

An Inquiry into Agile and Innovative User Experience (UX) Design

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ABSTRACT

The aim of this paper is to get a better understanding of user experience (UX) design, how this is used in the software industry, and how lucrative a career in UX may be for a new degree graduate. UX and HCD (Human Centred Design) approaches go beyond traditional interface design and have yet to leave their mark on IT bachelor's degree curricula. Furthermore, 'agile' development is also popular in the IT industry, and is often used together with UX in prototyping and product development. Those interested in UX must acknowledge the constant and rapid change in order to remain competitive and innovative. This research paper relies on interviews with IT professionals, review of current literature, and reflections from hands on experience. The paper concludes with recommendations for tertiary institutions as well as interested students. This paper aims to be helpful by providing a better understanding of the profession and the benefits, risks, and opportunities within this field.

Keywords: IT education, agile development, software development, user experience design, user interface design

1. INTRODUCTION

The term User Experience (UX), in a broad sense, can refer to a wide range of products, services and systems. For the sake of this report, the definition of UX has been reduced to reflect its contribution to interactive systems within the information technology (IT) field. UX, User Interface (UI) and Human Centred Design (HCD), are related but different terms. UX is a relatively new and important aspect of product development and has become a trending topic for discussion. UX is an umbrella of disciplines, and these aspects will be covered this report to explain what UX design includes. As methodologies within industry are moving toward an agile approach, UX designers must understand how to fit in with this style of work so that they can find their place in the overall software development process while enhancing UX. As a career choice, there are many opportunities within the UX field and the benefits are relatively exciting. Prospects for UX as a career in the future are promising and risks associated to aspects of the field becoming obsolete are avoidable, if the UX designer keeps up to date and continues to learn, adapt, and evolve.

2. INDUSTRY CONTRIBUTION

This research was carried out over a period of eleven weeks. Progressive steps were made in an attempt to answer the research questions and fulfil the aims of the research project. A project plan was created to guide the research, dividing it into manageable segments with clear direction that was expected to create a succinct flow of learning. Due to the nature of this research topic being rather trendy and ambiguous, the initial information was collected from expert reflections and comments. However, after the first few weeks of investigation, the concepts and methodologies became clearer, and further information was inquired and included in this paper. Although

this has sometimes caused re-evaluation of the research goals, the timeline of this project has been attained, work based reflections have been summarized, and this report has been completed by the planned dates. Before covering the collected expert opinions, an explanation of the personal background of the practitioners in the next paragraph will also reveal some insights for UX students and educators.

The research methodology included correspondence with UX designer Devin Mancuso. Devin is the Product Manager within the Jemini Team at Fusion5, an innovative business applications development company. Devin has a double degree in business management and computer science. He went onto complete his master's in Business Information Systems. Devin started as a UX Designer and Digital Strategy Consultant for Deloitte Digital. In his spare time, Devin is a freelance designer, designing apps and websites for clients. Devin has been working in the UX field for over five years. A series of discussions via Skype and email with Devin provided an understanding of UX and recommended sources of information that would be appropriate for further learning. These include a number of websites and blogs that are recognised by leading UX designers and organisations as well as a selection of books that would be helpful to anyone pursuing a career in UX. Furthermore, Gui Maia, another UX designer from Fusion5, supplied his own resources and information about what his job involves. Gui is a designer for the Jemini project at Fusion5 and primarily works on the interaction and creative design for the products. Gui has a bachelor's degree in design and has been working in the industry for 15 years. He has worked for advertising agencies such as M&C Saatchi and ran his own design studio offering design and code services for global studios in the USA, Australia, Belgium, and the United Kingdom. Finally, some practical UX tools and software have been investigated and are mentioned in this paper.

3. BACKGROUND: DEFINING "UX"

User experience is all encompassing, as described in the ISO 9241-210 (Ergonomics of human-system interaction). This ISO

This quality assured paper appeared at the 6th annual conference of Computing and Information Technology Research and Education New Zealand (CITRENZ2015) and the 28th Annual Conference of the National Advisory Committee on Computing Qualifications, Queenstown, New Zealand, October 6-9, 2015. Michael Verhaart, Amit Sarkar, Rosemarie Tomlinson and Emre Erturk (Eds).

standard defines user experience (UX) as “a person’s perceptions and responses that result from the use or anticipated use of a product, system or service”. UX is inclusive of all the users’ emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviors and accomplishments that occur before, during and after use. The type of feelings the user experiences is a consequence of the presentation, functionality, system performance, interaction, capabilities, and the context of use (including prior experiences). The definition of user experience is rather elusive, even within the UX community (Loranger, 2014a). Furthermore, agile practices have traditionally tended to be more popular among programmers, rather than other industry and IT practitioners (Hodgetts, 2005). Therefore, the practical relationship between Agile and UX will logically grow as a project moves from analysis into development.

