiers on clickable elements. Flat 2.0 may provide a better alternative.

Flat design is a popular design style that is **defined by the absence of glossy or three-dimensional visual effects** in the graphical elements of a web page. Many designers consider it to be an offshoot of [minimalist web design](#).

Three-Dimensional Effects, Skeuomorphism, and Realism

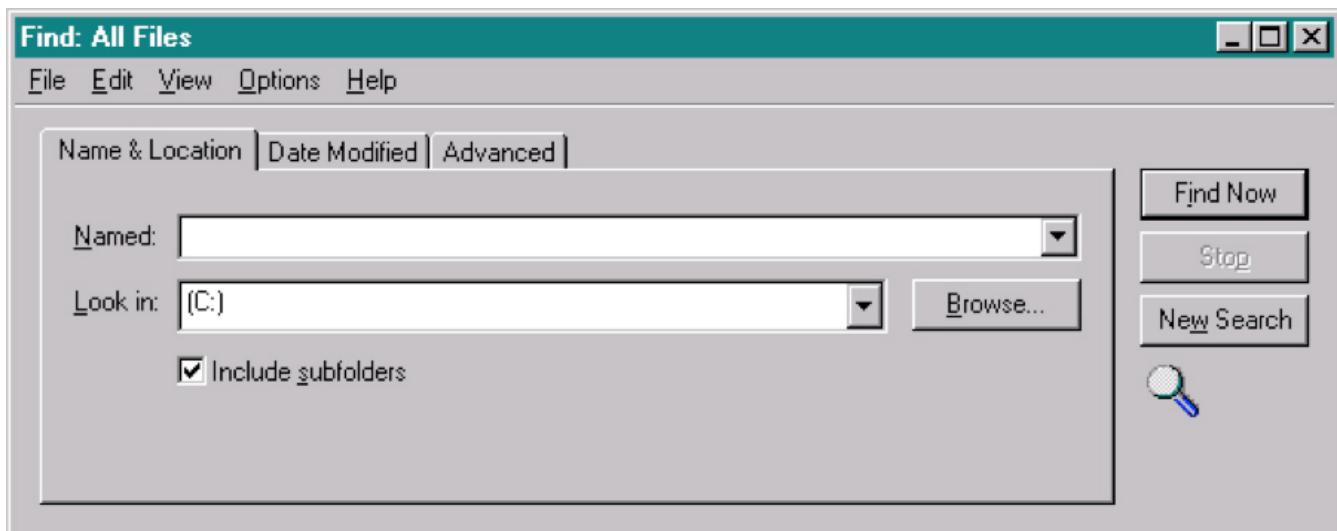
To define flat design, we must define what flat design *isn't*. Flat design is commonly interpreted as a **reactionary movement against 3D, skeuomorphic, and realistic design styles**. A fully flat interface doesn't use any of these styles.

Three-Dimensional Effects

Three-dimensional effects give an illusion of depth to an interface, which can help users interpret visual hierarchy and understand which elements are interactive.

- **Elements that appear raised** look like they could be pressed down (clicked with the mouse). This technique is often used as a signifier for digital buttons.
- **Elements that appear sunken or hollow** look like they could be filled. This technique is often used as a signifier for input fields, like search tools.

Since the early days of graphical user interfaces, screens have employed pseudo-three-dimensional effects (shadows, gradients, highlights) to help users understand the available actions at a glance. However, the pseudo-3D effect in these early GUIs tended to be aggressive, overdone, and visually distracting.



This Windows 95 dialog box made use of heavy shadows and highlights to create 3D effects. Notice how the buttons appear raised and the input fields appear sunken. It's also clear which of the three tabs is on top of the other two. However, heavy shadows can easily make an interface visually unappealing.

Skeuomorphism

In digital design, a skeuomorphic design is an object that has unnecessary, ornamental design features that mimic a real-world precedent. Skeuomorphic designs are intended to help users understand how to use a new interface by allowing them to apply some prior knowledge about that precedent.



In earlier models of Amazon's Kindle Fire tablet, the Android-based operating system used a skeuomorphic bookshelf design, complete with 3D shelves and wood textures. The bookshelf metaphor was intended to help users transfer previous knowledge about bookshelves (as a place to store and organize physical media) to the digital environment. The shelves and wood textures are irrelevant to the system's functionality but were supposed to reinforce the metaphor. Amazon later removed the skeuomorphic bookshelf design from the UI.

Realism

Realism is a design style that mimics physical items or textures for aesthetic reasons.

Skeuomorphism is often confused with **realism**. In web design, the two styles are usually found together. The primary distinction is that realism is a visual style that uses design elements and textures that **mimic the physical world for purely aesthetic purposes**, while skeuomorphism **supports a metaphor** to help users understand the interface.



Like the earlier Kindle Fire tablets, Sprouts grocery website uses 3D wood textures, but the realism in this design is only for aesthetic appeal. It does not serve to support any kind of metaphor to help users understand how to use the interface, nor does it mimic any real-world predecessor.

The Origins of Flat Design

The release of Microsoft's Metro design language and Windows 8 in 2011 was particularly influential in popularizing flat design. Microsoft's design documentation referred to its new style as "authentically digital" — a phrase that neatly captures the appeal of flat design for many designers. Unlike skeuomorphic design, flat design was seen as a way to explore the digital medium without trying to reproduce the appearance of the physical world.

