

O'REILLY®

SECOND EDITION

# Laws of UX

USING PSYCHOLOGY TO DESIGN  
BETTER PRODUCTS & SERVICES



Early  
Release  
RAW &  
UNEDITED

JON YABLONSKI

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## Using Psychology to Design Better Products & Service

With Early Release ebooks, you get books in their earliest form—the author’s raw and unedited content as they write—so you can take advantage of these technologies long before the official release of these titles.

**Jon Yablonski**

Beijing • Boston • Farnham • Sebastopol • Tokyo

O'REILLY®

# Laws of UX

by Jon Yablonski

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# Chapter 1. Jakob's Law

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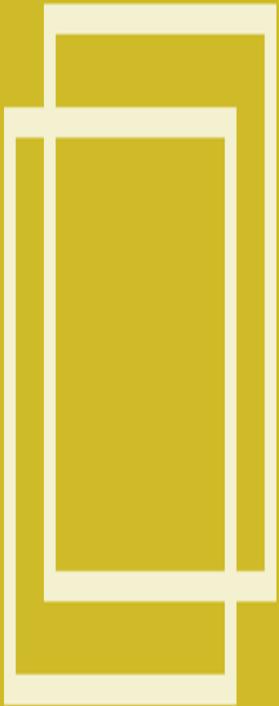
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*Users spend most of their time on other sites, and they prefer your site to work the same way as all the other sites they already know.*



## KEY TAKEAWAYS

- Users will transfer expectations they have built around one familiar product to another that appears similar.
- By leveraging existing mental models, we can create superior user experiences in which the users can focus on their tasks rather than on learning new models.
- When making changes, minimize discord by empowering users to continue using a familiar version for a limited time.

## Overview

There is something incredibly valuable to be found in familiarity.

Familiarity helps the people interacting with a digital product or service know immediately how to use it, from interacting with the navigation to finding the content they need to processing the layout and visual cues on the page in order to understand the choices available to them. The cumulative effect of mental effort saved ensures a lower cognitive load. In other words, the less mental energy users have to spend learning an interface, the more they can dedicate to achieving their objectives. The easier we make it for people to achieve their goals, the more likely they are to do so successfully.

As designers, it is our objective to ensure people successfully achieve their goals when using the interfaces we've built by eliminating as much friction as possible. Not all friction is bad—in fact, sometimes it is even necessary. But when there is an opportunity to remove or avoid extraneous friction, or friction that doesn't provide value or service a purpose, then we should do so. One of the primary ways designers can remove friction is by leveraging common design patterns and conventions in strategic areas such as page structure, workflows, navigation, and placement of expected elements such as search. When we do this, we ensure people can immediately be

productive instead of first having to learn how a website or app works. In this chapter, we'll take a look at some examples of how this design principle can be achieved—but first, let's look at its origins.

## Origins

Jakob's law (also known as “Jakob's law of the internet user experience”) was put forth in 2000 by usability expert Jakob Nielsen, who described the tendency for users to develop an expectation of design conventions based on their cumulative experience from other websites.<sup>1</sup> This observation, which Nielsen describes as a law of human nature, encourages designers to follow common design conventions, enabling users to focus more on the site's content, message, or product. In contrast, uncommon conventions can lead to people becoming frustrated, confused, and more likely to abandon their tasks and leave because the interface does not match up with their understanding of how things *should* work.

The cumulative experience that Nielsen refers to is helpful for people when visiting a new website or using a new product because it informs their understanding of how things work and what's possible. This underlying factor is perhaps one of the most important in user experience, and it is directly related to a psychological concept known as *mental models*.

