

The Impact of Good Ui Design

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Abstract: In this era of rapid Internet development, software development exists in any field. UI design, as a vital link in the software design process, is inseparable in every field. This report conducts in-depth research on what is good UI design based on previous research. And what impact a good UI design can have on the software. Finally, I studied how to maintain a good UI design, and what aspects of the current UI design field need to be improved.

1. Introduction

In software design, UI design is an essential part. This part needs to meet the expected skills and expectations of users to realize the full potential of the entire software. (Bourque and Fairley, 1999) Therefore, a good UI can be defined as a good UI that can meet the user's expectations of the software and maximize its role. Different UI designs will have other effects on those who use the software. For example, a good UI for educational software can improve users' acceptance of the software's knowledge. As Chu and Chan (1998) said, the UI design in educational software can affect user's learning habits. If the UI design has the characteristics of simplicity and consistency, users can interact with the software more quickly and accurately. To interact. Therefore, users can form their own knowledge and experience based on the feedback of the UI interface when using educational software, thereby affecting user learning. (Rouse and Morris, 1986)

After in-depth research in software engineering, I found the research topic of UI design very interesting. This report mainly studies the impact of good UI design. As a future computer science professional, it is necessary to understand the importance of UI design to software engineering and user experience. Having this basic knowledge will not only give me an in-depth understanding of what a good UI design is but also bring my research results into my software engineering projects so as to design software that is more satisfying for users. The above is the reason why I chose UI design direction as my research topic.

2. Methodology

Various academic resources are used to determine the impact of UI design. Most of the research in this report is based on the research of existing books, papers, and academic journals, and the selection of academic papers related to UI design for preliminary research. I initially determined the research topics through the IEEE SWEBOK, and then used Google Scholar and Aston Smart Search to find academic journals and various documents. To obtain a broader set of resources, I used keywords such as UI design, good UI design, and the effects of good user interfaces.

Initially using Google Scholar to search for “UI Design,” it showed a lot of relevant evidence, including various published books and published reports. To narrow the scope, the keyword “good UI design” was used to determine more specific Academic papers and reports. Research only focuses on published academic papers, books, and journals published in English and mainly finds evidence related to software engineering content. As in most fields, as long as it involves software design, it will involve UI design.

Therefore, have a deeper understanding of this field by reading a lot of literature related to UI design. Exploring the literature related to UI design not only helps to determine its importance but also to determine what conditions a good UI should have. A good UI not only needs to satisfy users' expectations for the use of the software but also to maximize the potential of the entire software. This literature is also part of my background.

Due to the rapid development of software engineering, to ensure that this report is more academic, I chose to publish the evidence during 1900-2017. A total of 9 papers containing multiple UI design impacts will be regarded as my research the basics and evaluate it critically.

3. Background

As Norman (2013) believes: In software development, the design step is often misunderstood and underestimated by engineers. In fact, software development and design are inseparable from the UI, and UI design is an important part of software design. (Bourque and Fairley, 1999) With the UI, the software and the user can interact and communicate. The software receives the user's instructions through the UI and presents the feedback to the user through the user interface. With the rapid development of the Internet, the software is used more and more frequently. UI design in software is an inevitable part of every field.

As Ferreira (1985) think, the “design” involved in the UI design process is a term that has been changing in the focus of the discipline, from the UI design direction to the “user interaction” design direction, and now turn to the “user experience” design direction. Because of this, engineers must not only consider designing a UI that can well reflect the software functions, but also need a UI that can meet the user’s expected skills and expectations, as well as features such as simplicity and interactivity, in order to realize the full potential of the entire software.

4. Related Work

The software industry itself is a rapidly developing field. “User interface” is a vital link in the software development process and the primary medium for software to interact with users. The design of the UI should meet users' expectations. (Ferreira et al., 2007) Over the years, many researchers have conducted a lot of research in software design and UI design, including the impact of good UI design on mobile phone application user interfaces, interactive TV, and other fields. This part will further demonstrate the effect of good UI in the above areas on this basis.

4.1 Ui Design in the Field of Mobile Application Software Design

Since mobile devices were introduced at the end of the last century, various software technologies have provided users with diverse content and the latest functions through the UI of mobile applications. As Bostrom (1990) said, users of mobile devices interact with mobile applications through the application’s UI. Therefore, the UI design of the application greatly affects the user's interaction with the program and even the user's intuitive experience of the program content. However, displaying too much content will inevitably require more display space, which will affect the quality of user interface design. In order to design a good UI, designers need to sort

and organize content in the limited display space of mobile devices. Most designers choose to use many simple

metaphorical icons in the user interface of the application, such as trash cans, portraits, telescopes, scissors, etc. (McWilliam,1997). Such a design can make the entire UI simple and straightforward, and because it uses more commonly used object icons in life, it is easier for users to understand the meaning of symbolic icons. Through this design, mobile phone application software can obtain better usability, and users can also bring higher convenience. (Black, 1979) However, it is not ruled out that the design of some metaphorical symbols or graphics is too obscure or too simple, making it difficult for users of the software to grasp the correct meaning of creating the user interface and the graphics.

