



Experience First:

A Psychological Approach to Memorable Experiences

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Preface

User Experience - the process of creating products that provide meaningful and relevant experiences to users, plays a crucial role in a company's success. The User Interface is a critical component in making the user experience successful. But how should the user interface look, and what is the science and psychology behind great user experiences? In this paper, we'll explore how the foundations of Experience First Design—design theory, science, and psychology—are used to create a breakthrough experience.

This paper takes a psychological approach to understand how our users interpret the information they see. Using renowned psychological “Laws and Principles,” we look beyond just the screen to make an experience that is not only useful but memorable to our users.

Laws such as Tesler's Law: One Week Saves Millions of Minutes, Miller's Law: Memory is Finite, Hick's Law: More is not Better, and Fitts's Law: Size Accelerates Action, help you understand how our users' process data and how user experience can be made faster and easier. Whereas laws such as Serial Position: First In, Last In, Von Restorff Effect: Milk, Milk, Milk... Not Milk, Bianchi's Law: The Interface with No Interface, Jakob's Law: Users Like to Do What They Already Do, and Law of Proximity: Similarity is a Function of Distance, are meant to help us make our user experience memorable.

By understanding and applying these psychological laws and principles to your product or solution, you can go beyond the look of the interface to improve the overall usability and experience.

Introduction

How many times have you been in a meeting and everyone has a different definition for user experience (UX) and user interface (UI)? Or worse, they think UX and UI are the same things? We lump UX and UI together, and one does lead to the other's success, but UX and UI are different and unique in ways that are critical to successful user engagement.

Traditionally, the user interface is a series of screens, pages, and visual elements, including buttons, icons, text fields, and navigation, that users interact with to engage with a website or application. The user experience, on the other hand, is the purpose, emotions, and meaning that a person experiences as they use a website, application, or product – but now we must look beyond the screen.

With voice and chatbots, comes language, accents, and dialects to complicate the user experience further. To develop a great experience that is effective, seamless, and natural, you have to start with human behavior, interactions, and emotions. Psychology is the secret to compelling user experiences. Pretty interfaces are common, but if the designer doesn't understand the psychology of the user, the experience will be lacking.

UI + PSY = UX

Image 1: A user interface driven by psychology delivers the most effective experience

You've undoubtedly participated in one of the many popular techniques that UX Designers are using to map the psychology behind the interface: post-it exercises, usability workshops, user interviews, personas, journey maps, and my new favorite...design "improv." Unfortunately, these seem to be more team building exercises than integrated methods to connect UX and UI outputs. Think about the last workshop you were in... how did the insights directly map into a framework for improving the experience and affect UI components? And how long did that process take?

Today's UX and UI challenges require a faster and integrated methodology that:

- Employs psychological, behavioral and visual perception research to create the best possible design and experience for your users
- Leverages Design Thinking techniques to drive creativity
- Anchors on User-Centered Design so that outputs impact the audience, not the team in the room
- Organizes outputs for execution using Systems Thinking
- Drives decisions quicker and brings outputs to market faster, using Lean UX

A framework using this linked approach of techniques creates a product or solution that is desirable and feasible as well as viable in the market. We have developed **Experience First Design™** as a hybrid PSY/UX/UI design methodology, framework, and approach that we not only use at the beginning of the discovery phase but throughout the entire lifecycle of the SLDC process.

Psychological "Laws" That Make User Experience Fast and Easy

Let's look at how we can help our users:

- Navigate with speed and accuracy
- Handle complexity with data processing
- Reduce cognitive load.

Four "laws" that are critical to fast and easy interfaces are Fitts's Law, Hick's Law, Miller's Law, and Tesler's Law. In the next section, we'll show how each law influences and improves UI/UX.

Fitts's Law: Size Accelerates Action

Many of the "rules" behind modern UX/UI work are based on **Fitts's Law**. "The law predicts that the time required to rapidly move to a target area is a function of the ratio between the distance to the target and the size of the target. Fitts's Law is used to model the act of pointing, either by physically touching an object with a hand or finger, or virtually."