## PSYCHOLOGY CONCEPT

### MENTAL MODELS

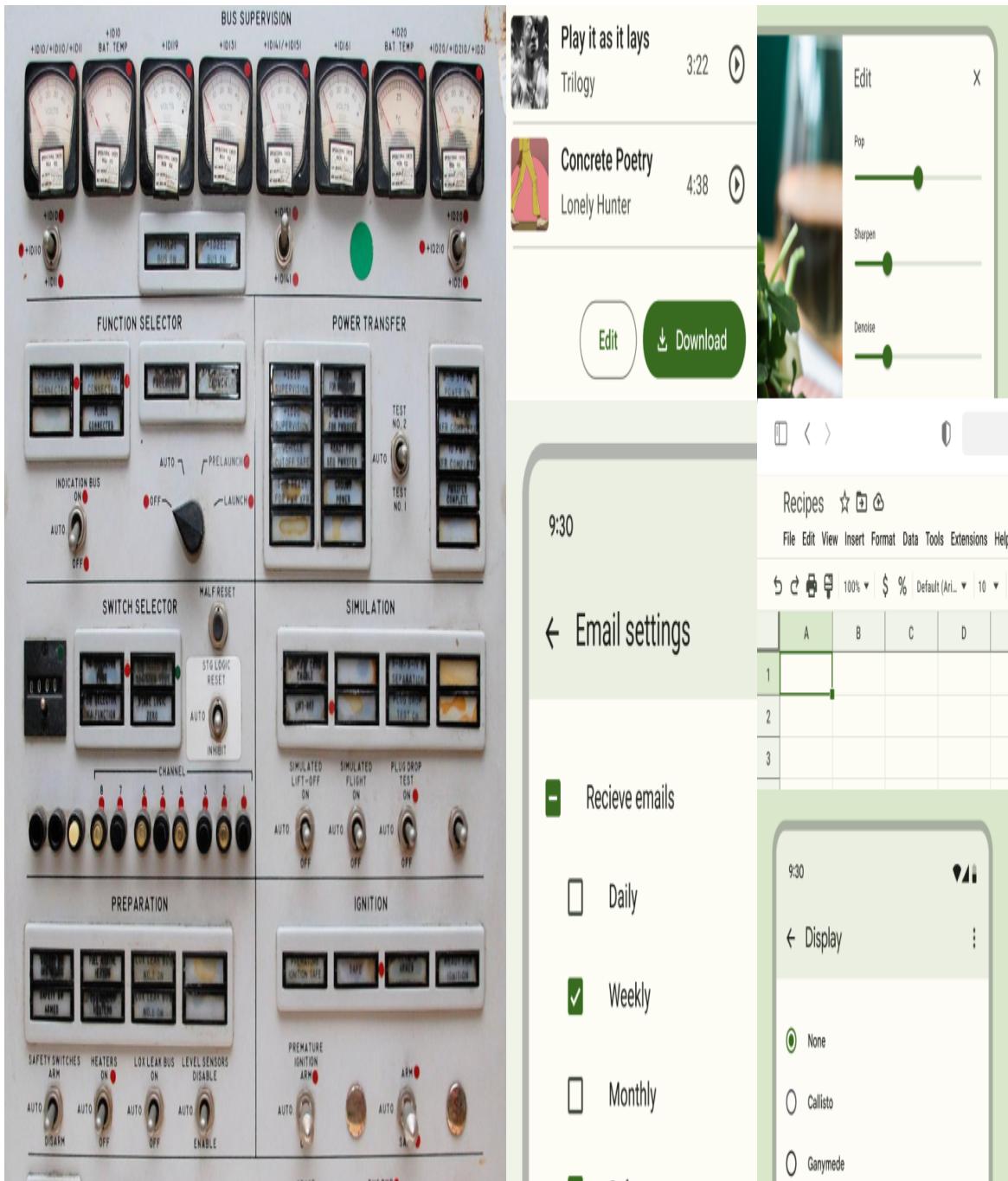
A mental model is what we think we know about a system, especially about how it works. Whether it's a digital system such as a website or a physical system such as a checkout line in a retail store, we form a model of how a system works, and then we apply that model to new situations where the system is similar. In other words, we use the knowledge we already have from past experiences when interacting with something new.

Mental models are valuable for designers because we can match our designs to our users' mental models to improve their experience by enabling them to easily transfer their knowledge from one product or experience to another, without the need to first take the time to understand how the new system works. Good user experiences are made possible when the design of a product or service is in alignment with the user's mental model. The task of shrinking the gap between our own mental models and those of the users is one of the biggest challenges we face, and to achieve this goal we use a variety of methods: user interviews, personas, journey maps, empathy maps, and more. The point of these various methods is to gain a deeper insight into not only the goals and objectives of our users but also users' preexisting mental models and how all of these factors apply to the product or experience we are designing.

## Examples

Have you ever wondered why form controls look the way they do (Figure 1-1)? It's because the humans designing them had a mental model of what these elements should look like, which they based on control panels they were familiar with in the physical world. The design of web elements

like form toggles, radio inputs, and even buttons originated from the design of their tactile counterparts.



*Figure 1-1. Comparison between control panel elements and typical form elements (source: Jonathan H. Ward [left], Google's Material Design, 2023 [right])*

When our designs do not align with the user's mental model, there will be problems. A misalignment can affect not only how users perceive the

products and services we've helped build, but also the speed at which they understand them. This is called *mental model discordance*, and it occurs when a familiar product is suddenly changed.

One notorious example of mental model discordance is the 2018 redesign of Snapchat. Instead of gradually introducing changes through slow iteration and extensive beta testing, the company launched a major overhaul that dramatically changed the familiar format of the app by combining watching stories and communicating with friends in the same place. Unhappy users immediately took to Twitter and expressed their disapproval en masse. Even worse was the subsequent migration of users to Snapchat's competitor, Instagram. Snap CEO Evan Spiegel had hoped that the redesign would reinvigorate advertisers and allow for ads to be customized to users, but instead it caused ad views and revenue to drop and led to the app's user count dramatically shrinking. Snapchat failed to ensure the mental model of its users would be aligned with the redesigned version of the app, and the resulting discordance caused a major backlash.

But major redesigns don't always drive users away—just ask Google. Google has a history of allowing users to opt in to redesigned versions of its products, like Google Calendar, YouTube, and Gmail. When the company launched the new version of YouTube in 2017 (Figure 1-2) after years of essentially the same design, it allowed desktop users to ease in to the new Material Design UI without having to commit. Users could preview the new design, gain some familiarity, submit feedback, and even revert to the old version if they preferred it. The inevitable mental model discordance was mitigated by simply empowering users to switch when they were ready.

