

A study of User Interface and User Experience Process: Empathize, Define, and ideate

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Abstract—The purpose of this study is to determine the thinking and interaction process between human and computer, researcher had found that the brain of humans can store a huge amount of data or information as the human brain is an incredible processing machine In this paper, you'll learn how human factors and psychology influence design and User Interface(UI) and User Experience(UX) is a combination of designing thinking and strategist,they makes the product and technology easier to recognizable, more enjoyable, and useable to everyone As the technologies like Internet of Things, mobile application, websites have advanced thought UI/UX researcher has played a major role for consumers and growth of businesses, and interface technologies are expected to be developed in the future too The UI-UX process bonds the relationship between the user and the product over long periods of time and make the product to accordingly to customer satisfaction and loyalty you'll also explore the different research methods, Integrating research into the design process, Empathizing with users and defining pain points, user stories, and user journey maps, Defining user problems.

Keywords— User Interface, User Experience Understanding, empathizing, pain points of user.

I. INTRODUCTION

The omnipresent idea was presented during the 2000s and as of late it has been forming into the age of the Web of everything. In the time of Web 1.0, the World Wild Web was an average illustration of giving one-sided data. In the period of Web 2.0, data can be shared on a stage premise like cooperation, sharing, and opening, and substance can be made by people. The Internet 3.0 time is a customized, smart web that reasons pages from the person's middle to clever Web insight. The web comprised of different substance on a site page and interfaces with different gadgets to measure and use data. Now, the part of cooperating interfaces is vital. In any case, it will in general be disregarded without any problem. Along these lines, this investigation endeavors to investigate UI/UX-related innovations like substance, gadgets, programs, HCI (Human-PC Interface), and substance configuration (Plan) as far as plan viewpoints and substance creation perspectives. Consequently, to comprehend the UI/UX and substance creation capacity, this investigation reviews PC related office understudies' estimation of the level of understanding and examines the outcomes.

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II. METHODOLOGY

The importance of design ideation

While plan ideation can take a lot of time, it's anything but loads of fun! You'll create numerous potential arrangements, and you'll wind up utilizing one, or a couple, of your unique thoughts. This is completely ordinary in the UX configuration interaction, and it's an energizing piece of the working with a group. Narrowing down numerous plans several incredible ones is fulfilling. Plan ideation urges you to connect arrangements that are special. Try not to make due with your first arrangement. Indeed, the initial not many arrangements you propose are regularly the most un-imaginative in light of the fact that they're the most self-evident. While producing thoughts, you should utilize your imaginative forces to their maximum capacity

Empathize with your user. Understanding the initial phase in the plan interaction. You need to realize who you're addressing for and what their necessities are. You understood your client as of now by making sympathy maps, personas, users stories, and users venture maps.

Define the problem. Characterizing is the second step in the plan cycle. The issue you're attempting to settle ought to be

obvious with the goal that everybody in your group can consider thoughts to tackle a similar issue. Knowing precisely what issue you need to tackle will likewise keep your users' necessities top of brain.

Establish a creative environment. You'll require an agreeable space where everybody in your group can get together and present their thoughts. In case you're meeting face to face, pick an ideation space that is unique in relation to your typical workspace. In case you're ideating essentially, attempt to track down an alternate space in your house that is liberated from mess and interruptions.

Set a time limit. There is an unending number of potential items and highlights you could configuration, so give yourself a lot of future time up with thoughts. In any case, you can't conceptualize always, so you'll likewise have to set an opportunity to quit conceptualizing and begin thinking all the more profoundly about the thoughts you've concocted.

Assemble a diverse team. You're attempting to think of whatever number various thoughts as could be allowed. A comprehensive group of individuals, with various races, sexes, capacities, and foundations, will help you concoct a wide range of arrangements. Consider some fresh possibilities. Try not to restrict yourself to customary thoughts and arrangements. On the off chance that you have a cool thought that appears to be somewhat changed, record it! Plan for an impressive future and get imaginative while ideating.

There are two methodology to conduct research on User Experience : 1) Primary research method and 2) Secondary research method.

1) **Primary research method:** In this research method in researcher gather information from direct interactions with users, by doing interviews, surveys and usability studies.lets review some them step by step.