Source: Wikipedia - Fitts's law

The time to acquire a target is a function of the distance and size of the target.



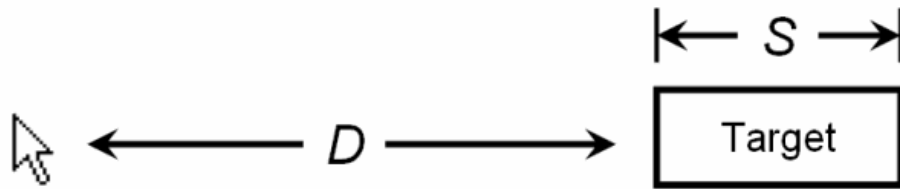


Image 2: The time required for a user to engage with a target area depends on the perceived distance and the size of the target

In other words, the closer and larger a target, the faster a user will click on that target. Conversely, the further the target and smaller the target's size, the longer it takes a user to click. Fitts's Law is a common practice across user experience and user interface design. Fitts's Law has been a major influencer of mobile design. What are the most significant and obvious differences between a desktop experience versus a mobile experience? Mobile is ruled by the speed of interactions users are adept at – think of text messaging — and the size of the content, buttons, and other UI elements.

When we create experiences and interfaces across different devices, such as mobile apps or adaptive and responsive applications, we need to look at the best experience possible for our users in those environments. By applying Fitts's Law, we look at the elements that our users need to interact with and adjust their size accordingly to make it easier and quicker to take action.

Hick's Law: More is not Better

“**Hick's Law** describes the time it takes for a person to decide among options; if the number of choices increase, the decision time increases. The Hick's Law assesses cognitive information capacity in choice-reaction experiments.”

Source: Wikipedia - Hick's law

The time it takes to make a decision increases with the number and complexity of choices.

- ☐ List item 1
 - ☐ List item 2
 - ☐ List item 3
 - ☐ List item 4
 - ☐ List item 5
 - ☐ List item 6
 - ☐ List item 7
 - ☐ List item 8
 - ☐ List item 9
- ☐ List item 3
 - ☐ List item 4
 - ☐ List item 5
 - ☐ List item 6
- ☐ List item 3
 - ☐ List item 4
 - ☐ List item 5
 - ☐ List item 6

Image 3: How fast will users select an option from these lists? Hick's Law explains that as the number of choices increase, decision time increases.

Simply put, the more options you put in front of your user, the longer it will take for them to choose one, decreasing productivity. Think about applying Hick's Law across multiple scenarios and elements, such as navigation, menus, and lists. For example, if you give a user a long-form — application or registration forms — it takes more time for them to complete everything when we present all the information to users at once because it takes more time for them to process that data and complete the task at hand.

Taking long forms and breaking them into sections and automating data collection in a wizard allows users to focus only on a subset of the form at a time. This is a delicate balance because there is a corollary to Hick's Law—users get frustrated if you break information down into too many steps and a lengthy process.

An example of Hick's Law in everyday design and one we all have seen is a fast food menu. Fast food menus change quickly, and it can be daunting to scan all the options available and pick something—unless Hick's Law was at work. Fast food icon In-N-Out Burger uses a simplified menu structure offering only a handful of options, making this menu a winner with Hick's Law. In-N-Out customers can choose what they want quickly.



Image 4: Understanding their customers need for quick and simple ordering, In-N-Out has a simplified menu following Hick's Law for design.

Miller's Law: Memory is Finite

In **Miller's Law**, "the span of immediate memory and absolute judgment are both limited to around seven pieces of information."

The average person can only keep seven (plus or minus two) items in their working memory.

Miller's Law guides us to categorize information into no more than nine groups but preferably seven or less. Clustering can be very efficient if thought through with prioritization techniques such as Card Sorting, Kano Modeling, and Story Mapping. We can keep content on the page without jeopardizing memory by clustering it in a tabbed or accordion interface. These methods reduce content on the initial load but keep what's most important or actionable visible.