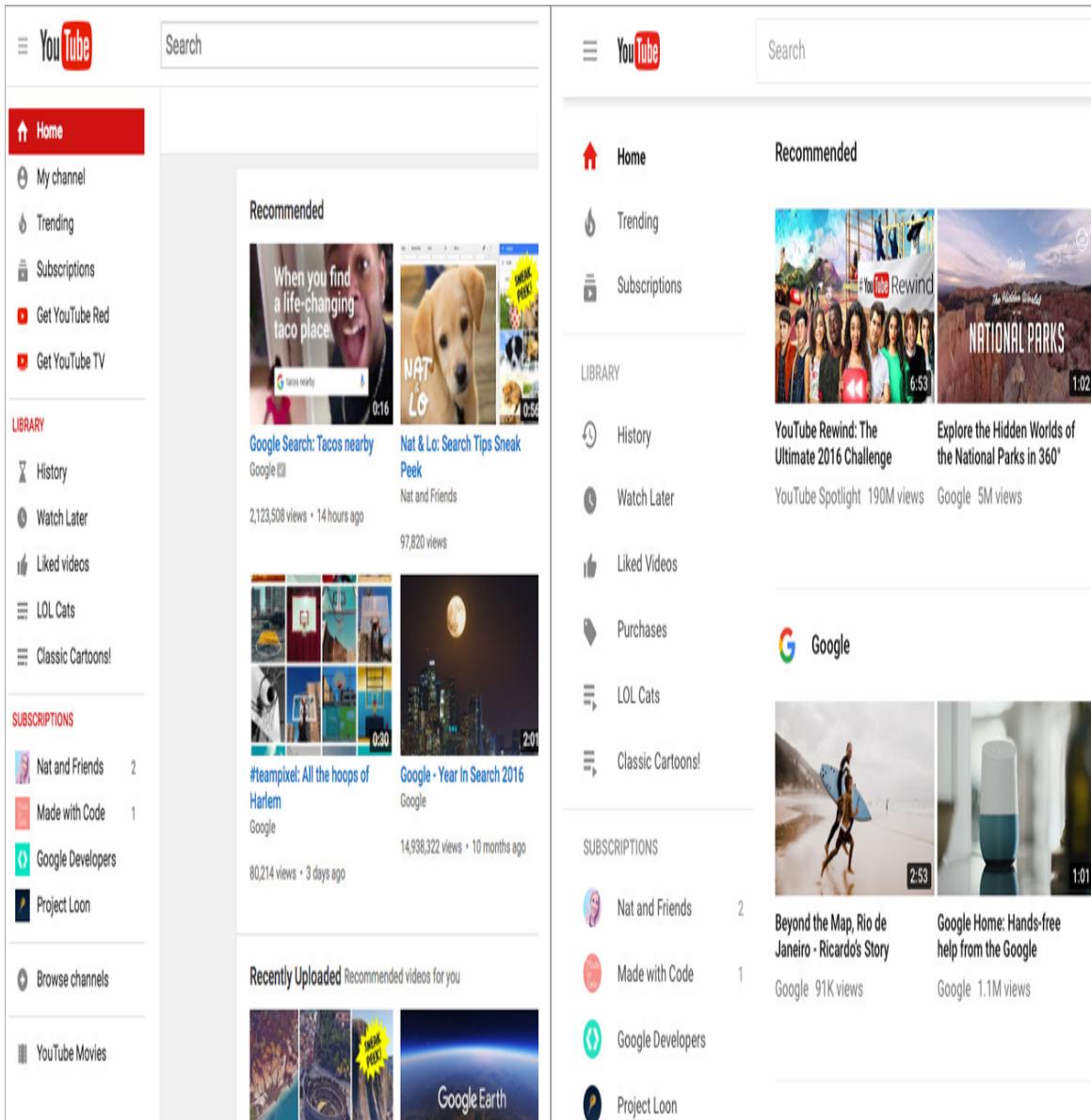


Figure 1-2. Before (left) and after (right) comparison of YouTube redesign in 2017 (source: YouTube)

Most ecommerce websites also leverage preexisting mental models. By making use of familiar patterns and conventions, shopping sites such as Etsy (Figure 1-3) can effectively keep customers focused on the important stuff—finding and purchasing products. By conforming to users’ expectations about the process of selecting products, adding them to the virtual cart, and checking out, designers can ensure users are able to apply their accumulated knowledge from previous ecommerce experiences; the whole process feels comfortable and familiar.



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*Figure 1-3. Ecommerce sites like Etsy leverage preexisting mental models to keep customers focused on purchasing products rather than on learning new interaction patterns (source: Etsy, 2023)*

The use of mental models to inform design isn't isolated to the digital space. Some of my favorite examples can be found in the automotive industry, specifically in regard to controls. Take, for instance, the 2023 Mercedes-Benz EQS SUV (Figure 1-4). The seat controls found on the door panel next to each seat are mapped to the shape of the seat. The resulting design makes it easy for users to understand which part of their seat they can adjust by identifying the corresponding button. It's an effective design because it builds on our preexisting mental model of a car seat and then matches the controls to that mental model.



Figure 1-4. Seat controls in the 2023 Mercedes-Benz EQS SUV, informed by mental model of a car seat (source: Mercedes-Benz, 2023)

These examples demonstrate how we can leverage users' existing mental models to enable them to become immediately productive. In contrast, failure to consider the mental model a user has formed can result in

confusion and frustration. The conclusion here also begs an important question: does Jakob's law argue that all websites or apps should behave identically? Additionally, does it suggest that we should use only preexisting UX patterns, even when there's a more appropriate solution that's new?

## TECHNIQUE

### USER PERSONAS

Have you ever heard another designer within your company or organization refer to “the user,” but it wasn’t quite clear whom exactly this elusive person was? The process of design becomes more difficult when a design team lacks a clear definition of its target audience, leaving each designer to interpret it in their own way. User personas are a tool that helps solve this problem by framing design decisions based on real needs, not the generic needs of the undefined “user.” These fictional representations of a specific subset of the target audience are based on aggregated data from real users of a product or service (Figure 1-5).

