Psychology
of
UX Design

Psychological laws and effects | Gamification | Biases

Alok Kumar

LIMITS OF LIABILITY AND DISCLAIMER OF WARRANTY

To View Complete
BPB Publications Catalogue
Scan the QR Code:
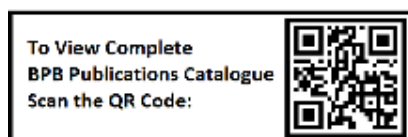
www.bpbonline.com

Kup ksi k

Dedicated to

My parents:

M.P. Gupta *and* **Prabha Kumari**

My beloved wife **Shivani** *and*

My son **Aarav**

About the Author

Alok Kumar, with two decades of industry expertise in design and innovation, serves as the Director of UX Design at Myntra, India's leading Fashion E-commerce platform. Alok brings a wealth of experience from esteemed corporations and startups, including Microsoft, Walmart, Vedantu, BlueStone, and few mobile gaming ventures.

Driven by a passion for both learning and teaching, Alok has a Masters in Psychology and is currently pursuing his Doctorate in Design while actively engaging with students at esteemed design schools such as IIT Bombay, Chitkara University, JLU Bhopal, and numerous others as a guest speaker. Through these engagements, he bridges the gap between academic learning and industry demands, ensuring students are well-prepared for real-world challenges.

Alok is also the co-founder of "RethinkingUX," a thriving UX Design community boasting over 50,000 members (UX Designers) worldwide. Committed to nurturing talent in the design realm, Alok and his team aim to empower aspiring and mid-level designers to enhance their skills and excel in the field.

At Myntra, Alok has spearheaded the development of several groundbreaking features powered by GenAI technology, including FashionGPT, Maya, and MyStylist. These innovative features showcase his dedication to leveraging Design Principles, Gamification and AI to enhance the user experience, revolutionizing the way users engage with fashion on the platform.

About the Reviewer

Satyam Tiwari is a distinguished UX and product designer, specializing in enhancing user experiences and optimizing product performance. Known for his meticulous attention to detail and user-centric approach, he excels at crafting intuitive interfaces and seamless interactions. Satyam collaborates effectively with cross-functional teams, leveraging tools like Figma, Sketch, and Adobe XD to transform innovative ideas into reality. A dedicated advocate for continuous learning, he is an avid reviewer of literature on UX, product design, and career development, sharing his insights to help professionals excel. Through his expert critiques and practical advice, Satyam empowers individuals to navigate the complexities of the tech industry and achieve their career goals. His commitment to professional growth and passion for design make him a trusted authority in the field, dedicated to fostering excellence and innovation in every project he undertakes.

Acknowledgement

I want to express my deepest gratitude to my family and friends for their unwavering support and encouragement throughout this book's writing, especially my wife, who has been my support system since the early stages of my career and has motivated me every day to share my experiences through this book.

I also want to thank an acquaintance who became my godfather 20 years ago and helped me in my initial journey. A heartfelt thank you to Mr. Narendra Singh, who is responsible for introducing me to the field of Design.

I am also grateful to BPB Publications for their guidance and expertise in bringing this book to fruition. It was a long journey of revising this book, with valuable participation and collaboration of reviewers, technical experts, and editors.

I would also like to acknowledge the valuable contributions of my colleagues and Design leaders during many years working in the Design industry, who have taught me so much and provided valuable feedback on my work.

Finally, I would like to extend my heartfelt thanks to all the readers who have shown interest in my book. Your support has been invaluable in making this book a reality. Your encouragement means the world to me.

Preface

I decided to write this book because I realized that design professionals need a solid understanding of the fundamental principles behind their design decisions, as well as a deep insight into the user's mindset. When designers comprehend how users perceive the information they present, they can effectively communicate in the user's language. This book explores the foundational laws of psychology and effects that are applicable in both design and everyday life. It delves into why users behave in certain ways due to psychological effects and biases, and how we can effectively convey information by understanding these effects and biases.

Additionally, this book explores the popular topic of gamification. There are numerous misconceptions about how to effectively incorporate gamification into projects. This book will guide you through the process of gamifying your product and help you recognize gamification mechanisms in the digital products around you. As you examine these designs, be mindful not to let cultural beliefs and prior knowledge bias your perspective. To raise your awareness, we will discuss a few biases that can impact design decisions. With this book, you will gain the knowledge and skills to become a proficient UX Designer with a deep understanding of user behavior. I hope you will find this book informative and helpful.