A. **Interviews** are a technique wont to collect in-depth info on people's opinions, thoughts, experiences, and feelings. Interviews will take the shape of qualitative and quantitative analysis. A qualitative analysis technique includes open-ended queries that need participants to elucidate their answers by providing additional details. A quantitative analysis technique includes solely close-ended queries, like queries that need solely "yes" or "no" responses or set multiple-choice queries. the simplest observe is to conduct a minimum of 5 user interviews throughout your analysis. As you conduct your interviews, you'll begin to search out similarities within the feedback that users offer regarding what works and what doesn't work regarding your product. this can be precisely the reasonable feedback you want!

B. **survey** is associate activity wherever many of us are asked constant queries so as to know what most of the

people have confidence a product. Surveys area unit} a good thanks to measuring the success of your product, throughout development and once it's launched. for instance, causing surveys once a product is discharged will assist you to live the effectiveness of your product and supply a foundation for future enhancements. you'll style surveys to incorporate open-ended queries for qualitative analysis, which permit analysis participants to clarify their survey responses, also as close-ended queries for quantitative analysis, that generate numerical knowledge. a usability study may be a technique wont to evaluate a product by testing it on users.

C. **Usability studies** facilitate demonstrate if a product is on the correct track or if the look has to be adjusted. There are voluminous ways in which to check usability, each in-person and online. It's a decent plan to record your usability sessions, either audio or video, thus you'll reference the user knowledge as you create style choices presently within the method. The qualitative analysis relies on observations, and a crucial part of conducting usability studies is observance however participants move with the merchandise you've designed. specializing in qualitative analysis throughout usability studies will generate additional personal insights by assessing the behavior of users as they expertise the merchandise. Quantitative analysis can even be used once conducting usability studies to know participants' impressions of the merchandise.

2) **Secondary research method:** In this research method the research that uses information someone else has put together For example, using information from sources like books, articles, or journals is considered secondary research The second way to categorize research is based on the type of data collected: qualitative or quantitative.

A. **Qualitative research** is primarily collected through observations and conversations. Qualitative research is based on understanding users' needs and aims to answer questions like "why" or "how did this happen?"

B. **Quantitative research** focuses on data that can be gathered by counting or measuring. Quantitative research is based on numerical data that's often collected from large-scale surveys. This type of research aims to answer questions like "how many?" and "how much?"



Figure 1. Qualitative & Quantitative research.

Understand empathy in UX design

The name UX setup says everything: the client experience is at the point of convergence of how we plan things. The best course for you to make mind boggling customer experiences is to know and identify with your customer. As you would audit, compassion is the ability to understand someone else suppositions or contemplations in a situation. As a UX organizer, identifying with users improves the things you make since you experience the thing as your customer does. The better you are at anticipating a customer's yearnings and prerequisites, the more pleasing the customer will feel with your arrangement, and the more plausible they will be to attract with your thing long-term. So, what about we explore how sympathy can make you a more fruitful UX originator.

How to empathize with users

In the event that understanding users seem like a major assignment, dread not! The capacity to understand users is an ability that can be mastered with training. Here are six hints that can assist you with turning into a more sympathetic UX architect.

Ask lots of questions. As a UX fashioner, you can't make presumptions about the necessities of your users. All things considered, get some information about their necessities and needs, which your item configuration can address. Pose inquiries that start with what, how, and for what reason to acquire a more profound comprehension of your users' viewpoints.

Become more observant. Shift your concentration to the entire client and not simply the words they are utilizing. In interviews where the client is actually present or on a video recording, watching a client collaborate with you or your item can give actual signs that can influence your examination results. To help catch perceptions, you'll take definite notes or even record your meetings with users.

Be an active listener. Undivided attention expects you to completely focus on, comprehend, and recollect what is being said by the client you're interfacing with. Try not to get diverted by where the discussion is going or what you may say straightaway. In UX configuration, rehearsing undivided attention can assist you with getting unprejudiced criticism straightforwardly from your users, which you can apply to improve your plans

Request input. It's significant that the criticism you get is evenhanded and fair. Companions or partners frequently give one-sided, for the most part sure input since they need to help or satisfy you. Thus, demand contribution from an assortment of sources and a different gathering of users. When requesting input, utilize open-finished inquiries to comprehend the client's genuine considerations on the experience or item.

Have an open mind. We as a whole have predispositions. Keep in mind, a predisposition is preferring or having a bias against a person or thing, in light of restricted data. As UX fashioners, we need to put those predispositions to the side to more readily relate to other people. You will probably get

users, not to confound their criticism with your own assessments and feelings.

