User experience design

From Wikipedia, the free encyclopedia

See also: Experience design

User experience design (**UXD** or **UED**) is the process of enhancing user satisfaction by improving the usability, accessibility, and pleasure provided in the interaction between the user and the product.[1] User experience design encompasses traditional human–computer interaction (HCI) design, and extends it by addressing all aspects of a product or service as perceived by users.[2]

History

The field of user experience design has roots in human factors and ergonomics, a field that, since the late 1940s, has focused on the interaction between human users, machines, and the contextual environments to design systems that address the user's experience.[3] With the proliferation of workplace computers in the early 1990s, user experience became an important concern for designers. It was Donald Norman, a user experience architect, who coined and brought the term *user experience* to wider knowledge.[4]

> I invented the term because I thought human interface and usability were too narrow. I wanted to cover all aspects of the person's experience with the system including industrial design graphics, the interface, the physical interaction and the manual. Since then the term has spread widely, so much so that it is starting to lose its meaning.
>
> —Donald Norman[5]

The term also has a more recent connection to user-centered design, human–computer interaction, and also incorporates elements from similar user-centered design fields.

Elements of user experience design

User experience design includes elements of interaction design, information architecture, user research, and other disciplines, and is concerned with all facets of the overall experience delivered to users. Following is a short analysis of its constituent parts.

Visual design

Visual design, also commonly known as graphic design, communication design, and visual communication, represents the aesthetics or look-and-feel of the front end of any user interface. Graphic treatment of interface elements is often perceived as the visual design. The purpose of visual design is to use visual elements like colors, images, and symbols to convey a message to its audience. Fundamentals of Gestalt psychology and visual perception give a cognitive perspective on how to create effective visual communication.[6]

Information architecture

Information architecture is the art and science of structuring and organizing the information in products and services, supporting usability and findability. More basic concepts that are attached with information architecture are described below.

Information

In the context of information architecture, information is separate from both knowledge and data, and lies nebulously between them. It is information about objects. The objects can range from websites, to software applications, to images et al. It is also concerned with metadata: terms used to describe and represent content objects such as documents, people, process, and organizations.

Structuring, organization, and labeling

Structuring is reducing information to its basic building units and then relating them to each other. Organization involves grouping these units in a distinctive and meaningful manner. Labeling means using appropriate wording to support easy navigation and findability.

Finding and managing

Findability is the most critical success factor for information architecture. If users are not able to find required information without browsing, searching or asking, then the findability of the information architecture fails. Navigation needs to be clearly conveyed to ease finding of the contents.

Interaction design

There are many key factors to understanding interaction design and how it can enable a pleasurable end user experience. It is well recognized that building great user experience requires interaction design to play a pivotal role in helping define what works best for the users. High demand for improved user experiences and strong focus on the end-users have made interaction designers critical in conceptualizing design that matches user expectations and standards of the latest UI patterns and components. While working, interaction designers take several things in consideration. A few of them are:[7]

- Creating the layout of the interface
- Defining interaction patterns best suited in the context
- Incorporating user needs collected during user research, into the designs
- Features and information that are important to the user
- Interface behavior like drag-drop, selections, and mouse over actions
- Effectively communicating strengths of the system
- Making the interface intuitive by building affordances
- Maintaining consistency throughout the system.

In the last few years, the role of interaction designer has shifted from being just focused on specifying UI components and communicating them to the engineers to a situation now where designers have more freedom to design contextual interfaces which are based on helping meet the user needs.[8] Therefore, User Experience Design evolved into a multidisciplinary design branch that involves multiple technical aspects from motion graphics design and animation to programming.

Usability

Usability is the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.[9]

Usability is attached with all tools used by humans and is extended to both digital and non-digital devices. Thus it is a subset of user experience but not wholly contained. The section of usability that intersects with user experience design is related to humans' ability to use a system or application. Good usability is essential to a positive user experience but does not alone guarantee it.[10]

Accessibility

Accessibility of a system describes its ease of reach, use and understanding. In terms of user experience design it can also be related to the overall comprehensibility of the information and features. It contributes to shorten the learning curve attached with the system. Accessibility in many contexts can be related to the ease of use for people with disabilities and comes under usability.[11]

Human–computer interaction

Human–computer interaction is concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them.[12]

Human–computer interaction is the main contributor to user experience design because of its emphasis on human performance rather than mere usability. It provides key research findings which inform the improvement of systems for the people. Human-computer interaction extends its study towards more integrated interactions, such as tangible interactions, which is generally not covered in the practice of user experience. User experience cannot be manufactured or designed; it has to be incorporated in the design. Understanding the user's emotional quotient plays a key role while designing a user experience. The first step while designing the user experience is determining the reason a visitor will be visiting the website or use the application in question. Then the user experience can be designed accordingly.

