International Journal of Internet, Broadcasting and Communication Vol.9 No.4 14-18 (2017)
http://dx.doi.org/10.7236/IJIBC.2017.9.4.14

IJIBC 17-4-3

A Study on the Need of the Usable Security in the Corelation between IT Security and User Experience

Soowook Lee*

**Kwangwoon Academy, Kwangwoon University, 26 Kwangwoon–gil, Nowon-gu, Seoul, 01897, Korea*
wook@kw.ac.kr

Abstract

In this paper, an contemplate the direction for Usable Security in IT security and User Experience. To evaluate how the user interface is convenient to use, we examine the components such as the property, learnable property, memory simplicity, faults and satisfaction level. By considering for the security, we should bring positive effects on the user experience. By emphasizing usability and security at the same time, we should increase the satisfaction level of the user experience and then produce the valuable experience through participation, use and observation. The positive user experience is the important task for the software engineering, business administration and others., and this will result satisfaction of the users, brand trust, and success in the market. On the other hand, for the negative user experience, the users cannot achieve their desired goal and therefore, are unsatisfied due to emotional, rational and economic inconvenience. Due to this, we should try to maintain a certain level of usability and security of the system in IT security and User Experience.

Key words: *Usable Security, IT Security, Human-Computer Interaction, User Experience(UX)*

1. Introduction

Usable Security considers both the user and security as the main objects for consideration. The user-friendly security system should be constructed in consideration of the general users and the computer attackers. We should have a goal that satisfies security and usability. IT security is essential for the company, but a flaw of the decreased usability occurs when IT security is reinforced. Therefore, this research should consider for Usable Security as well as the development of IT security and thereby, reinforce security and construct better usability. By doing this, the process to design and evaluate the automatic system for the humans and computers interact more easily prevents the falling of the Usability and Security levels through Human-Computer Interaction [1].

When using the internet, for security, one may have the experience of changing the password regularly or spending lots of time on installing the security program. Too many security equipment can cause the falling-off in usability and then restrict the market and transactions. Therefore, the necessity of Usable Security that usability should be considered in IT security as well has come to the fore and a lot of the related companies

Manuscript Received: Sep. 7, 2017 / Revised: Sep. 18, 2017 / Accepted: Oct. 3, 2017
Corresponding Author: wook @kw.ac.kr
Tel: +82-2-940-5649
Kwangwoon Academy, Kwangwoon University, Korea

have been putting out services [2]. Though the security function has brought big change and development technically, the research must be taken, focused on the appropriate usability and the user experience(UX).

2. Theoretical background

It will talk about the background and situation where Usable Security is suggested by focusing on the drawbacks of the domestic system and the limitations of security. Also, we will contemplate the change in perception for UX in the field of security and understand the direction ahead.

2.1 Drawbacks of the domestic system

In our country, the process to verify oneself is more complicated than in overseas and in the center of this process, there is the accredited certificate. With the accredited certificate by the nationally accredited certification authority, only electronic signature is needed to verify oneself or process a payment. The accredited certificate provides high security however, it is used without consideration for service environment or the user. Therefore, the user may find an inconvenience problem in using the internet banking and others.

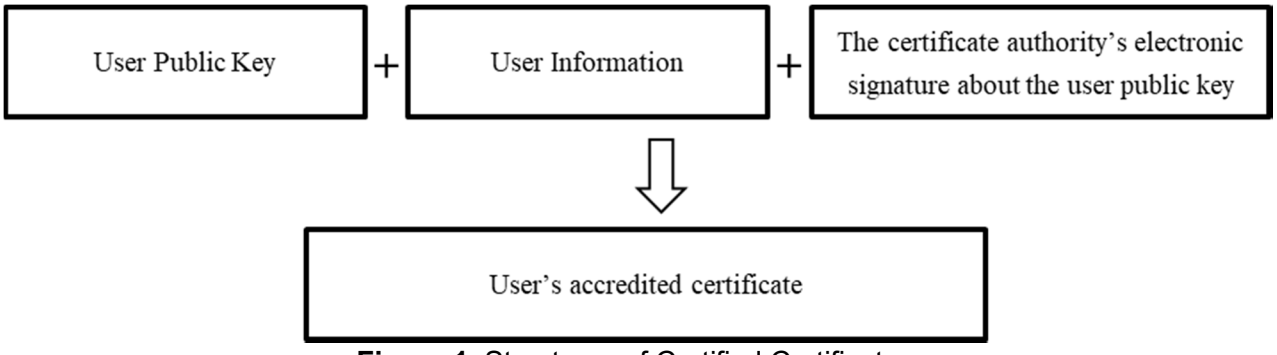

Figure 1. Structures of Certified Certificates

As shown on Figure 1, through the certificate authority's electronic signature for the user public key and user information that compose the accredited certificate, the user's accredited certificate is used [1] .