Section I – Psychology Laws

Psychological laws are highly valuable in design as they provide insights into human behavior, cognition, and perception, allowing designers to create more effective, user-friendly, and engaging products and experiences. Here are few psychological laws that helps the designers take impactful design decision.

Chapter 1: Fitt's Law – *It's easier to aim the bigger the target is.*

It's easier to aim the bigger the target is. Smaller the target, bigger the time to reach / interact with the target.

Chapter 2: Hick's Law – *More options lead to harder decisions*

The time and the effort it takes to make a decision, increases with the number of options. The more choices, the more time users take to make their decisions.

Chapter 3: Miller's Law – *Magic Number 7 rule*

The average person can only keep 7 (plus or minus 2) items in their working memory, more than that is always by practice.

Chapter 4: Jakob's Law – *Law of Familiarity*

It is always better to choose usual design solutions that are familiar to users. Users won't waste time learning.

Chapter 5: Tesler's Law – *Law of conservation of complexity*

If you simplify too much, you will transfer some complexity to the users. Because complexity can not be removed, it can be just transferred.

Chapter 6: Gestalt's Law – *Law of Proximity*

Proximity, similarity, continuity and a few more rules, help the brain build patterns for easy information consumption.

Chapter 7: Doherty Threshold – *The law of losing interest*

Users get disinterested after 400 ms inactivity in any process. Continuous engagement and feedback is the need of an hour.

Section II – Psychological Effects

Psychological effects play a crucial role in design by influencing how users perceive, interact with, and respond to a product or environment. Leveraging these effects can greatly enhance the effectiveness, appeal, and usability of a design. Here are few psychological effects in design that will help:

Chapter 8: Zeigarnik Effect – *The incomplete task stays in memory*

People remember incomplete tasks better than completed ones, it always hits in mind and result to make the task complete.

Chapter 9: Storytelling Effect – *Stories matters*

People remember stories better than facts alone, an impactful story stays in memory for a longer period of time.

Chapter 10: Halo Effect – *Looks change perception*

Favorable perceptions in one aspect positively impact our opinions in other areas. If one is good looking, he/she is perceived to be smart as well.

Chapter 11: Goal Gradient Effect – *Drive the motivation and speed*

As one gets closer to a goal, the inclination to reach it intensifies. People speedup when they are close to achieve their goal.

Chapter 12: Picture Superiority Effect – *Impact of a picture*

People remember pictures better than words. Pictures stays in memory for longer time and it is easy to recall.

Chapter 13: Von Restorff Effect – *Stand out to shine*

The more it stands out, more the probability to be seen. Even in a crowd if something looks big and bold, it is noticed by most of the people.

Section III – Gamification

Gamification refers to the application of game-design elements and principles in non-game contexts to enhance user engagement, motivation, and overall experience. In design, gamification leverages elements such as points, badges, leaderboards, challenges, and rewards to encourage users to interact more deeply with a product or service. Here are few gamification elements to learn and use in Designs:

Chapter 14: Gamification in UX Design – This chapter will explore several psychological principles in UX design that influence human behavior like, scarcity, where limited items or time create perceived value and urgency; social proof, where individuals align actions with those of others; reciprocation, fostering a sense of obligation to give back; reinforcement (positive and negative), leveraging rewards and consequences to motivate; and shared commitment, where trust and familiarity with others influence behavior. These principles illustrate how human decision-making is shaped by social dynamics and psychological triggers.

Section IV – Biases

Design, like many fields, is subject to various cognitive biases that can affect how designers create and users perceive and interact with products. Understanding these biases is crucial for creating more effective and user-centered designs. Here are some common biases in design:

Chapter 15: Biases in UX Design – This chapter will explore various cognitive biases that affect UX design like confirmation bias, where individuals seek evidence supporting their beliefs; negativity bias, which prioritizes negative memories; research bias, skewing outcomes to fit social norms; default bias, favoring familiar habits; and anchoring bias, where initial information heavily influences perceptions of truth and reliability.

Coloured Images

Please follow the link to download the
Coloured Images of the book:

https://rebrand.ly/v6zy7np

We have code bundles from our rich catalogue of books and videos available at **https://github.com/bpbpublications**. Check them out!