The flattening of Apple's homepage provides a useful benchmark for the growth of the trend's popularity. Skeuomorphism and realism had long been trademarks of Apple design, and its homepage resisted the flat trend until around 2013.

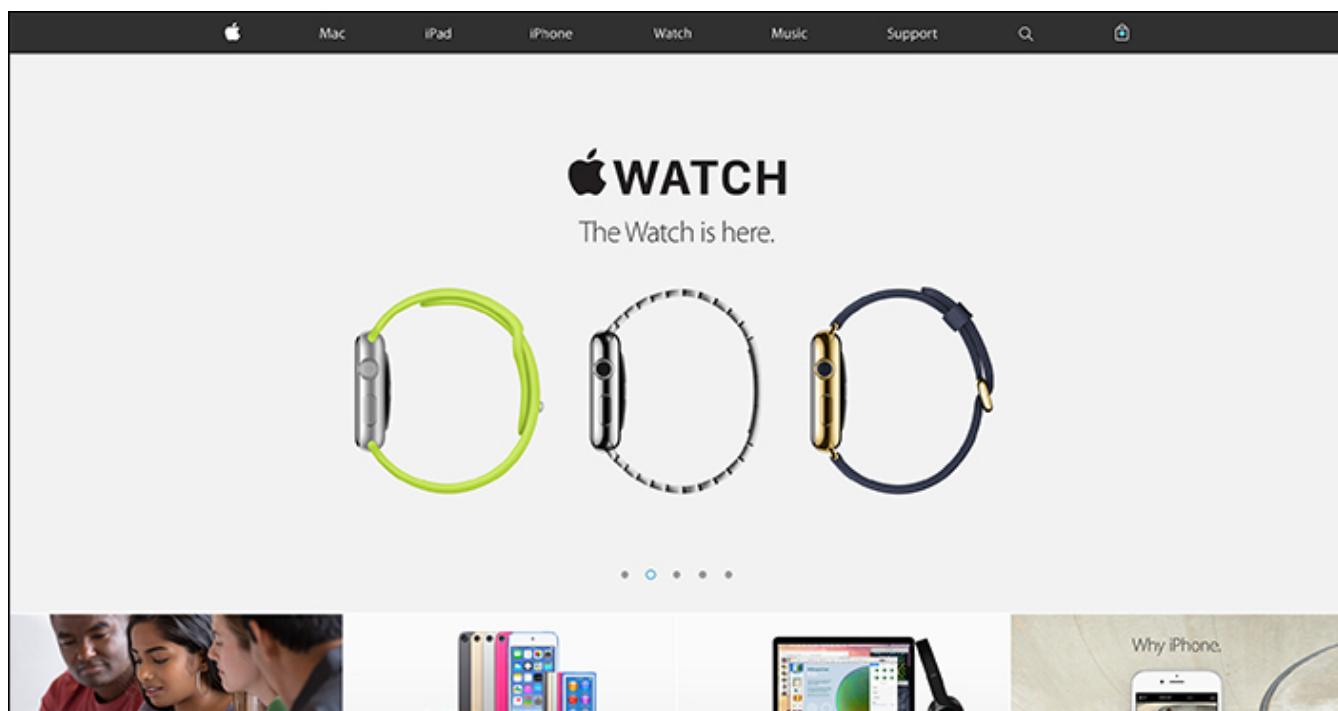


Apple's homepage in 2007 (via WayBack Machine). The navigation bar is styled to appear as glossy, 3D tabs.



Apple's homepage in 2012 (via WayBack Machine). The tabs metaphor is gone, but the navigation bar still appears glossy and rounded (an example of realism rather than

skeuomorphism). The new search tool has inset shadows to make it appear hollow (a more elegant visual effect than the appearance of the Windows input fields 17 years earlier, but conceptually the same idea). The icons visible in the lower-right corner are so glossy that they almost interfere with the viewer's ability to understand what they are. These buttons almost appear to be glowing, rather than raised.



Apple's homepage in 2015. The entire navigation bar, including the logo, is entirely flat — no detectable shadows, textures, or highlights. There are no 3D, realistic, or skeuomorphic effects here. The only way users know that the navigation options are clickable is by convention: a strongly colored stripe across the top of a web page tends to be a navigation bar (except when it's an ad, but this one is too thin to fall victim to banner blindness).

Usability Problems with Flat Design

Since flat design's emergence in 2011, Nielsen Norman Group has been a vocal critic of its inherent usability issues. Our primary objection to flat design is that it tends to sacrifice users' needs for the sake of trendy aesthetics.