Content clustering is always one of the top recommendations during a heuristic evaluation. However, it's also one of the most commonly discarded design rules. The law is commonly overridden by the mindset of "we must have it all on one page."

Miller's Law also drives the need for future-proofing your UI by understanding the design process and planning for future "growth." Plan your UI to accommodate new elements and features into your product or website without breaking the foundation. If you're making the effort and investment to design or to redesign an interface, you don't want it to break at the first new feature.

Fitts's, Hick's, and Miller's Laws help you understand how your users process data. That insight helps you create an experience that focuses users on effectively completing tasks and encourages rapid decision making. It's sometimes as simple as registering users with an email rather than collecting name, age, email, address, and phone number.



Minimalism is the basis of modern applications, and while we just discussed why and how to reduce complexity for our users, there are circumstances where complexity cannot be reduced. This is where Tesler's Law comes in to play.

Tesler's Law: One Week Saves Millions of Minutes

"In the mid-1980s, Larry Tesler realized that the way users interact with applications was just as important as the application itself. In most cases, an engineer should spend an extra week reducing the complexity of an application versus making millions of users spend an extra minute using the program because of the extra complexity."

Source: Wikipedia - Law of conservation of complexity

In any system there is a certain amount of complexity that cannot be reduced.

Understanding what to remove and what to keep is not easy. Creating an end-to-end path and associated tasks in a journey map will help you visualize what you can eliminate without sacrificing the end goal. We want our users to get from Point A to Point B as easily as possible, but we don't want them to miss something important.

Summary: The "Laws" of Design

As you can see, there is a lot to consider when thinking about our users and how they handle the complexity of information. The amount of time users take to process a certain amount of information—thinking, reasoning, and deciding—equals the cognitive load. Here are a few methods you can use during your next project to keep complexity to a minimum.

1. **Avoid unnecessary elements:** Less is more, so think of your end goal. If the design elements don't support reaching that goal, then they are only hurting the experience.
2. **Design patterns and trends:** By leveraging patterns and trends, you'll be certain that your users are already familiar with the design elements and understand how to use them.
3. **Choice reduction:** Reducing the number of choices given to your users will reduce cognitive load and keep your users on the right path to completing the task at hand.

Remember, the less your users have to think about, the more likely they will complete their task and goal.

Psychological "Laws" and Theories That Make User Experience Memorable

Serial Position: First In, Last In

Have you ever wondered why users remember only some of your content? The next theory we discuss explains just that: **The Serial Position Effect**.

"The term was coined by Hermann Ebbinghaus – when asked to recall a list of items in any order, people tend to begin recall with the end of the list, recalling those items best. Among earlier list items, the first few items are recalled more frequently than the middle items."

Source: Wikipedia - Serial-position effect

Users have a propensity to remember the first and last items in a series best.

There are two concepts in the serial position effect that describe how the position of an item or element in a sequence affects recall accuracy.

1. **Primacy effect:** Items presented at the beginning of a list are recalled greater than items in the middle.
2. **Recency effect:** Items appearing at the end are also more likely to be remembered than the middle.

Our tendency is to put the most important items first, but now we should put important items first AND last? Actually, the Serial Position Effect should be applied with the other laws and theories we've explored, ensuring we keep lists or groups small, making the overall experience memorable, and easy to learn.

Von Restorff Effect: Milk, Milk, Milk... NOT MILK!

Marketing and design guru Seth Godin has frequently described how Silk Soy Milk gained market share by being the "not milk" on the milk shelves. Being memorable by being different is exactly what the **Von Restorff Effect** describes.

"Also known as the "isolation effect," the Von Restorff Effect predicts that when multiple homogeneous stimuli are presented, the stimulus that differs from the rest is more likely to be remembered."

Source: Wikipedia - Von Restorff Effect



When multiple similar objects are present, the one that differs from the rest is most likely to be remembered.

You see this effect used with CTA or call-to-action design. Call-to-actions look different than everything else because we want our users to identify the action from the rest of the page easily. Color, shape, position, and size all play a critical role in making content memorable.