Personas are intended to foster empathy and serve as memory aids, as well as to create a common mental model of the traits, needs, motivations, and behaviors of a specific kind of user. The frame of reference that personas help to define is incredibly valuable for teams: it helps team members move away from self-referential thinking and focus on the needs and goals of the user, which is useful for prioritizing new features.

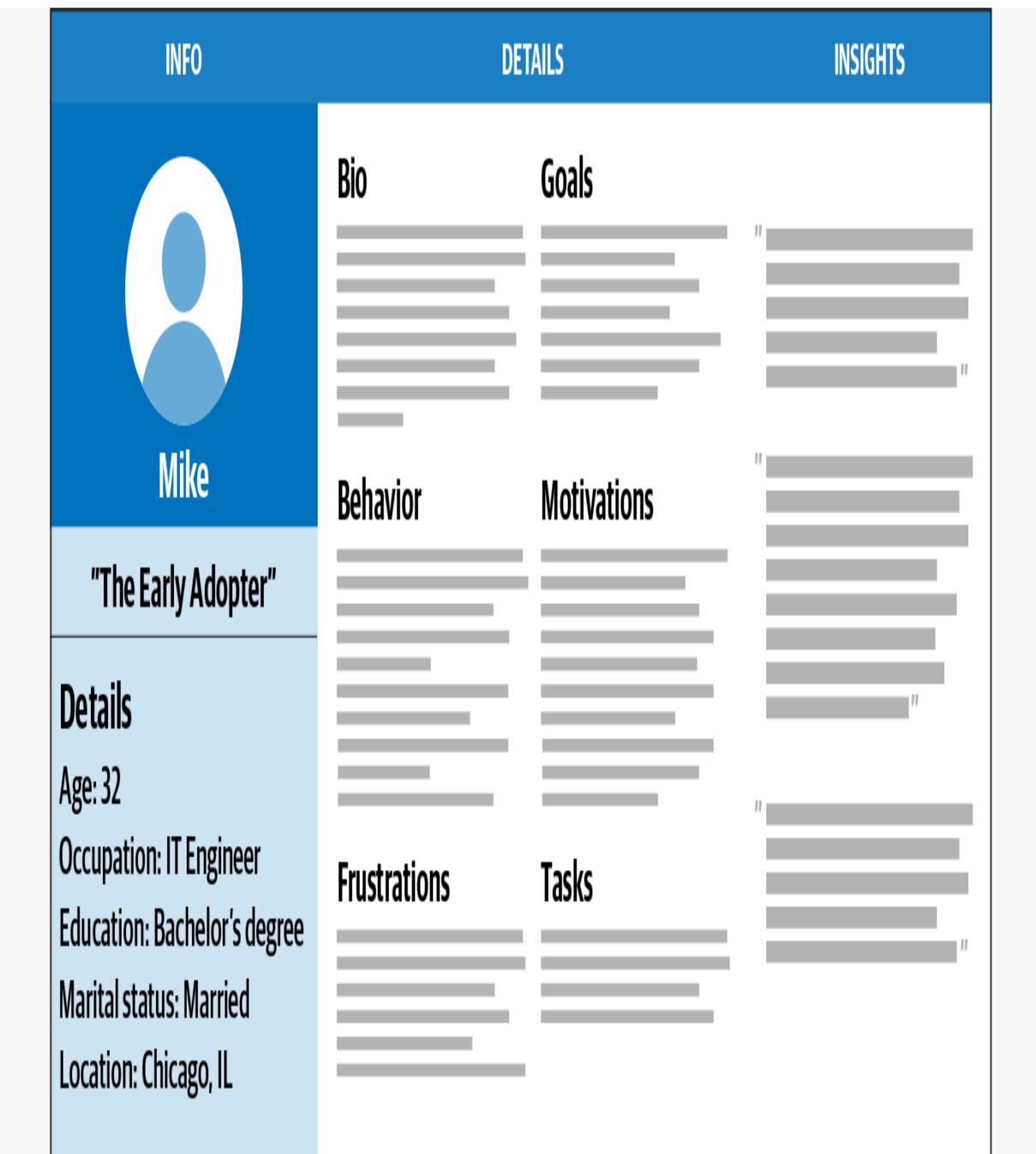


Figure 1-5. User persona example

Any details about the user that are relevant to the feature or product you're building will be useful. The items common to most personas include:

*Info*

Items such as a photo, memorable tagline, name, age, and occupation are all relevant for the information section of a persona. The idea here is to create a realistic representation of the members of a specific group within your target audience, so this data should be reflective of the similarities they share.

### *Details*

The information within the details section of a user persona helps to build empathy and align focus on the characteristics that impact what is being designed. Common information here includes a bio to create a deeper narrative around the persona, behavioral qualities that are relevant, and frustrations this particular group might have. Additional details could include things like goals and motivations, or tasks the user might perform while using the product or feature.

### *Insights*

The insights section of a user persona helps to frame the attitude of the user. The intention here is to add an additional layer of context that provides further definition of the specific persona and their mindset. This section often includes direct quotes from user research.

## KEY CONSIDERATION

### SAMENESS

I know what you’re thinking: if all websites or apps followed the same design conventions, that would make everything quite boring. This is a completely valid concern, especially given the ubiquity of specific conventions that can be observed today. This pervasive sameness can be attributed to a few factors: the popularity of frameworks to speed up development, the maturity of digital platforms and resulting standards, clients’ desire to emulate their competition, and just plain lack of creativity. While much of this sameness is purely based on design trends, there is a good reason we see patterns with some conventions, such as the placement of search, navigation in the footer, and multistep checkout flows.