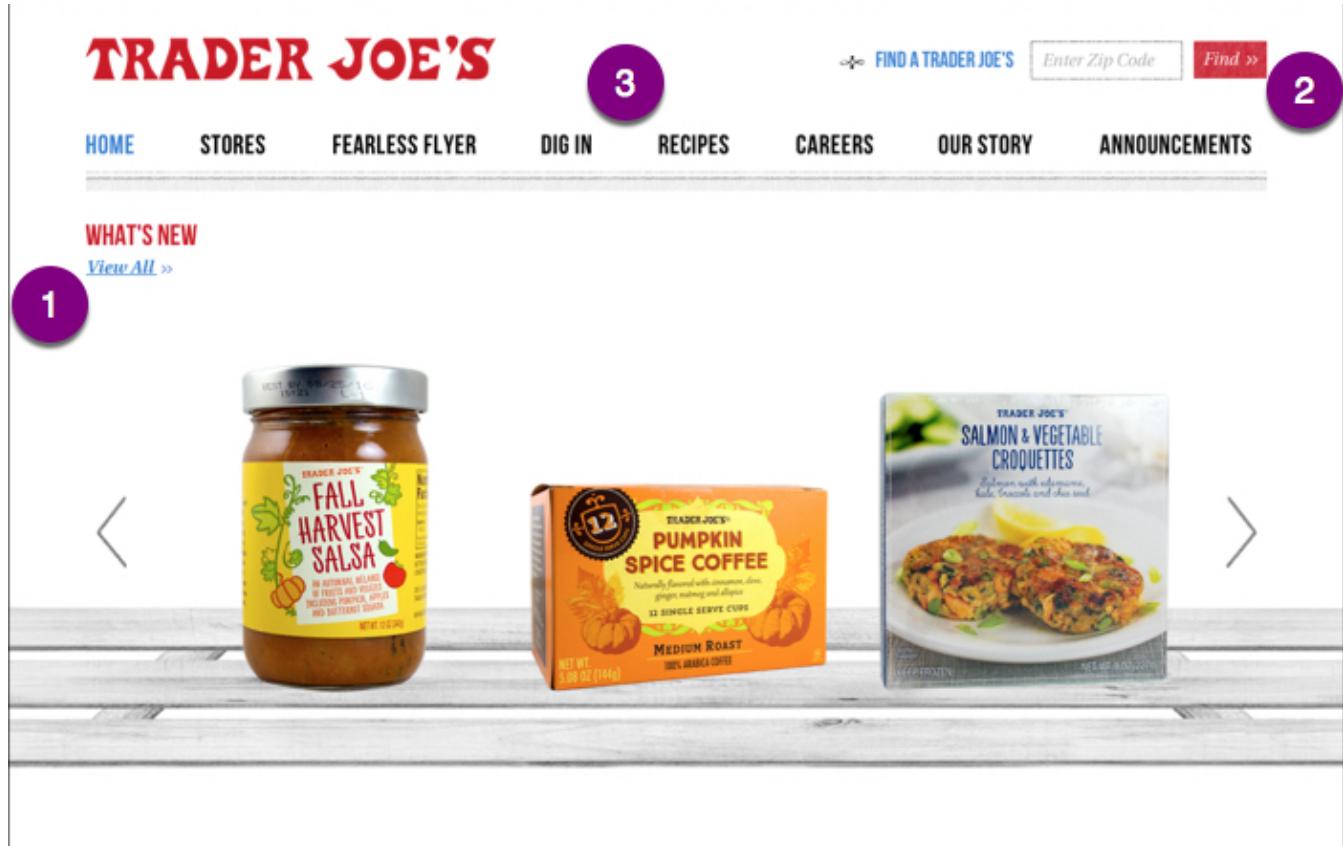
For years, users had been exposed to traditional signifiers of clickability, such as blue, underlined links and 3D effects on buttons. As design trends shift and users are exposed to new patterns, the average user's ability to intuitively identify linked elements has evolved. But just because users are better at detecting linked elements doesn't mean they don't need any clues *at all*. In fact, we've noticed that long-term exposure to these flat yet clickable elements has been slowly reducing user efficiency by complicating their understanding of what's clickable and what isn't.

When we asked a 22-year-old Canadian how she knew what she could click on in websites, she gave the following answer:

"When it's blue and underlined, that's how you know initially. You see that even in Word and stuff. But really, especially when it's underlined, that helps. Or if it's a button, it doesn't have to say Click Here, but if it says, Buy Now or Purchase or Add to Cart."

This quote neatly illustrates the types of cues people use to determine clickability:

- Traditional, externally consistent signifiers (such as the blue, underlined text or raised buttons)
- Something reminiscent of a traditional signifier (such as underlined text of any color or boxed text)
- Contextual clues (such as actionable text or placement at the top of the page)