Keep current on UX research. Follow analysts and join online networks to keep awake to-date on the examination that influences UX fashioners and the users you're planning for. Examination is continually changing and advancing as we see more about human brain research. Remaining current will give you a benefit by the way you comprehend and communicate with your crowd.

Empathy vs. sympathy

Empathy is here and there mistook for sympathy, yet the two terms don't mean exactly the same thing. Empathy implies understanding somebody's sentiments or considerations, regularly by feeling the feelings yourself. Sympathy is the experience of showing concern or empathy without feeling the feelings themselves. Check out this realistic to all the more likely comprehend situational contrasts among compassion and compassion:

Empathy	Versus	Sympathy
Actually understanding another person's thoughts and feelings by using your own experiences to understand theirs		Identifying another person's situation and reacting with support and comfort that stays superficial and impersonal
Example Statements:		
"I understand what you're dealing with. I know words didn't help me when..."		"I'm sorry you're in pain."
"It can be hard to hear criticism sometimes. The way I've learned to handle that is..."		"I'm sorry your feelings are hurt. Use that criticism to do better next time."

Figure 2. Empathy v/s Sympathy

By relating with your users and giving a valiant effort to comprehend their requirements, you assemble an incredible establishment for an item experience that will help take care of their remarkable issues.

DEFINE PROBLEM STATEMENTS

The connection between pain points and problem statements As an update, problem areas are any UX issue or contact that disappoints the client and squares them from getting what they need. Limiting problem areas keeps users cheerful and urges them to continue to cooperate with the item. All in all, how do UX planners discover and characterize trouble spots?

You learned before that there are four classes problem areas can fall into:

- **Financial**, or money-related pain points.
- **Product**, which are pain points related to quality issues.

- **Process**, which are pain points related to the user's journey.
- **Support**, which are pain points related to getting help from customer service.

Recognizing the pain point your client is encountering will help you discover potential issues that your plan can settle. Arnold's trouble spots fall into the cycle class. His greatest test is that he's not mechanically shrewd, so he battles to see how to utilize the application.

The 5 W's and H: who, what, when, where, why, and how

The most well-known structure used to make issue explanations is the 5 Ws and H system. After you characterize the client's trouble spots, you can answer who, what, when, where, why, and how to take care of the client's concern.



Figure 3. 5 w's and H

Who is encountering the issue? Knowing your users and their experience is critical to making effective answers for them.

What are the trouble spots you're attempting to tackle? Deciding a client's trouble spots early permits you to answer most of these inquiries and explain the setting of the problem areas.

Where is the client when they're utilizing the item? A client's actual setting matters to your plan.

When does the issue happen? Perhaps it's right after the finish of a long and drawn-out measure, or possibly it's something that happens every day. Knowing when the issue happens can assist you with bettering the client's sentiments.

Why reason is the issue significant? Realizing what this issue means for your client's experience and life will assist with explaining the likely outcomes.

How are users arriving at their objectives by utilizing the item? Seeing how users arrive at their objectives permits you to plan the client venture that they take through your item.

UI Color Theory

Numerous individuals think the selection of shadings for UI for the most part relies upon the planner's taste and feeling of excellence. Be that as it may, the interaction of shading choice is surprisingly confounded and assumes a critical part in plan. In one of our past articles gave to shading brain research,

we've discovered that tones enormously affect our temperament and conduct. That is the reason the accomplishment of the item relies generally on the shadings picked for the plan. The examination given by Colorcom showed that it requires just 90 seconds for individuals to make a subliminal judgment about an item and somewhere in the range of 62% and 90% of that evaluation depends on shading alone. Thus, the fittingly picked tones can be helpful in the method of improved change for your item just as advance convenience of the item.

To make great plan and utilize colors all the more adequately, you need to see how tones are shaped and how they identify with one another. That is the reason understudies at workmanship schools, universities, and colleges study the study of shading hypothesis dedicated to tones' inclination. Today, we offer you to recollect (or perhaps learn) the nuts and bolts of shading hypothesis about the shading mix which can be successfully.

Color Wheel

In the event that you had any exercises identified with painting, you saw the circle comprising of various tones. It is known as the shading wheel which assists with seeing how various tones identify with one another and how they can be consolidated. The shading circle is typically worked of essential, auxiliary, and tertiary tones. The essential are those three-shade colors that can not be framed by any blend of different shadings. Consolidating essential tones, we get the auxiliary ones, and the blend of the essential and optional tones gives us the tertiary shadings which generally have two-word names like red-violet.