Let’s take a moment to consider the alternative: imagine that each and every website or app that you used was completely different in every regard, from the layout and navigation down to the styling and common conventions like the location of the search feature. Considering what we’ve learned about mental models, this would mean that users could no longer rely on their previous experiences to guide them. Their ability to be instantly productive in achieving the goal they wanted to accomplish would be immediately thwarted because they would first have to learn how to use the website or app. Every task that they’d want to accomplish would require some degree of exploration to first find what they were looking for and then experimentation to understand how it works. Take for example something as simple navigation — finding it would require precious mental energy when it’s not where they’d expect, and even worse would be the trial and error that would result when it doesn’t function the way they’d expect. It is no stretch of the imagination to see that this would not be an ideal situation, and conventions would eventually emerge out of pure necessity.

That’s not to say that creating something entirely new is never appropriate—there’s certainly a time and a place for innovation. Some

rules are made to be broken, and doing so could even become a way to differentiate from competitors. But designers must determine the best approach by taking into consideration user needs and context, in addition to any technical constraints, before reaching for something unique, and they must take care not to sacrifice usability.

## Conclusion

Jakob's law isn't advocating for sameness in the sense that every product and experience should be identical. Instead, it is a guiding principle that reminds designers that people leverage previous experience to help them in understanding new experiences. It is a not-so-subtle suggestion that (when appropriate) designers should consider common conventions that are built around existing mental models to ensure users can immediately be productive instead of first needing to learn how a website or app works. Designing in a way that conforms to expectations allows users to apply their knowledge from previous experiences, and the resulting familiarity ensures they can stay focused on the important stuff—finding the information they need, purchasing a product, etc.

The best piece of advice I can give in regard to Jakob's law is to always begin with common patterns and conventions, and only depart from them when it makes sense to. If you can make a compelling argument for making something different to improve the core user experience, that's a good sign that it's worth exploring. If you go the unconventional route, be sure to test your design with users to ensure they understand how it works.

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<sup>1</sup> Jakob Nielsen, "End of Web Design," Nielsen Norman Group, July 22, 2000, <https://www.nngroup.com/articles/end-of-web-design>.

# Chapter 2. Aesthetic–Usability Effect

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*Users often perceive aesthetically pleasing design as design that's more usable.*



## KEY TAKEAWAYS

- Aesthetically pleasing design creates a positive response in people's brains and leads them to believe the design actually works better.
- People are more tolerant of minor usability issues when the design of a product or service is aesthetically pleasing.
- Visually pleasing design can mask usability problems and prevent issues from being discovered during usability testing.

## Overview

As designers, we understand that our work is about more than just how something looks; it's also about how it works. That's not to say good design can't also be attractive design. In fact, an aesthetically pleasing design can influence usability. Not only does it create a positive emotional response, but it also enhances our cognitive abilities, increases the perception of usability, and extends credibility. In other words, an aesthetically pleasing design creates a positive response in people's brains and leads them to believe the design actually works better—a phenomenon known as the aesthetic–usability effect.<sup>1</sup> We use automatic cognitive processing to determine at a visceral level if something is beautiful very quickly upon first seeing it, and this extends to digital interfaces as well. First impressions do matter.

In this chapter, we'll explore the origins of this principle, learn more about how our brains interpret information based on aesthetic attractiveness, and take a look at a few examples that make use of this effect.

## Origins

The origins of the aesthetic–usability effect can be traced back to a study conducted in 1995 by researchers Masaaki Kurosu and Kaori Kashimura from the Hitachi Design Center.<sup>2</sup> Prior to this, the relationship between aesthetics and digital interfaces had been largely unexplored. The study, which began as an attempt to investigate the relationship between inherent usability and something the researchers called “apparent usability,” demonstrated the correlation between people’s perceptions of ease of use and visual attractiveness.

Kurosu and Kashimura tested 26 layout patterns of ATM interfaces (Figure 7-1) with 252 participants and asked each of them to rate each design according to both functionality and aesthetics. The participants used a 10-point rating scale to evaluate the usability and visual attractiveness of each design. The results showed that their perception of usability was strongly influenced by their perception of the attractiveness of the interface (Figure 7-2). In other words, apparent usability is less correlated with inherent ease of use than with apparent beauty.



High Usability Score and  
Low Beauty Score (No.6)



High Usability Score and  
High Beauty Score (No.23)



Low Usability Score and  
Low Beauty Score (No.17)



Low Usability Score and  
High Beauty Score (No.13)

Figure 2-1. Sample layout patterns (source: Kurosu and Kashimura, 1995)

