

A Study on User Interface and User Experience Designs and its Tools

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Abstract— As much as we are leading to the future of technology, we are getting ahead in everything whether it is in terms of making complex algorithms easier and making a smooth workflow of any product, designing an easy and gentle user experience. User Interface and User Experience are playing a very major role in today's technical and modern world. User Interface consists of guidelines, workflows, color system, design process, etc. User Experience consists of the process of how the user can experience the application in the best way. This entry contains core concepts from UI/UX design important to imagination and visualization that specialize in issues associated with visual design.

Index Terms—User Interface Study, User Experience Theory, Design Process, Tools for creating user interfaces, and other essentials

I. INTRODUCTION

The graphic or design is everything, creativity is not something that can be learned by going to any institute or doing a course at a specific education platform. During the era of web 1.0, the World Wide Web was a perfect example of providing unilateral information, During the era of Web 2.0, the information may be shared on any platform basis like participation, sharing, and opening, and contents may be created by individuals. The Web 3.0 era could be a personalized, intelligent web that deduces web pages from the individual's center to intelligent Web intelligence. The web consists of a lot of information on a web page and interacts with various devices to process and utilize.

At this phase of the industry, interactions using interfaces playing a very vital role for any app product. Therefore, this study is completely concentrated to explore everything related to UI/UX-related technologies like contents, devices, HCI (Human-Computer Interaction), and content design in terms of its usefulness.

User Experience (UX) is the communication through interfaces, interaction, and experience that users have with an organization's products and services. To gain more UX insights, User experiences include conducting research to

learn about the positive and negatives points of an experience and taking those feedbacks to improve the errors and that supports to make the user's experience better.

Think about an online-cloth ordering app for home delivery. UX consists of the user's step-by-step interactions with selecting the cloth and ordering it from the company's website; they're picking up experience for the order in their in-store and also the satisfaction of getting the perfect cloth as per expectations.

User interface (UI) is the asset that helps the user to interact with the product's interface for services. For example, User Interface consists of visual design elements including colors and typography. The user interface is also used to look at the functionality of the screens or the unconventional systems like the processes that are voice-based.

To continue with the online cloth shopping example, UI would focus on the visual design of the screens a user interacts with, such as the green button to make the buy now button and to decide its place on the page. This can also contain interfaces with which a user can interact in-store.

Interaction design is all about the interaction of the user's vision and the screen – whether they know what to tap, swipe or click, and whether

what happens meets their expectation and moves them closer to their goals. Interaction Design is all about taking the final visualization of how people should use what you have designed with them and what benefits you can give them a better experience so they can understand how to take action. All the process included in interaction design has no relation with the fonts, colors, styling, etc. The total aim is on the movement of tasks, sequential arrangement of events, and confirming that the user will get the visual aspects that will direct him/her in those activities.

Interface Design is completely based on the visuals, like how the interface will look like, arrangement of various elements, and interconnectivity between them in terms of hierarchy. The choice of selection of fonts, the color schemes, graphical elements, the buttons, and the style of the menu all come under interface designing. Interface designers can also put their ideas in the things which are already decided and been into the product for a long time, their ideas will be implemented if it is making a better user experience.

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II. EXPLAINING USER INTERFACE (UI) AND USER EXPERIENCE (UX)

User Experience has many more elements in comparison to the User Interface, and User Experience also builds on several parts. Understanding User Experience is the strongest and most powerful tool in product development. In many companies, employers are not aware of the division of design into UI and UX, therefore they give all roles to one person, which leads to a very time taking and not that much productivity from the designer's side. There is a very little number of offices in which notions are being shared and that's paying them off, the designer can easily concentrate on his/her particular task and can complete it with full dedicated efforts.

Because of less knowledge, This is very difficult to afford to solve the problems. The UI designer is responsible for interfaces, he/she can create color, icons, objects, etc. that are relevant completely to the user and the system interactions. Such elements are good to have a good experience, but they are only a part of the user experience. UX has various factors as marketing, colors, speed, performance, visualization, individuality. It would be strange if we give all these responsibilities to the designer UI.

The same thing goes with the UX, during the process, A developer should competently approach a problem, he should be always able to do changes and recommend, controlling the processes, and implement solutions to the problem. The processing of a problem-solving assessment completely depends on the capability and concentration of the designer. the main concern is that one designer is not enough to cope up with both areas. It is about all about the tools and the ability to problem-solving

III. CHANGES IN UI/UX TREND

User Interface and User Experience Changes

A user interface can be defined by an interaction between the device and the user through the techniques or the commands to operate the device, input data, and use the contents. User interface applies for devices like computers, mobile devices to application programs and content usage. The UX interface is consists of the usability of the system, the user's affinity, and the last value of the user.