Figure 4. Basic color wheel

The shading circle was made in 1666 by Isaac Newton in a schematic path and from that point forward it has gone through numerous changes yet stays the principal instrument for shading mix. The principal thought is that the shading wheel should be made that way so tones would be blended suitably.

III. RESULTS AND DISCUSSION

Especially, The importance of design ideation, different methods of user experience research, understanding the empathizing, Define problem statement, UI Color theory Therefore, it can be said that it is possible to design the UI/UX Component.

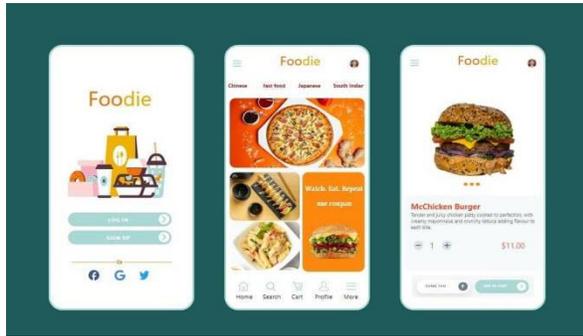


Figure 5. Example of User Interface.

- [13] Koo, Yoo Ri., An Investigation into User Experience (UX) Design Approach in Consideration of the Tenets of Design for Sustainability, Journal Of The Korean Society Design Culture, 21(2015), 33-47.
- [14] Lee, Hyun Jhin., The Concept of Learning UX Design and its Design Methodology, KSDS Conference Proceeding , 5(2013), 68-69.

competent IT professionals who have theoretical and practical skills if intensive major subject education is provided for them, and it is necessary to reinforce computer, graphics and design.

IV. CONCLUSION AND FUTURE SCOPE

The conclusion of research “ A study of User Interface and User Experience Process: Empathize, Define, and ideate can be concluded that the interaction between the Human and product can be more impact full and productive by using the UX research methods. User interface and User Experience helps the user to use the product in better and make them user friendly.

REFERENCES

- [1] Si-Jung Kim, Do-Eun Cho., Technology Trends for UX/UI of Smart Contents. The Korea Contents Association Review, 14(2016), 29-33.
- [2] [2] Sohyun Kim, Hyunnam Ha., Study on UX Satisfaction Index According to Types of Mobile Commerce Services, Journal of the HCI Society of Korea, 9(2014), 53-59.
- [3] [3] Jeong, Hoon Gu, Pan, Young Hwan., A Study on Optimal Interface of Mobile contents - Focusing on Card-type UI of SNS, Journal of Digital Design, 15(2015), 177-186.
- [4] Joo heon-sik., A Study on the Mobile Game User Characteristic and Mobile Game Oriented, The Korea Contents Society, 5(2015), 389-390.
- [5] Si-Jung Kim, Do-Eun Cho., Technology Trends for UX/UI of Smart Contents, The Korea Contents Association Review, 14(2016), 29-33.
- [6] Kim, Sewoong., A Study on the UX/UI of Smart Mobile Remote Control App in the Development Trend of NUI, Journal of Korea Design Knowledge, 29(2014), 83-92.
- [7] In Kyun Oh, Dan Bee Lee., A Study on Consumer Response on Retro Style in a Smart Phone Application UI/UX Design, Journal Of The Korean Society Design CulturE, 19(2013), 427-436.
- [8] Won-Sung Sohn, Soon-Bum Lim, Sungho Woo., Curriculum development of UX based UI design for software, KOREA INFORMATION SCIENCE SOCIETY, 39(2012), 200-201.
- [9] Changsik Moon, Yongsuk Choi., Web UI/UX Design for Content Recommendation, Korea Information Science Society, 6(2014), 933-935.
- [10] Doo, Kyungil., The Study on the Value-Engineering UX/UI Design Evaluation Model Based on the User's Attitude, Journal of Korea Design Knowledge, 21(2012), 1-10.
- [11] Doo, Kyungil., Study on Optimized UX/UI Design System through Use Value Analysis on App Book, Journal of Korea Design Knowledge, 31(2014), 365- 374.
- [12] Lee, Hyang Eun., A Study on the concept and types of UX design in the smart product field, Journal of Korea Design Knowledge, 30(2014), 289-299.