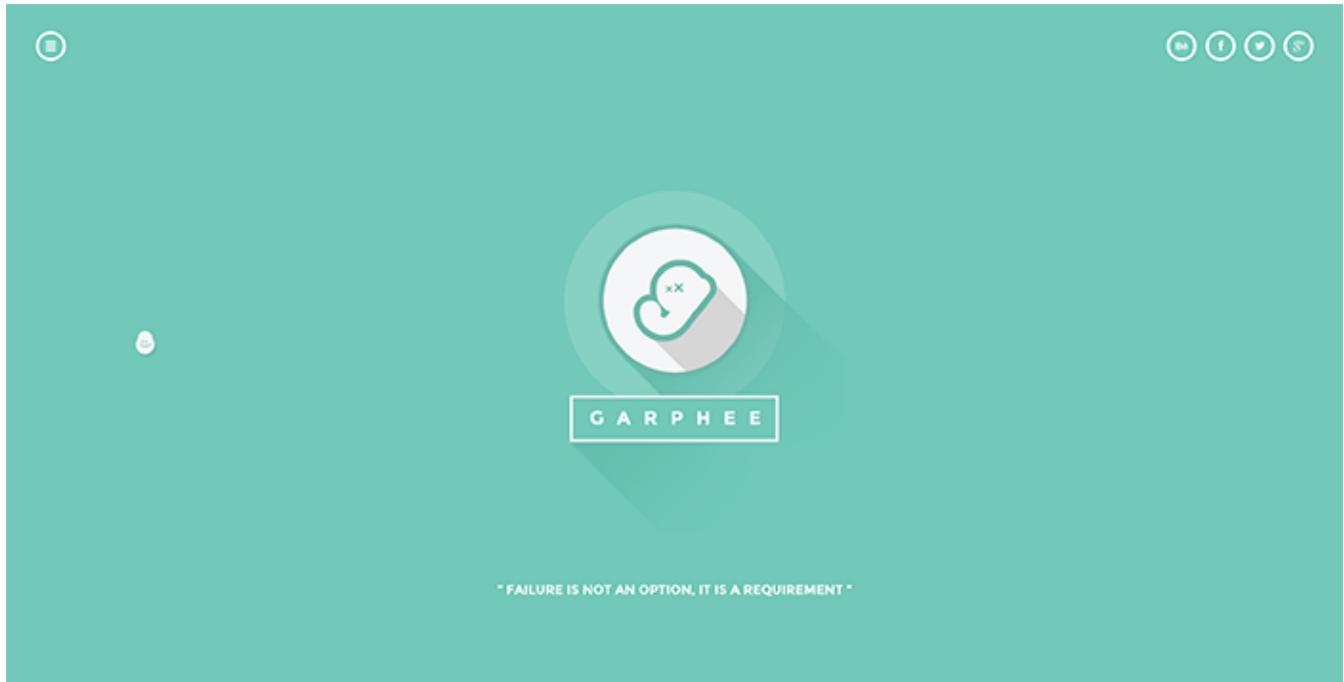
The homepage of Trader Joe's displays a variety of clickability signifiers. (1) The blue, underlined text of View All is a traditional signifier. (2) The flat, red background on the Find link is reminiscent of a button, even without 3D or realistic visual effects. (3) The black links in the main navigation bar communicate their clickability only by their placement and text. (Note that the mostly flat page does have one element of skeuomorphism — the wooden shelf under the featured product carousel.)

If your organization wants to transition to a flatter aesthetic, follow our [guidelines for designing recognizably clickable elements](#) to make sure you aren't causing click uncertainty.

Fattening Flat Design

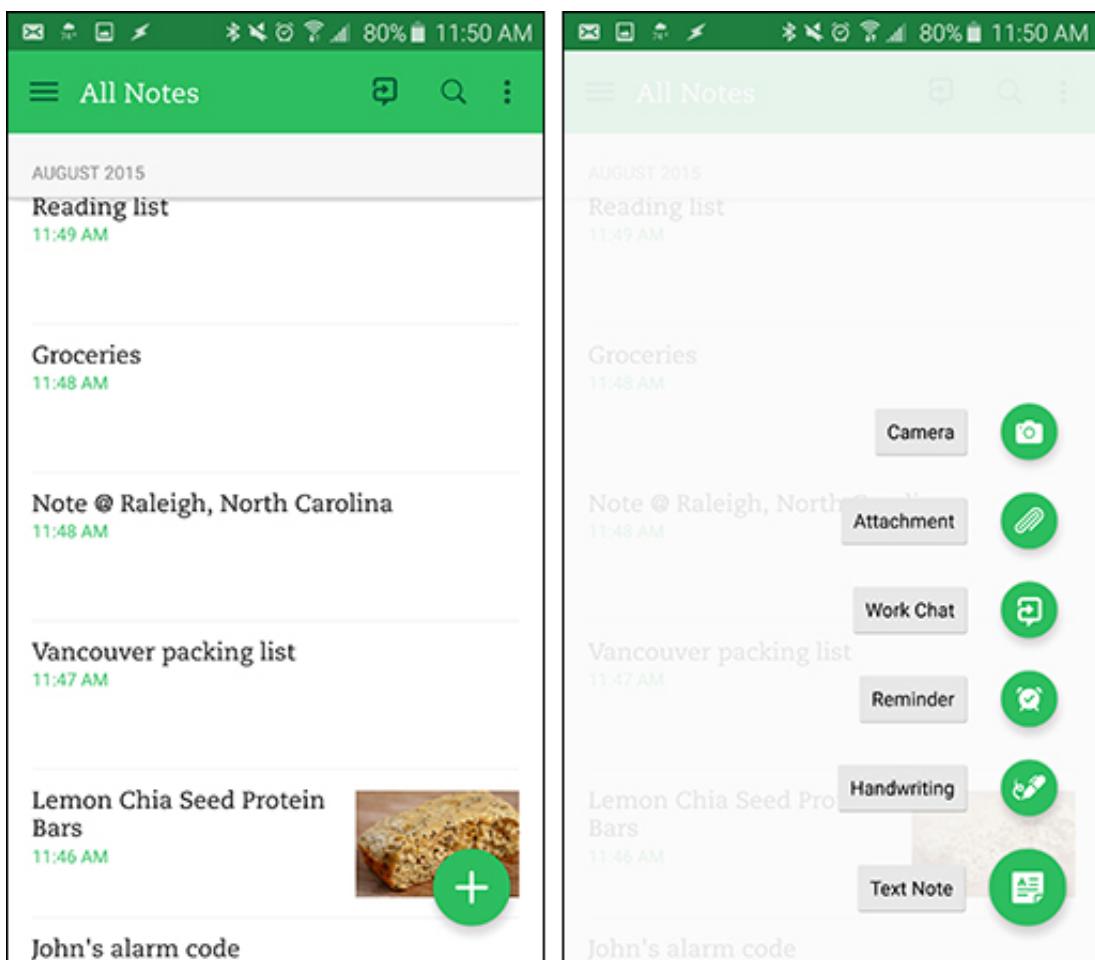
Recently, designers have begun to notice the usability issues of flat design. As a result, a more mature and balanced interpretation of flat design has emerged. Designers are finding they can be "authentically digital" and explore the unique opportunities of the medium without compromising usability.