2.2. Limitation of domestic security

The domestic security action sees the accredited certificate as the measure of prevention to restrict the illegal approaches from the outside and focuses on the prevention of accident with the method of restricting external invasion. On the other hand, in the overseas countries, they simplify the verification process with the saving method of verification information in the system, but focuses on enhancing the monitoring. The biggest difference between these two methods is who the responsibility of accident lies to. In our country, the user must be responsible for accident, however, in other overseas nations, the user and the company share the responsibility. For the user experience, the domestic security method may seem dissatisfying as the user has to bear unreasonable responsibility and the use of effective service may also seem not very feasible.

2.3. The change in perception for User experience (UX) in the field of security

With the previously mentioned drawbacks and limitations in the domestic system and security, IT security has provided the dissatisfying user experience. It is evaluated there is not any consideration for the user and the

concept of Usable Security is also not founded well. Now, we reached the time to care about the various methods for user security based on the understanding of UX and handle the situation.

Passing on the responsibility for security to the user causes the negative effect on the user experience and accelerates the user's breakaway from the service. To change the negative experience to the positive one, the convenience should be provided on top of the user's accessibility and the security system should be established in a way to remove the disincentives in the field of security. For this reason, the company should construct the company-wise security system without passively adjusting it to the guidelines set by the government.

As shown on Figure 2, when the participators answer the survey through Stage 1 and Stage 2, the correction status should be understood, and Usability Analysis and Security Analysis should be performed [2].

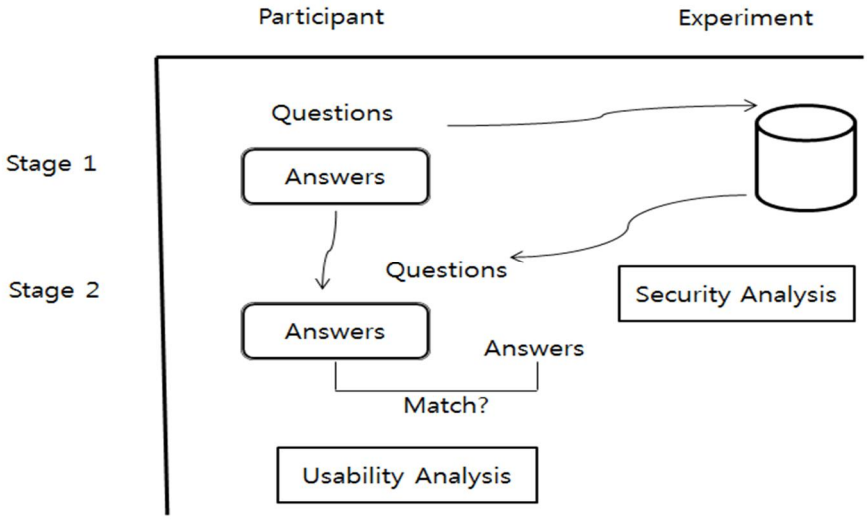

Figure 2. Experimental Method

3. Correlation of security reinforcement and convenience

3.1. Convenience

Around the time for the constitution of the specialized internet bank, an analysis shows that the mobile simple remittance service got extended and the installation of the security programs became simplified. Likewise, the convenience of use for the financial consumers grew and the financial corporations, as well as the specialized internet banks, got more competitive over the issue of 'convenience reinforcement'. As the result of comparison of the times, the end of October 2016 and the end of August 2017, for 95 banking, card, insurance, stock companies by the financial supervisory service, the simple remittance service is expanded from 21(15 companies) to 14(10 companies). For example, the commercial banks provide the service that allows remittance by the phone text to the previously registered account without the use of the accredited certificate. Without entering the account number or using the accredited certificate, the remittance is available by just entering the amount of remittance and password.

3.2 Security Reinforcement

The bio-verification also increased a lot from 6(fingerprint verification 4, other verification 2) to 52(fingerprint verification 34, iris verification 18), by 46. This expanded the bank field (4→24) a lot, and the

stocks (0→16) and insurance (0→6) fields also have started to implement. The financial supervisory service sees that the choice for the financial consumer's verification method will expand more because 13 new bio-verification methods will be added within this year.