On the other hand, a tidy and straightforward user interface is a simple and tidy UI is fundamental; Chu and Chan (1998) show that the usability of this user interface for the system can enable users to quickly and accurately interact with the application. For example, in the UI in an educational mobile phone application, the user can form his own experience and knowledge when using the UI, thereby impacting the user's learning. (Johnson-Laird, 1989).

4.2 User Design in the Field of Interactive Tv Application Design

As a traditional information and entertainment media, TV has occupied the largest share of family leisure time for a long time in the past (Zillmann and Vorderer, 2000). However, in the past few decades, due to the rapid development of networks and digital technology, traditional televisions are rapidly transforming into Interactive television. As Chorianopoulos (2008) said, Interactive TV (ITV) refers to a TV application service. The application of Interactive TV (ITV) meets entertainment needs and leisure activities in a relaxed home environment. The user interacts with the interactive TV

through the UI of the TV, which means that the UI design of the TV plays a vital role in attracting users.

Therefore, in order to add interactive content to the UI of the TV, designers have added a strong entertainment experience with interactive elements to the UI of the TV. (Malone, 1982) For example, users can customize news, play some intellectual games, and view stock quotes through the TV user interface. Through this UI design method, it is possible to enhance the user's enjoyment of using the TV and increase the length of time the user uses the TV to better demonstrate the full potential of the software. However, from a psychological point of view, entertainment experience is the subjective feeling of users, which is difficult to predict in advance. (Zillmann and Vorderer, 2000)

5. Critical Evaluation

5.1 User Interface Design in the Field of Mobile Application Software Design

Since mobile devices launch, various software technologies have provided users with multiple functions and the latest content through user interfaces. Because the user interacts with the program through the UI of the mobile phone application. (Bostrom, 1990) Therefore, the design of the mobile phone UI directly affects how users feel about mobile applications. For this reason, designers use a large number of illustrative icons in the UI of mobile applications, such as trash cans, portraits, telescopes, scissors, etc., to replace complex text content. (McWilliam,1997) As stated in Black M (1979), this design not only makes the entire UI interface tidy and straightforward, but users can

also get higher convenience through this design, which can be seen on a limited mobile phone screen More content and use more features. However, this design also has certain drawbacks. Due to cultural differences, some symbols or graphic designs that are too simple or too obscure may make it difficult for users to grasp the correct meaning expressed in UI design. As McWilliam (1997) said, the pattern of a book may represent the meaning of “copy” and also have the sense of “paste,” which may confuse users.

On the other hand, a clean and straightforward UI can also bring usability to mobile applications, allowing users to interact with applications quickly and accurately. (Chu and Chan, 1998).

5.2 User Design in the Field of Interactive Tv Application Design

Although traditional TV has occupied the vast majority of family leisure time for a long time in the past. (Zillmann and Vorderer, 2000) Due to the rapid development of the Internet and digital technology's popularization, TV is transforming like Interactive television. Users can interact with the interactive TV through the UI. Designers add interactive elements to the UI of the TV, thereby bringing users a strong entertainment experience. (Malone, 1982) Such a UI design can enhance the user's enjoyment of using the TV, thereby better showing the software's full potential. However, as Zillmann and Vorderer (2000) said, from a psychological point of view, entertainment experience belongs to users' subjective feelings, and it is difficult for software to predict users' emotional feelings in advance. For this reason, this UI design may not have the best positive impact.

Based on the above analysis, it is clear that the UI plays an important role in software design in various fields. Among them, a good UI can serve many functions conducive to showing the full potential of the software and attracting users to use the software. Therefore, in my future software design process, I should also pay attention to UI design's importance and maintain the usability and simplicity of the UI design. Although a good UI can bring many positive effects, there seem to be some areas that need attention and improvement.

6. Conclusion

With the rapid development of the Internet, software development is inseparable in every field, and UI interface design is a vital link in the software development and design process. In this case, UI design seems worth discussing. A lot of previous research has contributed to UI design's importance and the positive impact of good UI design. What is a good UI for an in-depth presentation based on previous research in this report? In which areas can it bring effects? While maintaining good UI design, pay attention to what needs to be improved?

First of all, a good UI can be defined as: a good UI can meet the user's expectations of the software and maximize the software's role. For example, a good UI for educational software can improve users' acceptance of the knowledge in the software. Therefore, users can form their knowledge and experience based on the UI interface's feedback when using educational software, thereby affecting the user's learning.

In summary, users can meet the initial expectations of the software, and the content of the show is straightforward, can play the full potential of the software UI design in order to be called a good UI. This article not only shows the impact of good UI design on software but also has a positive impact on software in different areas.

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