User Experience is defined as an overall experience involving emotions, thoughts, perception, reactions felt by the user and thinks by his/her usability of that product or service. UX is an HCI-related concept that's widely applied not only in software and hardware development but also in services, products, processes, society, and culture. UI/UX is an interface through which an individual can interact with a system or application during a computer and communication environment, which is assessed into a software interface and a hardware interface. The hardware interface is classified into a plug or an interface card connecting the pc and the peripheral devices, and also

the software interface is represented by the interface. Character User Interface (CUI) was the early interface formed using characters. Subsequent interfaces were known as graphical user interfaces (GUI), for example, icons and menus. With the rapid growth of the industry, interfaces were to be developed to be NUI (Natural User Interface) such as voice, motion, gesture, and biological signal recognition to understand human intention more intelligently and humanly. UI suitable for the case are continuously being studied in various fields like mobile, hologram, location-based service, argument reality, game machine, and automobile, etc.

IV. UNDERSTANDING USER EXPERIENCE

User experience design has its base derived from ergonomics in which people were trying to establish a fixed set of principles that were helping people to work more smoothly and efficiently.

In the year 1900, Mr. Winslow Taylor formed the modern optimization of the work process based on his research of the interaction between the workers and tools that they use. And this was probably the first example of systematic UX research in history. Famous brand Toyota in the 1940s with their most popular Human-Centered-Production whose main motive was the improvement of the efficiency through the formation of an easy and convenient environment for the workers, we can also sit that Toyota put the user into User Experience Design.

In the early 1940s, major progress was made on the product side of the user experience design in the future, when the first theoretical computer was formed by Alan Turing. Theory of computation is the biggest reason for the ever-growing field of computer science.

An industrial designer, Mr. Henry Dreyfuss wrote "Designing for people" in which he discussed the connection between the people, experience they felt, and product's successful design. This great well-written piece was one of the best contributions to the birth of User Experience Design.

The era of personal computers started in the 1970s. The design was present from day one itself. A famous R&D lab from Silicon Valley named Xerox Parc was totally responsible for the concept of GUI and the computer mouse. Psychologists and engineers worked together to provide the best experience.

Apple and Microsoft, Yes, Both of them used the work process of Xerox Parc for the formation of their amazing computer systems.

Finally, in 1995, famous cognitive psychologist and designer — Don Norman, defined the term User Experience to describe the broad set of activities that his team was engaged in at Apple Computers.

V. TOOLS FOR CREATING USER INTERFACES AND OTHER ESSENTIALS

1. **Figma:** Figma is a vector graphics editor and a tool that can be used for prototyping, its major advantage

is it is available on the internet as well as as an application. Using Figma, you can design anything like a user interface for web pages and designing, vector graphic images, etc. Figma is so flexible and easy to learn. Using Figma, You can do a real-time collaboration. The best thing is that Figma is a free UI tool for creating, collaborating, prototyping, and handoff. One of its best features is "The Figma Mirror" companion app available for Android and iOS and allows viewing Figma prototypes in real-time on the mobile.

- 2. Adobe XD:** Adobe XD is a user experience design tool that is totally vector-based. Adobe XD helps the user to create the design for both web apps and mobile apps. It is completely developed and published by Adobe Inc. from creating the fine interface details like iconography and the typography, to make the layout balance perfect, Adobe XD promises that this tool is best for every UI designer out there. Also Adobe XD provides easy access to pull and place the assets with other creative cloud apps just like Photoshop and Illustrator.
- 3. Sketch:** Sketch is again a vector graphics editor which helps the designer to form interfaces and designs for user interface and user experience days but the fact here is that Sketch is only available on macOS. Sketch was released on 7 September and won an Apple Design Award in 2012. Sketch is mainly used for user interface and user experience design for websites and mobile applications. It is only available on macOS because the Mac app uses technologies and frameworks that are exclusive to macOS.

VI. CONCLUSION

During this paper, we looked into the prevailing work relating to User Designing and User Experience. This review paper is totally relative to the knowledge related to UI UX its history and its tools. We researched a lot from different perspectives of user experience and collaborated all our research as a study in this review paper study.

User Experience is not based upon because it seems a great experience to one group of people, the best experience will be when everyone will have the best experience for your design, that's where you have created the best experience.

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