Especially for the bank and financial investment fields, the plan to provide the united private verification service has already been made with the use of block chain technology. Some banks will provide the self-verification and remittance service with the voice verification method. According to the survey, the inconvenience of consumers due to installation of the unnecessary programs has also been reduced a lot. The proportion of the menu that installs the security program located at the center of the home page menu is decreased from 55.6% to 8.3%.

Among all, the bank proportion (59.7%) increased the most (15.5%p ↓), then insurance (43.2%), and then stocks (40.2%). There are only 4 financial corporations in need of the entire menu security program installation right now, but they will be all improved within this year. At the end of August right now, the security programs ready to be installed by the user have increased from 6(3 banks) to 14(6 banks), by 8.

The financial supervisory service inspected all 480 clauses related to the electronic financial transactions of 176 financial companies. It supervises the change recommendation for the clauses that include some unfair items to consumers; all of them were corrected in the last June and are now enforced. The convenience improvement by implementation of various security technology and aggressive effort to establish the self-regulating security system of the financial companies are needed [3].

4. e-Commerce's User eXperience(UX) change

Table 1. User Experience Design Method Theory

Data	Method	Application Examples
Preference Investigation Opinion, Taste, Requirement	Question Investigation Focus Group Mood Board Preference Interview Card Classification Method Customer Response Analysis	Visual Design Brand Strategy Market Analysis Advertisement Campaign
Understanding Verification Understanding and Application Degree about the target goods	Usability Estimation Log Analysis Search Details Analysis Card Classification Method Customer Response Analysis	Interaction Possibility Estimation Screen Layout Estimation Function Name Estimation Information Structure Construction Estimation
Conceptual Estimation Cognitive Environment where the behavior is taken	Freedom Interview Usage Context Investigation Mental Model Ethnographic Research Journal Analysis	Menu Structure and Usage Context Interaction Design Contents Arrangement and Absence Analysis Contextual Information Analysis Situation Marketing

The user experience is the concept used for the user-computer interaction research and lots of the principles of the user experience are still originated from the development of software and hardware in the field of

computer engineering. However, in the modern times, this concept is not only applied for the computer products, but also for the service, products, process, society and culture provided through the industry. The user experience design method theory is displayed on Table 1.

Joseph Pine II and James Gilmore announced an article called the invitation to the experienced economics on the Harvard business journal. In 1999, he showed it in his work, which intrigued the fields of economics and business about the user experience [4].

5. Conclusion

Around the time of constitution of the specialized internet bank, the use convenience of the financial consumers increased, for instance, by the simplified installation of the security programs. This kind of 'convenience reinforcement' competition is analyzed to become little more competitive. As the result of comparison of the situations in banking, card, insurance and stock companies, it is found that the convenience has increased by, such as, simple remittance service. Not all the companies are responding quickly to the sudden change. However, because the security equipment that doesn't satisfy the user can always be turned away, if enough competitiveness for the accelerated technology competition is possessed and used for the various technologies to be utilized to improve the user experience, the satisfying products and service will be available for use soon [5].

Behind the convenience matter, there is also a concern for security. It is good to be convenient but who will be responsible for the counterfeit and security problems? Many companies got into this business but only few could solve the convenience and security at the same time. Though the Apple Pay scans the card number of the iPhone user, it chose the tokenization method which mediates the connection between the payment network and the card issuing bank and provides the Device Account Number without saving the number neither in the phone nor in the server. It equipped the user experience harmonized with technology and design [6].

References

[1] Ho, J., & Kang, D. K. (2016). Ensemble-By-Session Method on Keystroke Dynamics based User Authentication. International Journal of Internet, Broadcasting and Communication, 8(4), 19-25.
[2] Woo, S. M., & Jeong, G. (2016). A Study of WiMAX Security threats and Their Solution. International Journal of Internet, Broadcasting and Communication, 8(2), 66-74.
[3] Kim, In-Bum, Hwang, Joo-Yong and Park, Won-Hyung. A Study on Enforce the Policy of User Certification in Public Certificate System, Journal of Information and Security, Vol.10 No.4. 2010, pp.69~76.
[4] Mike, J., and David A. Personal Choice and Challenge Questions: A Security and Usability Assessment, Symposium on Usable Privacy and Security (SOUPS) 2009, July 15–17, 2009, Mountain View, CA USA
[5] http://www.nocutnews.co.kr
[6] Joseph Pine Ⅱ, B., and James H. Gilmore. Welcome to the Experience Economy, Harvard Business Review, 1998, pp.97~105.
[7] Rho, Sang-Kyu, Organic business : Network is eating the world, Organic Media Lab, 2016.
[8] http://mobilepaymentux.com