An important aspect of defining user experience is to clarify the difference between UX and other related terms, such as user interface (UI) in particular. The terms user interface and user experience are often used interchangeably, along with a common misconception that UI design is the same as UX design. When discussing this with Fusion5 UX designer Devin Mancuso, he stated “UX is bigger than the interface, it’s the total experience... we design the experience.”

Through this research of UX and UI, a range of differing definitions, contrasts, and comparisons have been discovered. User interface design is complementary of user experience and is related to the design of the overall look of the product as well as its interactivity (Lamprecht, 2015). The user interface is how a user interacts with a product and is predominantly visual, but also makes use of audio and haptic. Contrastingly, UX is considered to be an ‘umbrella’ term. It covers a range of aspects that shape a user’s end-to-end experience of a digital product (Moreno, 2014). Although different definitions, the success of one relies heavily on the success of the other. The UX design informs the UI. In turn, UI will affect the quality of the UX.

Web designer, Helga Moreno (2014), implies the difference by saying “something that looks great but is difficult to use is exemplary of great UI and poor UX. While something very usable that looks terrible is exemplary of great UX and poor UI.” While this quote allows for an easy understanding of what these terms mean, it may be too simplistic. UI is not just visual; and UX is not only usability. In an attempt to differentiate the two terms, either one or both may be misrepresented for the sake of simplicity. How each is defined relies heavily on the work environment and the level of collaboration. The term UX is an all-encompassing and higher level design of all aspects of the product, which the user is exposed to. Thus, the UI is in fact an element of UX.

Another term related to UX is Human Centred Design (HCD). The key concept of HCD is that the design takes inspiration from real people. The innovation is fuelled by the human-centred approach (Thomsen, 2013). By following an HCD approach, success is eminent due to users being at the core of the design. When following this design approach exclusively, there are three phases: inspiration, ideation and implementation (designkit.org). Products are devised after research, which is the inspiration phase. The design is focused on the product, in contrast to UX where the design can surpass the product to include other aspects of the user experience. HCD is easier to define than UX as it is a more concrete approach. However, these two can be applied together in a variety of ways. Both designs emphasise the importance of knowing the user to overcome poor design that results in unsuccessful products. Although UX can be described as a design process fuelled by an understanding of the user and with a motivation to please the user, as it evolves, its scope may continue to increase and

incorporate other new terms. UX encapsulates an array of disciplines, as shown elaborately in Figure 1 below.

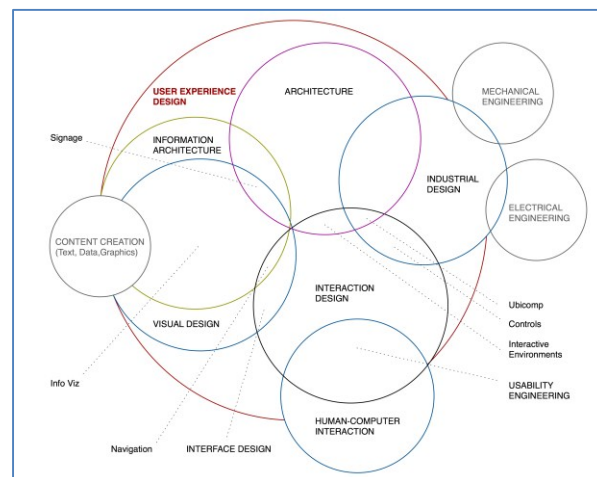


Figure 1: The Disciplines of User Experience Adapted from Saffer, D. (2008)

Devin Mancuso describes the ‘slicing’ of UX design into four quadrants as: research, interaction design, creative design and front end development. These may be seen as phases in the typical life cycle of UX design.

The cycle’s initial stage is research, the collection of user data to inform the design. There are many types of research, and when to use them is crucial to the value of the results. Different research methods will be best suited to specific products and stages of development as they capture different kinds of data. Data reflects the users’ behaviours or attitudes, and can be either qualitative (direct) or quantitative (indirect).