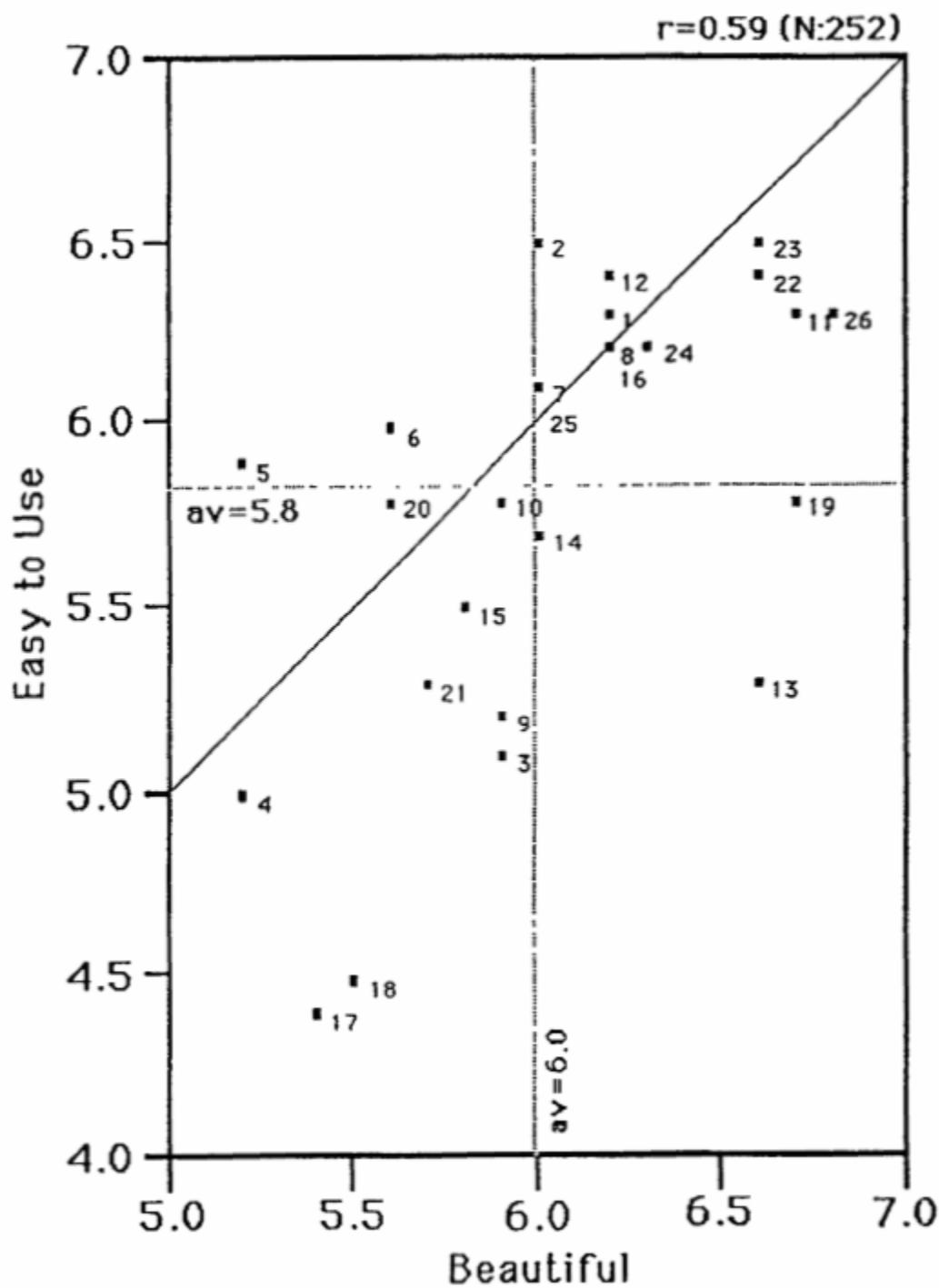


Figure 2-2. Correlation of usability with beauty (source: Kurosu and Kashimura, 1995)

Subsequent research, such as the 2000 study “What Is Beautiful Is Usable” by Noam Tractinsky et al., corroborates Kurosu and Kashimura’s findings and further confirms that the aesthetics of the interface of a system affect users’ perception of the usability of the system.<sup>3</sup> The correlations between

perceived attractiveness and other qualities (including trust and credibility) have also been explored, as have the effects of aesthetics on usability testing (see the Key Consideration sidebar “Effect on Usability Tests”).

## AUTOMATIC COGNITIVE PROCESSING

Contrary to what we've been taught not to do, people do in fact judge books by their covers. This isn't actually a bad thing, though—in fact, it's necessary. Automatic cognitive processing is helpful because it enables us to react quickly. Carefully processing every object around us would be slow, inefficient, and in some circumstances dangerous, so we begin to mentally process information and form an opinion based on past experiences before directing our conscious attention toward what we're perceiving. This automatic and involuntary mode of thinking stands in contrast to the slower and more deliberate mode of thinking that follows, and it's exactly what psychologist and economist Daniel Kahneman explores in his 2015 book *Thinking, Fast and Slow* (Farrar, Straus and Giroux). This psychodrama with two characters, System 1 and System 2, details the relationship between the two forms of cognitive processing and how it influences our decision making.

System 1 operates impulsively and involves little or no psychological effort. It is quick, and there is no sense of voluntary control. This mode of thinking is among the innate abilities we share with other animals, and it enables us to recognize objects, identify danger, direct our attention, avoid loss, and quickly react based on experience or prolonged practice. System 1 is the system that runs automatically and generates information (intuitions, feelings, intentions, or impressions) for System 2.

System 2 operates more slowly and requires mental effort. It is the system called upon when System 1 runs into difficulty, and it provides support in the form of more detailed and specific processing, with the goal of solving the problem at hand. This is the system of thinking that we use for complex problem solving that requires attention. Focus, research, searching memory, mathematical operations (beyond simple arithmetic), and situational awareness are all things that involve this mode of thinking.