Errata

We take immense pride in our work at BPB Publications and follow best practices to ensure the accuracy of our content to provide with an indulging reading experience to our subscribers. Our readers are our mirrors, and we use their inputs to reflect and improve upon human errors, if any, that may have occurred during the publishing processes involved. To let us maintain the quality and help us reach out to any readers who might be having difficulties due to any unforeseen errors, please write to us at :

errata@bpbonline.com

Your support, suggestions and feedbacks are highly appreciated by the BPB Publications' Family.

Kup ksi k

Piracy

If you come across any illegal copies of our works in any form on the internet, we would be grateful if you would provide us with the location address or website name. Please contact us at **business@bpbonline.com** with a link to the material.

If you are interested in becoming an author

If there is a topic that you have expertise in, and you are interested in either writing or contributing to a book, please visit **www.bpbonline.com**. We have worked with thousands of developers and tech professionals, just like you, to help them share their insights with the global tech community. You can make a general application, apply for a specific hot topic that we are recruiting an author for, or submit your own idea.

Reviews

Please leave a review. Once you have read and used this book, why not leave a review on the site that you purchased it from? Potential readers can then see and use your unbiased opinion to make purchase decisions. We at BPB can understand what you think about our products, and our authors can see your feedback on their book. Thank you!

For more information about BPB, please visit **www.bpbonline.com**.

Join our book's Discord space

Join the book's Discord Workspace for Latest updates, Offers, Tech happenings around the world, New Release and Sessions with the Authors:

https://discord.bpbonline.com

Table of Contents

Section II – Psychological Effects

Section III – Gamification

Section IV – Biases

Section I
Psychology Laws

Psychological laws are highly valuable in design as they provide insights into human behavior, cognition, and perception, allowing designers to create more effective, user-friendly, and engaging products and experiences. Here are few psychological laws that helps the designers take impactful design decision.

CHAPTER 1
Fitt's Law

"It's easier to aim when the target is bigger.
The smaller the target, bigger the time to reach / interact with the target."

Introduction

Fitts' law is a predictive model that asserts that the time it takes for a person to move a pointer, such as a mouse cursor, to a target area depends on the ratio of the distance to the target and the size of the target. Thus, the longer the distance and the smaller the target's size, the longer it takes to reach the target, or complete a task.

Structure

This chapter will be covering the following topics:

- History
- How to avoid Fitt's law mistakes?

Objectives

Once you understand the Fitt's law fundamentals well, you will be able to decide what should be the size and distance of your target so that it is easier to complete the task in

the expected time. There are a lot of technicalities around the minimum size of the target on different device and resolution. Understanding this law will empower with the skill of deciding the placement of your tappable objects in your design. Moreover, how do we make sure that the visual affordance of the target area is very positive in user's mind.

History

In 1954, psychologist *Paul Fitts*, aimed to find the bandwidth of human movement; how many repetitive movements could be performed in each time interval. He was influenced by *John Miller's* **Magic Number 7 Theory**. He did several experiments involving such repetitive movements and as a result he came up with the Fitts's Law, one of the most famous laws of human-computer interaction.

What *Fitt* discovered is that the time required to acquire a target depends on the distance to it, yet it is inversely proportional to its size. By his law, fast movements and small targets result in greater error rates. The bigger the target size, smaller the time to reach the target.

Fitts' Law is widely applied in **User Experience** (**UX**) and **User Interface** (**UI**) design. For example, this law influenced the convention of making interactive buttons large (especially on finger-operated mobile devices). Furthermore, smaller buttons are more difficult and time-consuming to click. Likewise, the distance between a user's task/attention area and the task-related button should be kept as short as possible. It also aims to keep the next action items closer to the last one so that focus and fingers do not move a lot for the next action because that will cause delay in performing the next action. If you refer to *Figure 1.1*, you will realize how the **Distance** (**D**) between mouse cursor and the target is dependent on the size of **Target** (**W**).
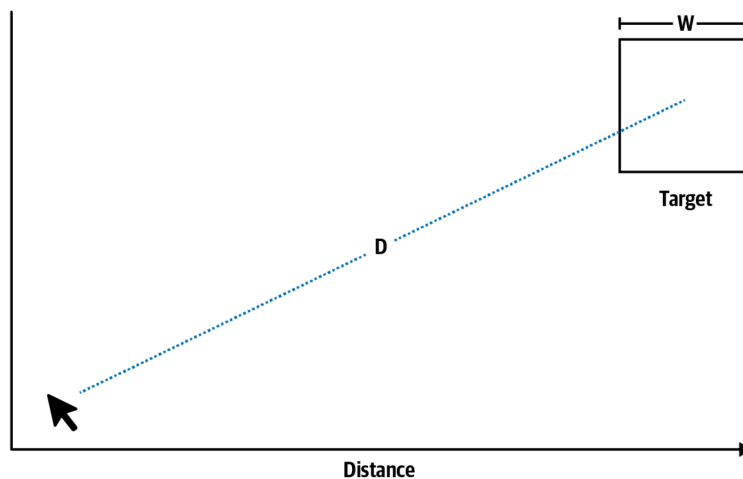
Figure 1.1: *The Distance (D) between mouse cursor and the target is dependent on the size of Target (W)*