This newer interpretation is sometimes referred to as "**semi flat**," "**almost flat**," or "**flat 2.0**." This design style is mostly flat, but it makes use of subtle shadows, highlights, and layers to create some depth in the UI.



Flat design elements with long shadows, as seen in this designer's portfolio, became popular around 2013. Long shadows are one example of flat 2.0 gone wrong — the 3D effects are purely aesthetic and don't add any meaningful information for users. Thankfully, their popularity has declined, but icons with long shadows are still in use in some flat interfaces.

Google's Material design language is one example of flat 2.0 with the right priorities: it uses consistent metaphors and principles borrowed from physics to help users make sense of interfaces and interpret visual hierarchies in content.



The Evernote app for Android is a good example of the possible benefits of flat 2.0. Despite having a mostly flat UI, the app provides a few subtle shadows on the navigation bar and the floating + button (add new). It also makes use of the card metaphor to display content as flat, layerable panes in a 3D space.

As with any design trend, we advise balance and moderation. Don't make design decisions that sacrifice usability for trendiness. **Don't forget that — unless you're designing only for other designers — you are not the user.** Your preferences and ability to interpret clickability signifiers aren't the same as your users' because you *know* what each element in your own design is intended to do.

Early pseudo-3D GUIs and Steve-Jobs-esque skeuomorphism often produced heavy, clunky interfaces. **Scaling back from those excesses is good for usability.** But removing visual distinctions to produce fully flat designs with no signifiers can be an equally bad extreme. **Flat 2.0 provides an opportunity for compromise** — visual simplicity without sacrificing signifiers.

If your UI uses a flat design, make sure you follow the best practices to avoid its pitfalls.



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Flat-Design Best Practices

by [KATE MEYER](#) on March 12, 2017

Topics: [Visual Design](#) [Web Usability](#) [Interaction Design](#)

Summary: Flat designs often suffer from usability problems and cause click uncertainty because of lost signifiers. Avoid these negative side effects by consistently and clearly differentiating between clickable and unclickable elements.

Since its rise to popularity around 2012, [flat design](#) has had an influence on visual-design taste across the web. Flat is everywhere now — Apple, Amazon, Microsoft, and even IBM are flat. This isn't just a simple web-design trend anymore.

Flat design, especially when combined with strategic [minimalism](#), can be a powerful aesthetic tool. It can convey a sense of luxury or trendiness, and in some cases can be used to [appeal to young adult users](#). It's a lightweight UI, and can be easier to support across a range of device sizes.

Unfortunately, flat design has a [major flaw](#): it often leads to [click uncertainty](#) and [decreased user efficiency](#). When designers flatten the UI, they tend to remove many signifiers that normally tell users where to click. But flat doesn't have to fail — take advantage of the following strategies to make sure your users don't become victims of a faulty flat design.

Is a Totally Flat Design Right for You?

Before you jump on the flat-design bandwagon, **consider whether this style is best for your organization's goals**. Several factors will influence your potential success:

- **Low amount of content and simplicity of information architecture:** Ultra-flat designs tend to work better on very small sites (1–10 pages).
- **Low amount of interactivity and no complex features:** Complex applications or interfaces with unusual interaction patterns will miss out on opportunities to guide their users if they totally flatten their UI.
- **High proportion of returning visitors:** Sites with high numbers of frequent returning visitors will have more success with flat design. In those cases, users are more likely to eventually learn the interactive paths rather than rely heavily on signifiers.
- **Tech-expert target users:** If your users are all advanced (designers or developers, for example, or

having extensive experience using other flat designs), they will be better equipped to figure out a flat design than a broad consumer audience would be.

Even if your organization's characteristics fit that list, we usually advise against a totally flat UI in most situations. There are some cases where a totally flat design won't do much harm — in designer portfolios or very simple marketing sites, for example. Such sites those can benefit from the cool factor of a flat design without sacrificing much usability — because there isn't much to 'use' there in the first place.

The screenshot shows a mobile application interface titled "Plan your perfect day". At the top, there is a text block: "It all starts with planning the day. You wake up, make some coffee and think about what you're doing today. Our daily planner functionality is the best way to keep track of your battle plan for the day." Below this is a sidebar with the title "Write today's Focus List" and the text: "Write down all the tasks for today. Split bigger tasks into smaller ones. Plan your day ahead and commit to do everything on your list." To the right is the main content area titled "Today's list". It contains a table with four rows of tasks:

Task	Estimated Time
Write a blog article on how to estimate tasks	1h 30m
Study marketing strategies	1h
Add stats feature to FocusList for Mac	2h 30m

Below the table, it says "Finish and order business cards" with a duration of "30m". A total time of "5h 30m" is shown at the bottom. At the bottom of the screen are three buttons: a plus sign (+), "START WORKING", and a menu icon (≡).

