**Book review by Parth Parashar (PSU ID - 923928157)**

**THE DESIGN OF EVERYDAY THINGS**

Before starting off with this book review, I would like to take this opportunity to thank my professor Prof. Caterina Paun for providing me with a chance to explore my interests in the fields of behavioral psychology, human-centered design, ergonomics, and design principles with respect to front end web development by virtue of this book titled, “The Design of Everyday Things”. Additionally, I would also like to thank the original author of this book Donald Norman for providing me with the means to perform some additional research on his work.

The author, by virtue of this book, throws some light on the intricate matter of interaction between an object and a user, and also goes on to explain how design and various design patterns serve as the mode and basis of communication between the two. He also sheds some light on the aforementioned concept of communication to optimize the experience of a human to utilize an object pleasurable and desirable.

**According to me, this concept is intricate to front-end web development as well. This is because a website is primarily designed to serve as a medium of communication between the user and the object/ person who owns the website.**

The author starts off by introducing the readers to the novel concept of human-centered design and the importance of design patterns, designing and molding objects based on the specific needs of users. The author stresses on the importance of behavioral psychology, human needs, and the mode of communication between humans and machines (objects). While talking about the mode of communications, the author also stresses on the importance of aesthetics that could be followed while prototyping, developing, and implementing various design patterns. The author also goes on to explain various design fields like industrial design (development of products and systems for the sole benefit of the user and the manufacturer), interaction design (creation and development of various design patterns with a special focus on the interaction between people and technology), and experience design (creation and development of products and services with a special focus on the quality and enjoyment of the end user experience). **In my view, all this is very important in the website design and development cycle as a website is designed keeping in mind that the design should be straightforward, minimalistic and at the same time visually appealing as well.**

The author also explores the concept of human psychology including the fields of conscious thinking and subconscious thinking. He also talks about the very interesting field of human emotions ( stressing especially on the human emotions arising out of desirable actions and the subsequent consequences, and those that arise out of undesirable actions and their subsequent consequences). This plays an important role in the field of front-end development as well as front-end should be able to connect on a subconscious level with the user .

The author also introduces the readers to seven design principles, also called as the seven-stage action cycle, catering to the following: formulation of a goal, planning the associated actions in order to achieve that goal, creation and implementation of the actual action sequence, perception of the state of the world at any given point in time, interpretation of the aforementioned perception, and comparison between the resultant outcome and the established goal. The author also talks about two major types of behaviors: goal-driven behavior and event-driven or data-driven behavior.

While going forward in the book, the author also goes on to talk about various user-centered design principles, and the association of these principles with the understanding of the working of the human brain and the comprehension of various concepts by the human mind. He also talks about two types of knowledge: declarative knowledge (which includes knowledge of facts and rules), and procedural knowledge (which is basically defined as knowledge that enables the subject to perform certain kinds of actions). **In my Opinion, when this is applied to front-end web development, it is safe to say that both declarative knowledge and procedural knowledge are very important because it is only when you can build a good front-end**.

Similarly, there are two different types of memory as well: short-term memory or working memory (which is characterized by retention of the most recent information that is transmitted), and long-term memory (which is also defined as the memory of the past). The author also talks about various types of constraints (namely, physical, cultural, logical and semantic) that result in an overall limitation of the possible actions.

In a similar vein, the author also goes on to talk about the various errors that are a result of bad designs and improper and imprudent design patterns. He classifies these errors into mistakes (skill-based mistakes, rule-based mistakes and knowledge-based mistakes) and slips (capture slips and description similarity slips). The author also provides some tips and tricks in order to perform a contingency planning, including, but not limited to, the following: performing a root cause analysis in case of errors to ascertain and subsequently minimize the exact causes, and perform various sensibility checks while also allowing the provision for performing reverse engineering. The overall focus should be on preventing errors, which in turn would imply and shadow the thinking capabilities of humans and their motivations. **In my view, debugging is the most important part of error analysis in front-end development as well as it helps us identify and rectify errors which can cause a bad user experience.**

The author also talks about specific human-centered design and design thinking techniques like idea convergence and idea divergence. He also focuses on the core principle of design thinking, which involves initial determination of root causes and applying subsequent fixes depending on the nature of the problem. The author also discusses the iterative cycle of human-centered design which passes through the following phases: observation (which involves understanding the true nature or the core essence of a problem), idea generation or ideation (which involves identification of potential solutions for various design requirements arising from the previous phase of observation), prototyping (which involves testing of various solutions and ideas and which is mainly carried out to ensure that the problem at hand is well-comprehended), and testing (which involves testing the prototype to determine the level of audience interaction, impact and end-user experience).

The author concludes by talking about the paramount importance of adopting the various user-centered design and design thinking principles by all the corporations and organizations in today’s day and age, thereby resulting in greater levels of optimization, creativity and innovation by individuals and the organization.

The major take-aways for me from this book cover a wide variety of topics, ranging from the concepts of human psychology and ergonomics to implementation of efficient user-centered and human-centered design principles and design thinking patterns. In my opinion, this book also helps throw light on the relationship and communication between human and object (web-pages in our case). The clarity of thought of the author while depicting the various design principles and adoption of the same by large-scale organizations in order to enhance the overall productivity and efficiency makes this book an engrossing read.

Also, I especially like the fact that this book explores the various realms of design patterns of ordinary things and talks about the importance of efficient design patterns in order to effectively communicate between an object and a human. This, in turn, makes the overall experience of using the object ,which in our case is the front-end of a website, more pleasurable and desirable in my opinion. In a nutshell, this book gives us abundant ideas with respect to efficient use and control of things, along with a lucid explanation of the nature of interaction between people and technology.

The overall idea of the book, in my opinion, is to help generate efficient designs that are highly interactive and easy to use and adopt because good designs lead to pleasurable experiences whereas bad designs can lead to confusion and accessibility issues, thereby leading to an overall frustration and discontentment among the audience.

The author explains how two of the most important characteristics of good design are discoverability and understanding. It is very important to take discoverability into consideration to determine the possibility of various actions and when and where to use them depending on the requirements. In a nutshell, it means that a user should be able to look at the various components of the object (webpage/website in our case) and should be able to comprehend their basic functionality and the next course of action to complete a particular task successfully. It is also very important to know the importance of understanding as it helps determine the overall goal, intent and impacts of the product that is being designed. The object at hand should cater to ease-of-use and accessibility without complicating any of its features unnecessarily or compromising the ability of humans to make an accurate decision.

In order to prevent errors, one can make use of checklists (specifically, electronic checklists) that help increase the accuracy of behavior. It is also important to maintain an iterative checklist, one that is revised, refined and up-to-date with respect to the actions that need to be performed in case of various scenarios. There should also be a confirmation prompt before performing or executing any actions in the electronic checklist. One can also design for errors by means of the following: understanding the root causes of errors and designing in such a way so as to minimize these causes, performing sensibility checks, ensure to have reverse engineering in place, ensure easier discovery and correction of errors, and allow for quick and efficient feedback for error discovery and correction.

In order to ensure that we solve the correct problem, it is of paramount importance that we identify and discover problems, and subsequently dig deeper to ascertain the root causes and address the real issues without losing our focus and going astray. For solving the actual problem, our design should ensure that all the required needs are met and the object is reliable, cost-efficient, understandable and usable. In a nutshell, human-centered design should always focus on solving the right problem and doing so in a way that meets human needs and capabilities with minimum to no errors.