Design

User experience design incorporates most or all of the above disciplines to positively impact the overall experience a person has with a particular interactive system, and its provider. User experience design most frequently defines a sequence of interactions between a user (individual person) and a system, virtual or physical, designed to meet or support user needs and goals, primarily, while also satisfying systems requirements and organizational objectives.

Typical outputs include:

- Site audit (usability study of existing assets)
- Flows and navigation maps
- User stories or scenarios
- User segmentations and persona (fictitious users to act out the scenarios)
- Site maps and content inventory
- Wireframes (screen blueprints or storyboards)

- Prototypes (for interactive or in-the-mind simulation)
- Written specifications (describing the behavior or design)
- Graphic mockups (precise visual of the expected end result)

General design process

The steps involved in the process are:

- Collecting information about the problem

The UX designer needs to find out as much as he can about people, process and products before the design phase. The designers can do this by meeting with the clients frequently in order to know what the client requirements are. Designers can also conduct user interviews in the users' work space in order to familiarize themselves with the target user base.

- Getting ready to design

This is the artistic phase of the designer. The designer uses paper prototyping and white boarding to come up with a basic design from the data collected about the problem. The design problem is refined in the later stages.

- Design

Low fidelity design prototypes created in the earlier step are refined. The high fidelity prototypes are left for the visual designers.

- Test and iterate

Usability testing is carried out on the low fidelity prototypes. The target users are given various tasks to perform on the prototypes. Any issues or problems faced by the users are collected as field notes and these notes are used to make changes in the design and reiterate the testing phase.[13]

UX specification documents and deliverables

The designers accomplish the major goals of designing an aesthetic and usable product that solves the end-users' problems. Communicating the design is a critical part of the design process. A designer may have the best design created, but if they cannot communicate it well to their stakeholders and developers, the design will fail. The UX specification documents depend on the client or the organization involved in designing a product. The four major deliverables are: a title page, an introduction to the feature, wireframes and a version history.[14] Depending on the type of project, the specification documents can also include flow models, cultural models, personas, user stories, scenarios and any prior user research. Designing for a product is an important process, but documenting the design decisions in extremely important for communicating design.

Designers

As with the fields mentioned above, user experience design is a highly multi-disciplinary field, incorporating aspects of psychology, anthropology, architecture, sociology, computer science, graphic design, industrial design and cognitive science. Depending on the purpose of the product, UX may also involve content design disciplines such as communication design, instructional design, and game design. The subject matter of the content may also warrant collaboration with a subject-matter expert on planning the UX from various backgrounds in business, government, or private groups. More recently, content strategy has come to represent a sub-field of UX.

Graphic designers

Graphic designers focus on the aesthetic appeal of the design. Information is communicated to the users through text and images. but a lot of importance is given to how the text and images look and attract the users. Graphic designers have to make choices like font color, font type, image locations etc. Graphic designers focus to grab the user's attention with the way the design looks.

Visual designers

While a graphic designer focuses majorly on the types of graphics and placement of graphics on the screen, the visual designer focuses on the holistic view of the design that can be applicable across multiple platforms. Visual designers, like graphical designers, concentrate on the look and feel of the design and work on how the look and feel can be maintained across different platforms where the design will be deployed.

User experience designers

User experience designers focus on how users interact with the design, rather than focusing on the look and feel of the website. User experience designers focus on usability of the design, making sure that the users face as few issues as possible while using the design. They usually create prototypes and blueprints of the design, to understand how users use the design. They are responsible for all the interactions that take place on a design right from basic interactions like clicking on a button.

Testing the design

Main article: Usability testing

Usability testing is the most common method used by designers to test their designs. The basic idea behind conducting a usability test is to check whether the design of a product or brand works well with the target users. While carrying out usability testing, two things are being tested for. Whether the design of the product is successful and if it is not successful, how can it be improved. While designers are testing, they are testing the design and not the user. Also, every design is evolving. The designers carry out usability testing at every stage of the design process.

Benefits

User experience design is integrated into software development and other forms of application development to inform feature requirements and interaction plans based upon the users' goals. Every new software introduced must keep pace with the rapid technological advancements. The benefits associated with

integration of these design principles include:

- Avoiding unnecessary product features
- Simplifying design documentation and customer-centric technical publications
- Improving the usability of the system and therefore its acceptance by customers
- Expediting design and development through detailed and properly conceived guidelines
- Incorporating business and marketing goals while protecting the user's freedom of choice

Criticism

The discipline of user experience design, though still in its infancy and without a universally recognized definition, remains subject to criticism. Critics of user experience design argue that:

- User experience design is a buzzword for an existing best practice, and therefore brings no additional value
- A user experience cannot be fully "designed", therefore questioning the validity of the entire practice
- A user experience cannot be fully measured, therefore questioning the return on investment of the practice

User experience compared with experience design

User experience takes into account the feelings people have while using a particular product. These feelings can range from satisfaction to frustration. User experience design caters to how products should be designed in order to increase the usability provided in the interaction between the user and the product.