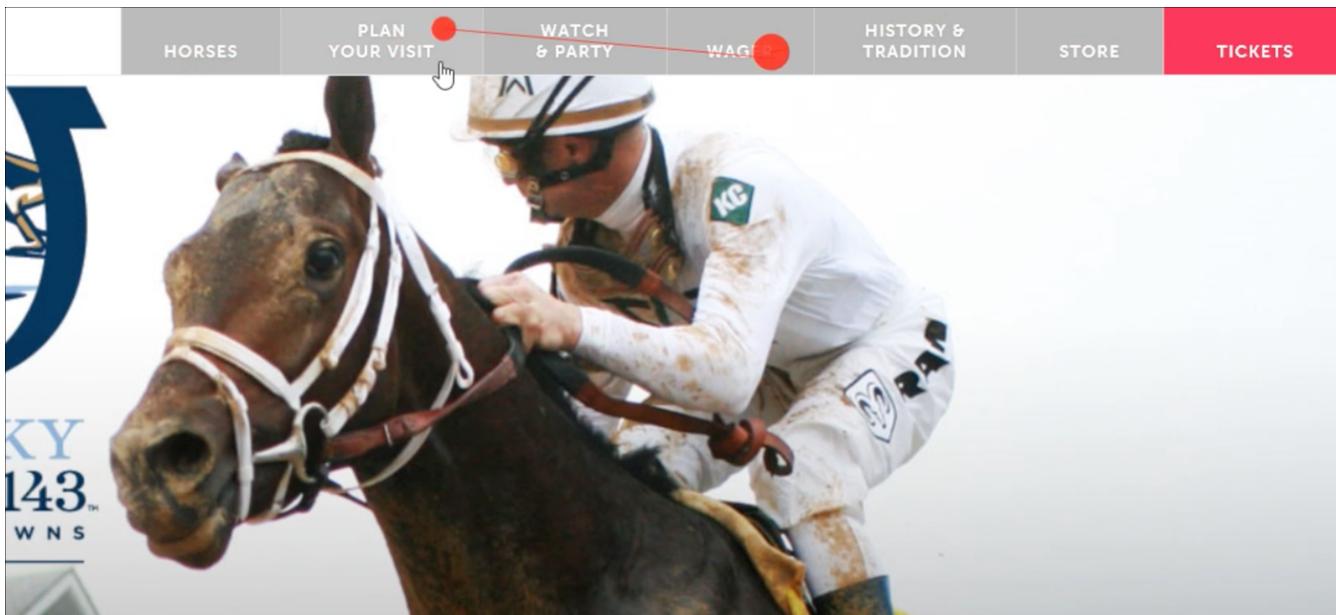
focuslist.co: This site's only purpose is to market a productivity application. Very simple sites like this one can benefit from adopting a flat design (though not totally flat, thanks to that shadow behind the screenshot).

Most digital products are much more complicated than a single-page marketing site. For those interfaces, **we recommend using a semiflat or flat 2.0 aesthetic instead** — an evolution of the style which looks much like flat design, but incorporates subtle shadows, highlights, and layers to create some depth in the UI.

One last word of caution: Just because flat designs appear simple doesn't necessarily mean they're easier to design. Pulling off a flat design to any degree, from ultra-flat to flat 2.0, will require a talented visual designer.

Strategies for Avoiding Click Uncertainty

If you're sure a flat design is right for your product, think carefully about how you'll **communicate the clickability** of every interactive element — links, buttons, form fields, sliders, and so on.



kentuckyderby.com: When users aren't sure if something is clickable or tappable, they'll check by mousing over the element. In this screenshot from an eyetracking study, the user is looking at the subtle change in the cursor and the background color of the menu option to decide where she can click. (Red dots indicate fixations.) Hover-triggered changes in the visual design of the element, or cursor-shape changes (e.g., into a hand) are clues that the element is clickable. Unfortunately, such clickability signifiers are weak and require interaction effort; as a result, they effectively reduce target discoverability.

Never use the same visual treatment for static text and linked text. Don't use the same color for primary-action buttons and the background on a static heading. Use your visual design to clue users into what's clickable on your site and what isn't. Consistency is crucial.

Follow our guidelines for signaling the clickability of text, buttons, images, graphics, tabs, and icons:

- Make sure your buttons at least vaguely look like physical buttons.
- Avoid ghost buttons — text with a thin rectangular outline.
- Make sure smaller items will enlarge when they're clicked.
- Use standard, recognizable icons in links. With few exceptions, these icons should be paired with label text.
- It's fine if your tabs have no shadows, just make sure you're following the rest of our recommendations for tab design.

Use traditional layouts and standard UI patterns as much as possible. With a standard layout, users will easily understand the purpose of each element — even without traditional, strong signifiers. Combining a standard layout with a clean visual design and ample white space helps even more, by making each section of the site more salient and understandable.



teavana.com: This gaze plot from an eyetracking study shows the first few seconds of a user's visit to teavana.com. (Red dots indicate fixations.) Because Teavana uses a simple visual design with a relatively traditional ecommerce layout, users had no problem navigating despite its very flat aesthetic. The white space and expected location of the top navigation bar helps users quickly recognize its purpose.