The interaction of these two systems centers around minimizing effort and optimizing performance. System 1 handles most of what we think and do, and System 2 takes over when necessary. The implications of this when it comes to digital products and experiences are monumental. We rely on System 1 to quickly identify information relevant to our tasks and to ignore information that isn't instantly perceived to be relevant. We rapidly scan the available information in search of what will help us achieve our goal, and anything that isn't a match is passed over. When it comes to the aesthetic–usability effect, System 1 thinking is incredibly important because this is where we form first impressions. In fact, studies have shown that people form an opinion about a website within 50 milliseconds of seeing it, and that visual appeal is a primary determining factor.<sup>4</sup> Interestingly, the opinion formed during this brief period—the visceral response—rarely changes as users spend more time on the site. While our first impressions are not always foolproof, they usually are relatively accurate and help us to make quick decisions.

## Examples

We'll start our examples of the aesthetic–usability effect by looking closely at two companies that have put aesthetics at the center of what they do. First is Braun, the German electronics company, which has made an indelible mark in the world of design and exemplifies how aesthetically pleasing products can create a lasting impression. Under the design direction of Dieter Rams and guided by the Bauhaus philosophy of form follows function, the company has influenced generations of designers with its products' balance of functional minimalism and aesthetic beauty. Rams's "less but better" approach, which emphasizes form following function, has directly resulted in some of the most well-designed products ever produced.

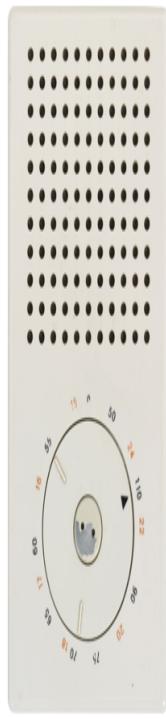
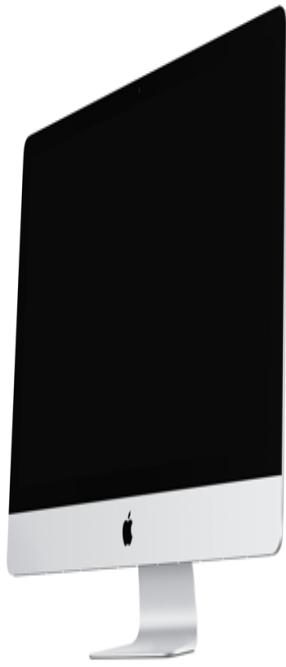
Take, for example, the Braun SK4 record player (Figure 7-3), nicknamed "Snow White's Coffin" due to its white metal casing and transparent lid. Constructed of powder-coated sheet metal with elmwood side panels, it stood in drastic contrast to the lavishly ornamented all-wood products more

typically available to consumers at the time of its production in 1956. The SK4 was one of Braun's first products to pioneer the company's new contemporary industrial design language in which every detail had a functional purpose, including the plexiglass cover that resolved the rattling at higher volumes observed with metal covers. Products like this one mark a pivotal point in design history, when electronic devices went from being disguised as furniture to being presented as standalone entities that were beautiful *and* functional.



*Figure 2-3. Braun SK4 record player, designed by Hans Gugelot and Dieter Rams (source: Museum of Modern Art)*

Now let's take a look at another example of a brand that in many ways continues Braun's legacy of functional minimalism balanced by refined aesthetics: Apple. The influence of Braun's design philosophy on Apple's products is quite apparent. Devices such as the iPod, iPhone, and iMac echo the beautifully minimal aesthetic of Braun's product lines while focusing on ease of use (Figure 7-4).



*Figure 2-4. Apple iPod (top left), Apple iPhone (top middle), Apple iMac (top right), Braun T3 pocket radio (bottom left), Braun ET44 calculator (bottom middle), and Braun LE1 loudspeaker (bottom right)*

Apple's attention to aesthetics extends beyond industrial design—the brand is well known for creating interfaces that are both elegant and easy to use (Figure 7-5). In fact, its reputation in this regard has become a competitive advantage and helped to usher in a new era in which good design is fundamental to successful businesses. The attention to detail in everything the company creates has directly contributed to Apple becoming one of the most beloved brands in the world. That's not to say that its products' interfaces don't have any usability issues, but people are much more likely to overlook these issues due to the pleasing aesthetic that's at the core of the design—the aesthetic–usability effect at work.



Figure 2-5. Screenshot of various Apple interface designs (source: Apple, 2019)

## Technique: Usability Testing

A simple truth that designers (or anyone else working within a design team) must embrace in order to create more effective products and experiences is the fact that you *are not the user*. We're much too close to what we build to objectively see it and understand how users will interact with it. The best user interfaces are those which have been shaped by observations of real users and their interactions with them. So how can designers shape their work to be more effective? An incredibly effective way is with usability testing. The goal of this observational method is to uncover problems in a design, discover existing opportunities, and learn more about the behaviors and preferences of users by asking participants to engage in realistic activities. It is one of the most effective techniques for understanding how well a design will perform once it is in the hands of real users. Designers can use this method to improve their work through subsequent iterations based on the findings from representative users.

## **Planning the test**

The first thing to do when conducting a usability test is to plan it. This includes defining the objectives, writing a test script, and finding people to take part. Begin by establishing the goals of your test and what you are trying to learn. Is the goal to ensure how well users understand a specific feature or workflow? Document these and anything else that will help frame the outcome of the test. Next, write a test script based around tasks that you'd like to see users perform. You can think of these as prompts that initiate your test participants to perform specific tasks that you can observe and learn from. Finally, target and recruit representative users of the product or service your building. Don't rely solely on usability data from your own team or company unless what you're designing is intended exclusively for them.