After the initial research has been carried out, interaction design (IxD) will begin. IxD is concerned with designing the elements of the product that the user will interact with. These elements include the interface and information architecture. IxD is presented through sketches, wireframes, and prototypes that facilitate the interaction with the product (Maier, 2009). IxD should include a number of rough designs that show the different forms the user experience could take (Buley, 2013).

Information architecture considers the content and how it is most effectively organised, structured and labelled. Users should be able to easily complete tasks, find and understand information (Morville, 2012). Tools used for the design of information architecture can include journey maps that explore the steps taken by users as they interact with the product, storyboards that illustrate the users’ actions, and task analysis that breaks down the required information for each task and taxonomies to explore multiple ways of categorising the content (Teixeira & Braga, n.d.).

Creative design focuses on aesthetics and adds to the interaction design with elements of colour, space, typography, imagery, scale, and layout. Creative design will generate style guides that define how the colours, headings and buttons will look for the final design. Visuals will then be added to the prototype ready for development. Depending on the product type, there is a range of design contexts that dictate the design objective and what it aims to portray using these elements. Examples of these include a content source (which aims to inform the user with information potentially composed of several types of media), task based applications used as a tool or collection of tools to allow users to accomplish a set of tasks or workflows, and brand presence to form a relationship between the company and its audience.

A selection of tools and software are used by industry to create high fidelity prototypes in the creative design phase such as Axure, Invision and Photoshop. Front-end development (FED) is building and coding the visual elements of the product that are directly viewable and interactive for the user. FED is responsible for ensuring the product looks and operates exactly how it was designed to (Janssen, n.d.). To be a front-end developer, one must be able to code in common languages such as HTML, CSS, and JavaScript.

4. UX WITHIN AN AGILE APPROACH

Fusion5 and many other leading organisations in the industry such as IBM have adopted an agile approach to development. The core values of agile software development as stated in the Agile Manifesto of 2011 emphasize simplicity, openness, and feedback (<http://agilemanifesto.org/>). This concept is implemented using incremental, iterative scrum sprints. Work is confined to a sprint with a timeframe generally ranging from one to three weeks. These work cycles focus on team collaboration to achieve short-term goals set out at the beginning of the sprint. Each sprint builds on the previous one. Work carried out in each sprint can be a combination of research, interaction design, creative design, and FED.

Agile methods are not always supportive of user experience and an HCD approach if they focus more on rapid development instead of innovation. However, if UX designers are actively researching and designing ahead of the sprints, they can continue to keep the focus of the development in line with what the user experience should be (Loranger, 2014b). With a working product as a deliverable at the end of each sprint, the team is able to use the product for further research and user testing to guide upcoming sprints. Each iteration builds on the previous ones. By breaking development down into sprints, there is a clear and current direction for the team, which supports the collaboration and delivery. When working as a UX designer, it is highly likely that the methodologies used by the project team will be agile. Therefore having a good understanding of what agile is and how to implement it successfully is very beneficial. None of the eight professionals interviewed by Hoa Loranger (2014b) wanted to ever revert back to the traditional waterfall style method for development.

5. PREPARING STUDENTS FOR UX

Just as UX is rather enigmatic, the same is true about a tertiary institution's role in teaching UX. A prospective employee's personal talents and attitudes (i.e. their soft skills) as well as their industry networking and job search skills may outweigh superficial factors such as the institution of study, level of qualification, and number of related courses taken.

In a survey conducted in the US, Gonzalez et al. (2014) found that many students who are interested in a UX career feel unprepared. As of this writing, there are a number of New Zealand universities (e.g. Victoria University) offering courses that are explicitly labelled "User Experience Design" within IT related programmes of study. This is in line with many universities and schools around the world that offer user experience design courses. This approach may be advisable for other New Zealand tertiary institutions and polytechnics. In other words, they can replace their existing user interface design courses with UX courses, which may at least show these institutions' awareness of new concepts rather than taking the risk of appearing outdated. Next, since professional UX design is highly collaborative, an essential consideration for systems analysis and design courses as stated in Erturk (2014) also applies here; teamwork and the development of team skills need to be highlighted. Second, the intricacies of UX design may be best learnt through a real project with an industry sponsor to work with, almost like in a vocational education

model (Gonzalez et al., 2014). The desired product may be a mobile or web based application that aims to provide great interaction. The students should also practice agile prototyping, front-end development, and testing.