See also

- Action research
- Activity-centered design
- Chief experience officer (CXO)
- Component-based usability testing
- Contextual inquiry
- Customer experience
- Design thinking
- Empathic design
- Human-centered computing
- Information architecture
- Interaction design
- Needs analysis
- Paper prototyping
- Participatory design
- Process-centered design
- Thanatosensitivity
- Transgenerational design
- Ubiquitous computing
- Usability

- Usability engineering
- Usability testing
- User-design
- User experience evaluation
- User interface design
- World Usability Day

References

1. Kujala, Sari; Roto, Virpi; Väänänen-Vainio-Mattila, Kaisa; Karapanos, Evangelos; Sinneläa, Arto (2011). "UX Curve: A method for evaluating long-term user experience" (http://iwc.oxfordjournals.org/content/23/5/473.abstract). *Interacting With Computers* **23** (5): 473–483. doi:10.1016/j.intcom.2011.06.005 (https://dx.doi.org/10.1016%2Fj.intcom.2011.06.005). Retrieved 20 April 2014.
2. "design in motion" (http://www-01.ibm.com/software/ucd/designconcepts/whatisUXD.html). *IBM Design*. Retrieved 2015-06-18.
3. Human Factors and Ergonomics Society. HFES History.
4. uxdesign, "UX Design Defined" (http://uxdesign.com/ux-defined), 16/08/2010
5. Merholz, Peter (2007). "Peter in Conversation with Don Norman About UX & Innovation" (http://www.adaptivepath.com/ideas/e000862). *Adaptive Path*.
6. "Visual Design Web Style Guide 3" (http://webstyleguide.com/wsg3/7-page-design/3-visual-design.html). *Web Style Guide*. Retrieved 2015-06-18.
7. Psomas, Steve (2007). "The Five Competencies of User Experience Design" (http://www.uxmatters.com/mt/archives/2007/11/the-five-competencies-of-user-experience-design.php). *UX Matters*.
8. Lowgren, Jonas. "Interaction Design - brief intro" (http://www.interaction-design.org/encyclopedia/interaction_design.html). *The Interaction Design Foundation*. Retrieved 2015-06-18.
9. "International Standards" (http://www.usabilitynet.org/tools/r_international.htm#9241-11). *UsabilityNet*. 1998. Retrieved 2015-06-18.
10. Marcus, Aaron (2015). *Design, User Experience, and Usability: Design Discourse* (https://books.google.com/books?id=fLU0CgAAQBAJ). p. 340. ISBN 3319208861. Retrieved 26 July 2015.
11. Butters, Kerry (16 October 2014). "The Fundamentals of Great UX" (http://www.host1plus.com/blog/tutorials/fundamentals-great-ux/#.VbT_O7Oqqkp). Retrieved 26 July 2015.
12. "Curricula for Human-Computer Interaction, Chapter 2. Definition and Overview of Human-Computer Interaction" (http://old.sigchi.org/cdg/cdg2.html#2_1). *ACM SIGCHI*. Retrieved 2015-06-18.
13. Treder, Marcin (2012-08-29). "Beyond Wireframing: The Real-Life UX Design Process" (http://www.smashingmagazine.com/2012/08/29/beyond-wireframing-real-life-ux-design-process/). *Smashing Magazine*. Retrieved 2015-06-18.
14. Kiess, Chris (2014-05-07). "A Practical Guide to UX Specifications" (http://chriskiess.net/a-practical-guide-to-ux-specifications/). *C L Kiess*. Retrieved 2015-06-18.

Further reading

- Norman, Donald. *The Design of Everyday Things*. ISBN 9780465067107.
- Cooper, Alan. *The Inmates Are Running the Asylum: Why High-Tech Products Drive Us Crazy and How to Restore the Sanity*. ISBN 9780672316494.
- Buxton, Bill. *Sketching User Experiences: Getting the Design Right and the Right Design*. ISBN 9780123740373.
- Cooper, Alan. *About Face 3: The Essentials of Interaction Design*. ISBN 9780470084113.
- Tidwell, Jenifer. *Designing Interfaces*. ISBN 9781449379704.

- Moser, Christian. *User Experience Design: Mit erlebniszentrierter Softwareentwicklung zu Produkten, die begeistern*. ISBN 9783642133626.
- Moggridge, Bill. *Designing Interactions*. ISBN 9780262134743.

Categories: Human–computer interaction | User interfaces | Design | Web design | Software development process

---