Pricing tables on a website commonly leverage this effect. By highlighting the pricing option, you want users to choose; you draw the user's eyes to that action. Dropbox applies this theory well to their pricing page. Currently, they have three pricing options all displayed in panels: Standard, Advanced, and Enterprise. Standard and Enterprise have grey tones while Advanced is blue and attracts our attention.

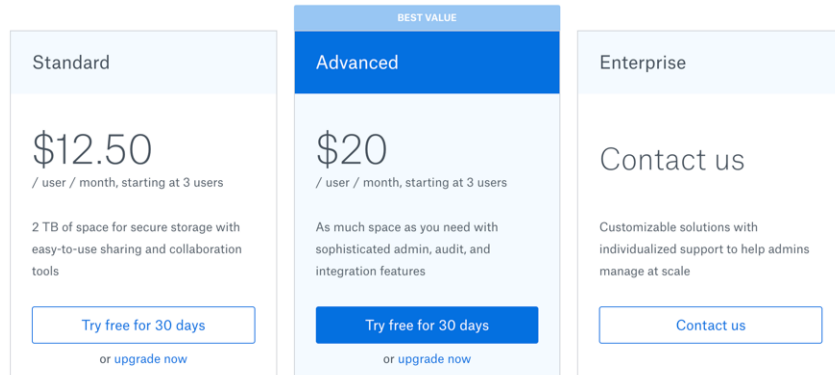


Image 5: The Von Restorff Effect guides us to highlight the option we want users to take

The next time you are browsing the web, notice how others use this technique to show you what they want you to see and do. Think about how you can apply this to your product or solution to guide your users down a specific path.

Law of Proximity: Similarity is a Function of Distance

Next, we'll look at a principle that is extremely useful in determining where to place design elements.

"The **Law of Proximity**, states that objects that are near or 'proximate' to each other tend to be grouped together. It is part of the Gestalt Laws of Perceptual Organization."

Source: *Laws of UX – Law of Proximity*

Objects that are near to each other tend to be grouped together.

This type of mental clustering occurs because we have a natural tendency to organize and group things together. Because of this tendency, it's good for designers to group things together if they are connected, such as menu items. We've all seen icon/text menus or even image/text menus. Amazon, eBay, Walmart and others have done this for years by grouping categories and sub-categories within their navigation.

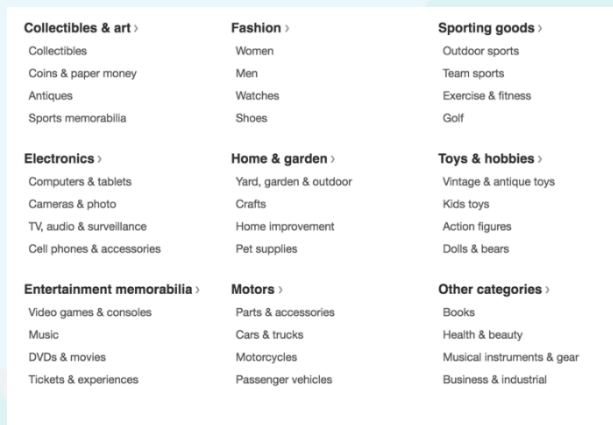


Image 6: eBay grouped and categorized their mega menu to have like items together, making their navigation more natural and intuitive take

Two other principles you may want to consider within the Gestalt Laws of Perceptual Organization are:

1. **The Law of Similarity:** While things in groups seem to be similar, conversely similar things tend to appear grouped together. Designing with similarity in mind allows us to accentuate what we want users to see. Our minds will attempt to complete a picture, shape or group, even if elements are not together. So, by using similar shapes, sizes, and colors, you create coherence among objects even if they can't be next to one another.
2. **The Law Pragnanz:** This law explains that objects in the environment are seen in a way that makes them appear as simple as possible. Also known as the Law of Simplicity, the law explains that people will perceive complex images as the simplest form possible.