Let us now understand Fitt's law in a simplified manner:

- The bigger the distance to the target, the longer it will take for the pointer to move to it. In other words, closer targets are faster to acquire.
- The larger the target, the shorter its movement time. In other words, bigger targets are better. Let us understand this with *Figure 1.2* below:

$$T = a + b \log_2 \frac{2D}{W}$$

Distance 1 ⋯⋯⋯> **Target A**

Distance 2 ⋯⋯⋯> **Target B**

Distance 1 ⋯⋯⋯> **Target C**

Cursor
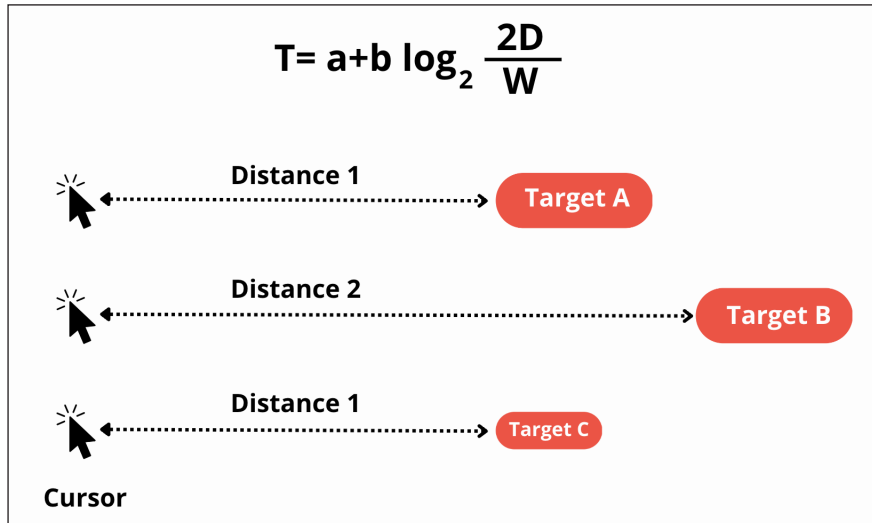
Figure 1.2: *Movement time is smaller when the target is bigger or closer*

When you refer to *Figure 1.2*, you will notice the relationship between distance and target size.

Fitts' s law says that the time to reach **Target A** is shorter than the time to reach any of the other targets. Although targets **A** and **B** have the same size, the distance from cursor to **Target A** (**Distance 1**) is shorter than the distance to **Target B** (**Distance 2**), hence, the movement to **Target A** will be faster. **Target C** is placed at the same distance (**Distance 1**) from the cursor as **Target A**, but as it is smaller, it will take longer to move the cursor to it than to **Target A**.

How to avoid Fitt's law mistakes?

It has been observed that designers often make the mistake of following Fitts's Law in their design which consequently makes the user's life a little miserable. We will now discuss how we make sure that we let the users complete their tasks as soon as possible so they reach their target within the expected time.

Bigger target sizes

Bigger the size of the target, the easier and faster it is to complete the task. Hence, there is a defined guideline for the minimum size of any actionable item in the layout, which has been explained further.

Example of iOS and material guideline for size of action buttons (minimum size):

- Human Interface Guidelines (Apple): 44 × 44 pt
- Material Design Guidelines (Google): 48 × 48 dp
- Web Content Accessibility Guidelines: 44 × 44 CSS px

If you go below these sizes, users might struggle to click / tap on the action button / icon.