## **Conducting the test**

Ask participants to perform realistic tasks using a prototype or actual product. They can be very specific or open-ended, depending on the goals of the test. It's important to remain neutral, help participants understand that they are helping you test the design and that you are not testing them, and avoid priming participants with specific text found in the design.

While you are running the test, make sure to listen intently and avoid biasing the participants. It's also common to ask participants to think out loud, which helps to better understand their behaviors, goals, thoughts, and motivations. Be sure to measure both the speed and ease at which participants perform tasks in addition to what they say about it — how well participants perform doesn't always match their subjective rating of a task.

## **Synthesizing the data**

Once you've conducted the test and captured data it's time to synthesize it into insights that can be turned into actionable next steps. Synthesis is best done as a group activity: include everyone who participated directly in the interview process and it's even better if you can involve the entire core project team. Doing so will increase the team's understanding, investment, and empathy toward users from the beginning. Involving more people in the synthesis also helps to ensure more perspectives when interpreting the data and can be critical in avoiding the biases that come with a singular point-of-view.

Next, establish a structure for your synthesis, beginning with a summary of the goals and how the study was conducted. Make sure to document team members that helped during the study along with their roles, the details of those that participated, and how the data was gathered. Pull out quotes and observations captured during the study that indicate the participant's goals, priorities, actions, motivations, pain-points, habits, interactions, tools, or context (environment or other influencing factors). Quotes and observations should then be grouped by themes or patterns, which will in turn inform insights and their implications on the design. Make sure to look back at the problem you started with and see if the patterns you saw while doing the test help answer the questions you asked. It's important to remember during this step to avoid solutions — the focus is on the insights we can surface in order to understand the context and needs of the user. Additionally, avoid identifying larger patterns before having gone through all the data and differentiate observations from their potential meaning.

The last step is to document the synthesis in a shareable format. Succinctness is the most effective, but be sure to include the research goals,

methods, insights, and recommendations. Reinforce insights with specific examples from the research. Remember that research oftentimes will indicate what you should learn more about. This is a totally valid outcome and you can use those insights as the starting point for additional research.

## KEY CONSIDERATION

### EFFECT ON USABILITY TESTS

The positive benefits of aesthetically pleasing design come with a significant caveat. Since people tend to believe that beautiful experiences also work better, they can be more forgiving when it comes to usability issues. Psychologists, Andreas Sonderegger and Juergen Sauer, observed exactly how aesthetics affect usability tests.<sup>5</sup> Using a computer simulation of a mobile phone, 60 adolescents were asked to complete a number of common tasks. Two separate simulations were used that were functionally identical but differentiated by their visual attractiveness—one was visually appealing (for the time), and the other notably unattractive (Figure 7-6).



Figure 2-6. The two prototypes employed in the experiment (source: Sonderegger and Sauer, 2010)

Sonderegger and Sauer found that not only did participants rate usability higher for the more attractive phone (the model on the left), but the visual appearance of the phone “had a positive effect on

performance, leading to reduced task completion times for the attractive model.” What this study implies is that perceived aesthetic quality has the potential to mask usability issues to an extent. This effect applies even when the device isn’t actually easier to use, and it could be problematic when it comes to usability tests, where identifying issues is critical.

Keeping in mind the potential of aesthetics to influence perceived usability, it is important that we mitigate this influence by listening to what users say when evaluating the usability of an experience and, more importantly, watching what they do. Asking questions that lead participants to look beyond aesthetics can help to uncover usability issues and counter the effects that visual attractiveness can have on usability test results.

## Conclusion

Aesthetically pleasing design can influence usability by creating a positive emotional response, which in turn enhances people’s cognitive abilities. When this happens, users tend to believe the design actually works better and are more likely to overlook minor usability issues. While this might seem like a good thing, it can actually mask usability problems and prevent issues from being discovered during usability testing.

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<sup>1</sup> F. Gregory Ashby, Alice M. Isen, and And U. Turken, “A Neuropsychological Theory of Positive Affect and Its Influence on Cognition,” *Psychological Review* 106, no. 3 (1999): 529–50.

<sup>2</sup> Masaaki Kurosu and Kaori Kashimura, “Apparent Usability vs. Inherent Usability: Experimental Analysis on the Determinants of the Apparent Usability,” in *CHI ’95: Conference Companion on Human Factors in Computing Systems* (New York: Association for Computing Machinery, 1995), 292–93.

<sup>3</sup> Noam Tractinsky, Arthur Stanley Katz, and Dror Ikar, “What Is Beautiful Is Usable,” *Interacting with Computers* 13, no. 2 (2000): 127–45.

- <sup>4</sup> Gitte Lindgaard, Gary Fernandes, Cathy Dudek, and J. Brown, “Attention Web Designers: You Have 50 Milliseconds to Make a Good First Impression!,” *Behaviour & Information Technology* 25, no. 2 (2006): 111–26.
- <sup>5</sup> Andreas Sonderegger and Juergen Sauer, “The Influence of Design Aesthetics in Usability Testing: Effects on User Performance and Perceived Usability,” *Applied Ergonomics* 41, no. 3 (2010): 403–10.

## About the Author

**Jon Yablonski** is a user experience designer and frontend web developer based in Detroit. His focus is to make complex technology simple and intuitive through rigorous user research and interaction design. His work combines more than a decade of design and development experience in entertainment, retail, automotive, and aerospace with a deep understanding on the intersection of human psychology and technology. When he's not creating journey maps or crafting prototypes, Jon is creating digital tools to help designers such as [Laws of UX](#), [Humane by Design](#), and the [Web Field Manual](#).