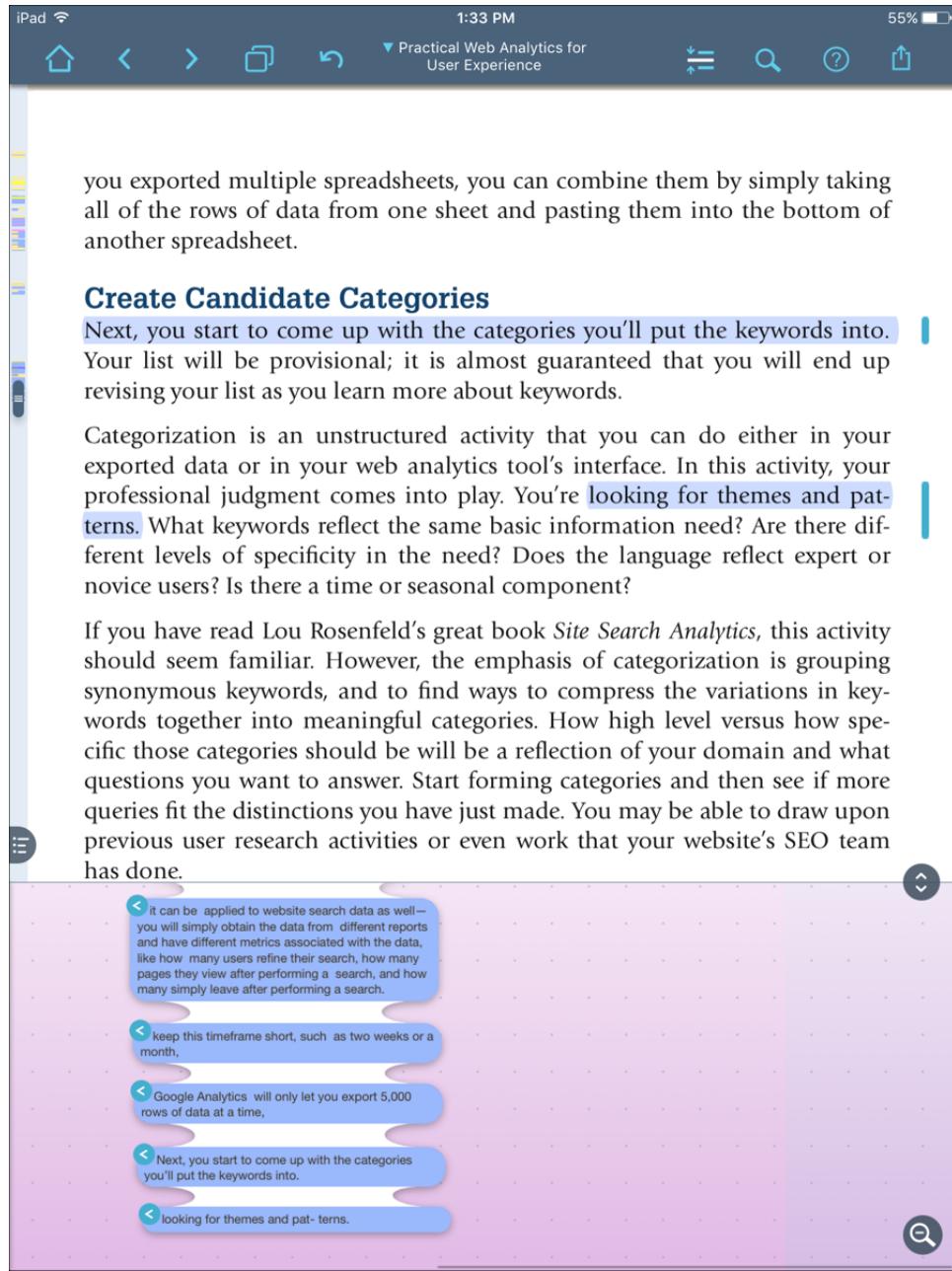
Pay attention to contrast. Make sure your text and elements are clearly legible and noticeable. Light grey on dark grey is a popular approach for flat design, but it rarely works well. Also, be careful when using background images beneath text.



sabemasson.com: The primary action button featured on this homepage, OUR EXPERTISE, is already quite subtle (and poorly worded), but against this large background photo, it's lost. This design could easily be improved by using an accent color, like a darker variant of the light blue already used in the UI.