Now since we are discussing icons, do you think icons are enough as an action item? here, let us remember Fitt's law: the bigger the better. Hence, to make it more convenient for the users, it is advised to have both icons + text.

This has two benefits:

- Few icons might not be self-explanatory or intuitive, so text will help the user understand before acting.
- Icon + text will take more area and the tappable/actionable area becomes bigger and as we learn - the bigger the better. It will make your user's life easier to reach to the icon + text and it will be quicker to tap / click on the action.

Figure 1.3: Icon versus Icon + text

# Example of suboptimal usage of Fitt's Law

Below example has a smaller area to tap the icon plus, difficult to relate with icons, (refer to *Figure 1.4*). This is the bottom navigation of the Slice app. It looks difficult to tap because of a smaller tappable area. Moreover, these icons are not intuitive enough to tell the user what to expect before we tap on these:
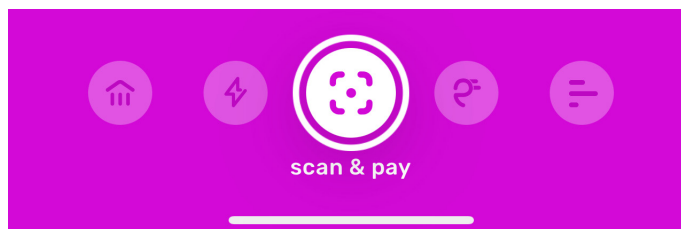
Figure 1.4: Bottom navigation of an app. It is difficult to comprehend before you tap on icons

Examples of good usage of Fitt's Law

Myntra / Coin / Swiggy have text and icon on their apps which consequently increases the size of actionable area making it easier to act on it. If you refer to the following *Figure 1.5*, you will notice how Myntra's bottom navigation is easy to tap and easy to understand as well:
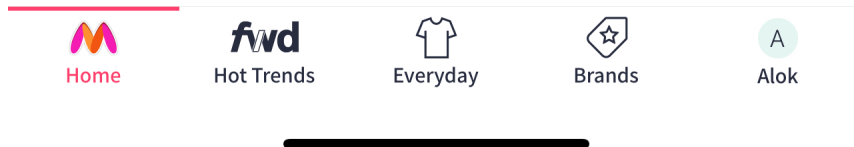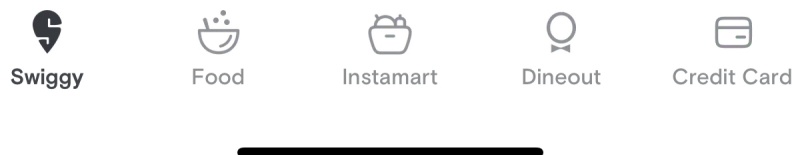

Figure 1.5: *Myntra's bottom navigation panel*

Similarly, Zerodha, (refer to *Figure 1.6*) of the Coin app has an extremely comprehendible bottom navigation. They have given their users enough tapping area to select any desired option. The following text the icon makes it easier to know what to expect before we tap:
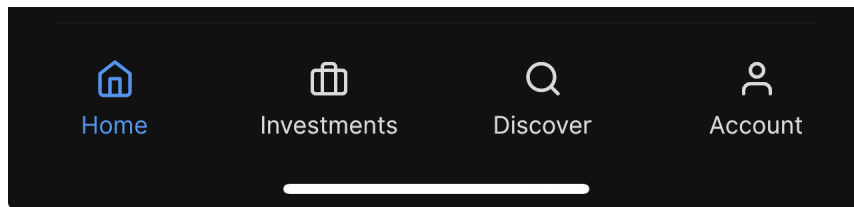
Figure 1.6: *Zerodha's bottom navigation panel*

Swiggy (refer to *Figure 1.7*) also took the same approach to showcase what they are offering, in the bottom navigation:

Figure 1.7: *Swiggy's bottom navigation panel*

Optimum distance between actionables

If you place targets too close to each other, there is a risk that people will accidentally overshoot and accidentally trigger the wrong target. Note that this is likely to happen if the targets are small.

Padding refers to the space between UI elements. It is an alternative spacing method to keylines and is measured in increments of 8dp or 4dp. It can be measured both vertically and horizontally and does not need to span the whole height of a layout. Refer to the