6. DISCUSSION: UX AS A CAREER

Students who finish their qualifications and would like to enter into UX as a career may come across different opportunities for work. These opportunities will be related to the specific aspect of UX a designer wants to concentrate on. UX designers will often specialise in a field, i.e. in one of the four quadrants of UX design (research, interaction design, creative design, or front-end development). A designer may be described as having a 'T-shaped' skill set when they have broad skills across all four quadrants, but specialise in one. When a UX designer is required to perform all four quadrants, the colloquial term 'UX unicorn' is often used. A position that requires a UX unicorn is likely due to the organisation being small, therefore hiring one designer to accomplish every aspect of the user experience design (Little, 2014).

In the 2014 Robert Walters Global Salary Survey, Wellington based UX developers' annual salaries ranged between \$90,000NZD and \$125,000NZD. This is higher than a Web Developer's salary range of \$70,000NZD to \$90,000NZD. In a recent article by Jakob Nielsen and Susan Farrell (2014) summarising a Nielsen Norman survey, respondents rated their career satisfaction as 5.4 out of 7. There were several reasons for UX designers not being completely satisfied. They need more education and training to increase their confidence and skills. For some, their position or the company does not support the UX approach enough. These dissatisfactions may be a result of UX design still being a relatively new field.

As a new entrant of the UX design field, job applicants may be faced with a lot of competition as "the majority of UX professionals hold degrees from an immense range of disciplines" (Nielsen & Farrell, 2014). Best recommendations on how to get started in the UX field were to read books, blogs and articles, and to take UX specific courses. It is also advisable to practice design, find a mentor, and get an internship. To start off, it is best to get a job where a number of disciplines will be used so as to not limit future opportunities due to lack of experience. The cumulative findings during this research paper give the impression that UX is a role that someone evolves into.

The interviews with the practitioners have confirmed that UX design can be considered a job of the future. Furthermore, this notion is also supported by the fact that the literature reviewed in this paper is from within the last ten years, and not older. It also seems logical to think that companies will continue to take advantage of and enhance the interactions between humans and machines. For these interactions to be successful, the products that facilitate them must accomplish great user experience. The value of UX designers is yet to be fully realised in the workplace. As this starts to become more apparent, the demand for UX designers will continue to grow.

A risk associated with a career in UX is the constant change. What UX designers do now may not be what they are expected to do in the future. The creation of interfaces and style guides have the potential to become automated therefore resulting in a loss of jobs for designers that are specialised only in these areas. It has been suggested that there will be a reduction in screens, meaning the UX design will become less about the screen and interaction will evolve into other areas such as using voice control and listening to outputs instead of reading them (Grant, 2014). An example of this type of interaction is Apple's Siri product. The interaction with Siri is communicated by voice rather than screen based, and there is very little graphical user interface. Interaction design and creative design did not

play major roles in developing this product. In order to adapt to additional changes in the future, it is important for UX professionals to be continually learning.

7. CONCLUSION

This paper has presented an exploration into user experience (UX) and related career opportunities. UX is an elusive and all-encompassing field that differs from related terms such as user interface and human centred design. UX embodies numerous disciplines and can be sliced into four quadrants, namely research, interaction design, creative design and front-end development. For UX designers working in the IT industry, it is important to understand how to incorporate UX design into an agile methodology for product development.

As a relatively new type of job, there is room for growth that will result in increased demand for UX professionals. Currently, UX designers are paid well and have reasonable job satisfaction. There are no major restrictions to entering into UX design as a career. Although this makes the job easier to aspire to, it also creates increased competition. Without real experience, it is difficult for job applicants to be successful.

It is recommended that aspiring UX designers educate themselves with books, blogs, articles, and short courses. They should also look for internship opportunities or jobs that can evolve into UX design. However, there is a potential for current disciplines (such as interaction and creative design) to experience less demand as human-technology interaction evolves. To avoid this risk, UX designers must ensure they are constantly learning and keeping up to date with advances in the field to ensure that their skill set is needed.

A further research topic in this area may involve following the journey of a product development that focuses on the user experience, while following an agile approach. This research will give additional insight into how and when the collection of UX disciplines and related tools are used. Demonstrating the power of user research and usability testing will show the impact it has on a product's final design and success. Research of this nature will highlight the importance of UX as a profession, as well as an accompanying knowledge of agile and other software development skills and tools.

There is also potential to further research the latest advances in interactive products to fully understand how UX design may evolve and what aspects will not be very useful in the future. This will also inform the readers of new skills and disciplines UX professionals will need to consider adding to their skill sets to maintain their careers in the future. Such findings will also provide valuable feedback to UX educators.

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