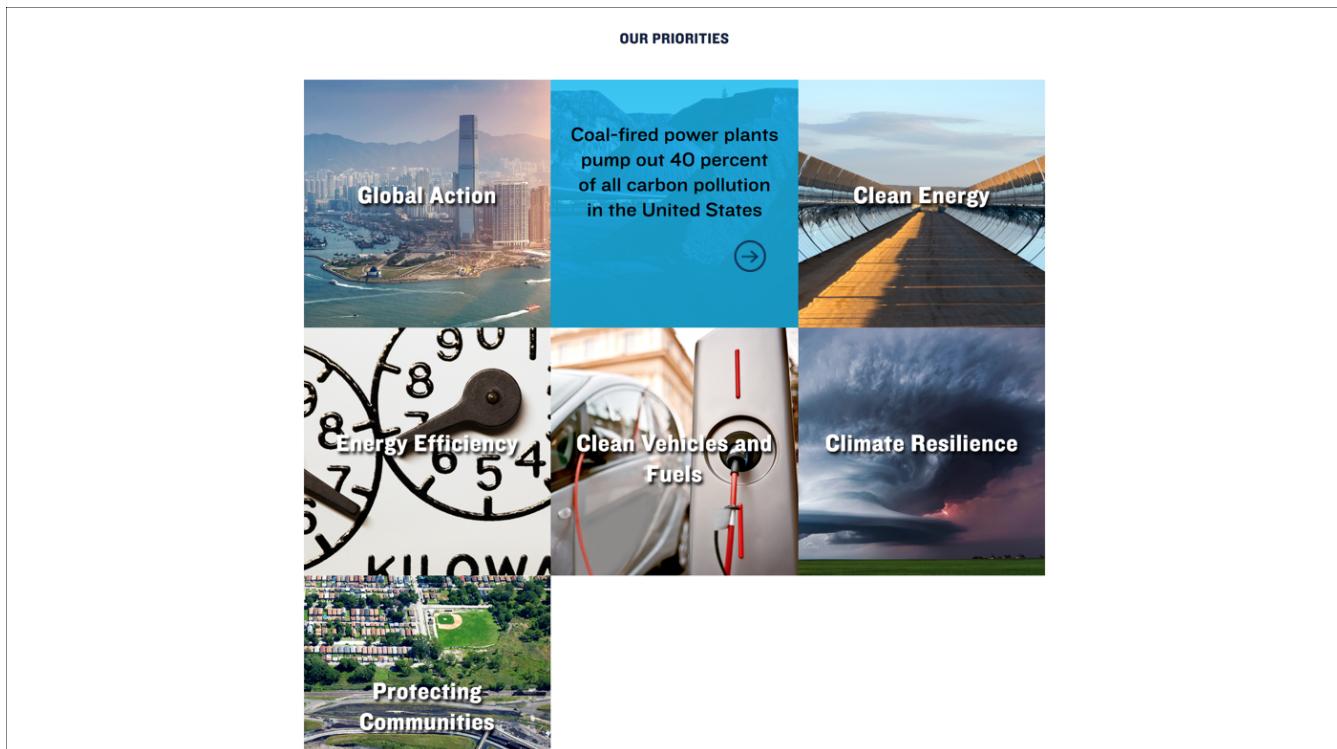
Add back in some depth. Flat doesn't have to be totally flat. Add back in some subtle 3D shadows or layering effects to clarify the relationships between elements.

Google's Material Design, which has been around since 2014, took an admirable stab at this concept. The best thing about Material Design was that it defined a carefully considered framework with specific rules, behaviors, and visual properties. Unfortunately, it's not always implemented correctly — often shadows and layers are used just to improve aesthetics instead of supporting user mental models and building signifiers. You don't have to adopt Material Design to get its benefits — create your own design language with semi3D properties.



LiquidText: This flatish annotation app for iOS uses subtle shadows under interactive elements and under the top toolbar to separate those UI elements from the text.

When in doubt, link it out. In situations where users could reasonably assume something is a link, it should be. For example, if a link has some descriptive text, a title, and a thumbnail image all presented together, all of those associated elements should lead to the same page.



nrdc.org: In this overview of OUR PRIORITIES, users must hover over the thumbnails to reveal text and a link. Unfortunately, only the small arrow icon is actually linked. In situations like these, make all related elements linked.

Conclusion

Flat design is a popular and powerful design aesthetic — when used correctly. Remember that click uncertainty isn't just a problem for users trying to accomplish their tasks, it also means they're liable to miss important actions that contribute to business goals. **Never sacrifice usability** to suit a specific design aesthetic, and **always test with your users** to make sure they understand your UI.

Review any flat UI against this checklist to check its usability:

Checklist

- Clickability clues are consistent throughout the site.
- Linked elements are salient, have appropriate contrast, and are noticeable.
- Linked elements are located where users would expect them to be.
- There are no 'red herrings' — no false targets that look clickable, but aren't.
- All elements associated to the same piece of content (icon, image, text) are linked and point to the same page.
- Provide feedback whenever there's a response-time lag between a click and the resulting action.



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Flat UI Elements Attract Less Attention and Cause Uncertainty

by [KATE MEYER](#) on September 3, 2017

Topics: [Eyetracking](#) [Visual Design](#)

Summary: Flat interfaces often use weak signifiers. In an eyetracking experiment comparing different kinds of clickability clues, UIs with weak signifiers required more user effort than strong ones.

The popularity of flat design in digital interfaces has coincided with a scarcity of signifiers. Many modern UIs have ripped out the perceptible cues that users rely on to understand what is clickable.

Using eyetracking equipment to track and visualize users' eye movements across interfaces, we investigated how **strong clickability signifiers** (traditional clues such as underlined, blue text or a glossy 3D button) and **weak or absent signifiers** (for example, linked text styled as static text or a ghost button) impact the ways users process and understand web pages.

About the Study

Webpages Used as Stimuli

There are many factors that influence a user's interaction with an interface. To directly investigate the differences between traditional, weak, and absent signifiers in the visual treatments of interactive elements, we needed to remove any confounding variables.

We took 9 web pages from live websites and modified them to create two nearly identical versions of each page, with the same layout, content and visual style. The two versions differed only in the use of strong, weak, or absent signifiers for interactive elements (buttons, links, tabs, sliders).

In some cases, that meant taking an already flat page and adding shadows, gradients, and text treatments to add depth and increase the strength of the clickability signifiers. In other cases, we took a page that already had strong, traditional signifiers, and we created an