We all know the “what do you see” images. A combination of shapes, colors, and elements that create an image that portrays a single picture at first glance, but after closer inspection, you start to dissect the image into multiple shapes and elements.

A great example of how our eyes and brain work together is the image given below. At first, you may perceive the image as Wolverine, but take another look and you will see the two Batman images as well.



Image 7: Do you see one Wolverine or two Batmans? The Law of Pragnanz notes the mind will simplify complex images and visuals.

Jakob's Law: Users Like to Do What They Already Do

“**Jakob's Law** was coined by Jakob Nielsen, a User Advocate and principal of the Nielsen Norman Group. Dr. Nielsen established the 'discount usability engineering' movement for fast and cheap improvements of user interfaces and has invented several usability methods, including heuristic evaluation.”

Source: Laws of UX – Jakob's Law

Jakob's Law explores how users perceive standard and conventional elements versus new and uncommon elements. A heuristic evaluation quickly reviews the screen elements and identifies elements that should be standardized to more familiar visuals, functions, and layout. Because anytime a user encounters something different, it slows their cognition and reaction time

Users prefer your site to work the same way as other sites they already visit.

This law isn't about copying some other site or application, but it does mean you must keep pace with technology and innovation. This law is also not a mandate to update your website or application with every new tech trend, but if you are too far behind what users are experiencing on other sites, then you are apt to lose customers. Slipping too far behind can be very costly—not only is it cheaper to keep a customer versus acquiring a new one, systems that are 10 to 15 years old are expensive to overhaul.

The final theory I'd like to discuss brings us beyond what we see:



Bianchi's Law: The Interface with No Interface

Bianchi's Law was coined by Michael Bianchi, a Design Thinking Executive at Hexaware Technologies. "Through understanding human behavior, technology must learn to communicate through natural tendency and dialect. Ethnography around our users helps deepen this knowledge and understanding".

This law explains that the way we interact with technology needs to be based on people's core inclinations and behaviors. Where once our users would need to learn and adapt to our products and solutions, we are now able to immerse our technology into our users' lives in a way that it can learn and adapt to them.

Successful technology learns and adapts to users so naturally, the technology becomes invisible to them.

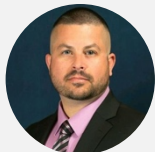
When we think of interacting with technology, the first thing that comes to mind is Conversational UI, Chatbots, or even Virtual Assistants—think Siri, Alexa, Bixby, Cortana. Voice chat and messaging, whether on a desktop or mobile device, comes naturally to us because language and conversation is something we do daily. But how we build technology around our natural tendencies is very much an intimate process.

When we create experiences, we create personas around our users for those experiences, but now we have a new persona. The one behind the conversation, your company and brand. Voice and tone, as well as, the personality we create all play a critical role in how our users interact with and continue using our products. This is the new experience!

We all strive to keep things simple and easy for our users and understanding and following these standards will help you achieve that goal. However, users evolve, tech improves, and we all want to innovate and stand out. Great breakthroughs occur when someone breaks best practice, uncovers new trends, or discovers new behavioral laws.

New innovations and trends come from understanding our users. Constantly evaluate and learn how your customers are using your product, your competitors' products, and the best-in-class apps and sites. Make this evaluation part of your plan, innovate to meet new needs, and scale quickly.

Remember, before we can design or develop anything that is useful, we need to dig deep and understand our users, their needs, their pain points, and how we can solve for them. Without that knowledge, it's just a pretty picture with no purpose. Every element on the screen needs to have a reason why it's there, the purpose, and how it contributes to the overall goals.



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About Hexaware

Hexaware is the fastest growing next-generation provider of IT, BPO and consulting services. Our focus lies on taking a leadership position in helping our clients attain customer intimacy as their competitive advantage. Our digital offerings have helped our clients achieve operational excellence and customer delight. We are now on a journey of metamorphosing the experiences of our customer's customers by leveraging our industry-leading delivery and execution model, built around the strategy— 'Automate Everything, Cloudify Everything, Transform Customer Experiences.'

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