

Poster: A Web survey on Anshin about Information Security

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1. INTRODUCTION

Anshin is a Japanese term that indicates the sense of security. It is composed of two words, viz. An and Shin. “An” is to ease, and “Shin” indicates mind. Anshin literally means to ease one's mind. Traditional research on security has been based on the assumption that users would feel Anshin when provided with secure systems. However, it is not enough discussion about feelings such as Anshin. When systems are secure, it is not necessarily the case that users would feel Anshin. In this research we try and investigate the factors of Anshin. We have conducted a user survey on Anshin with the users of information security technology using factor analysis. We conducted a Web survey once again with around nine hundred ninety-eight subjects with the questionnaire and extract the factors of Anshin. As the result of the factor analysis, we found four factors such as "Competence", "Kindness", "Familiarity" and "Reputation".

2. RELATED WORKS

The similar concept of Anshin is trust which has been studied in the fields of psychology, philosophy, economics and sociology. Lewis [1] considers the emotional part of trust a major factor and position trust as irrational. Xiao [2] [3] identified the need for emotional trust in e-commerce. Murayama [4] define Anshin as the emotional part of trust. The factors of Anshin and it's a model is yet to be known.

3. SURVEY ON ANSHIN

3.1 PREVIOUS SURVEY

Our first survey [5], we conducted a questionnaire survey on Anshin when they use a security system or service on the Internet with four hundred and fifty two students of Iwate Prefectural University. Most subjects are computer science students and the only hundred ones are non computer science students. As the result of the analysis, we had six factors: Security technology, Usability, Experience, Preference, Understanding and Cognitive Trust. With the later survey [6], we conducted a survey with users without the knowledge, and had the five factors: Cognitive Trust, Kindness, Understanding, Preference, and Familiarity.

With those surveys, we use a questionnaire which was produced based on the preliminary survey with the computer science students. Since ordinary users using information security do not necessarily have technical knowledge, we wished to conduct a survey on Anshin about information security for the ordinary people. We needed a questionnaire to reflect the users without technical knowledge. We collected feedbacks from those without technical knowledge and produced a new questionnaire. We used the brainstorming [7] to collect the feedbacks. We integrated feedbacks using the KJ method [8] which is the information

integration technique implemented originally by Jiro Kawakita, an anthropologist.

3.2 CREATE A NEW QUESTIONNAIRE

We created the questionnaire that reflected ideas of users without the technical knowledge using Brainstorming and KJ method.

Firstly, we conducted brainstorming and collected feedbacks from users without the technical knowledge. Secondly, we integrated similar ideas by grouping and produce new question items. Thirdly, we incorporated the question items from the previous questionnaire based on the computer science students. Fourthly, we came up with a new questionnaire that reflected the users both with and without the technical knowledge. When one conducts a user survey on unknown factors like ours, one needs to have a questionnaire which reflects all the users not specific ones [9]. We conducted the preliminary survey with the new questionnaire. We examined whether we had a problem by a statistical analyses and improved the question items. Finally, we conducted a survey.

3.3 NEW SURVEY

We conducted a pretest using the new questionnaire through a web survey. The survey was conducted on nine hundred ninety-eight subjects, from 22nd to 24th, February, 2011. We asked for their ideas about Anshin when using online-shopping. Four hundred forty-one subjects were male, and five hundred fifty-seven were female. We had two question items whose floor effect. Therefore we conducted factor analysis with thirty-two items except two items.

We analyzed the survey results using factor analysis. As the result of factor analysis with the maximum-likelihood method and the promax rotation found that four factors are derived. The four factors were explained by 61.235%. To confirm reliability of measurement, Cronach's coefficient alpha of each subscale Factor 1 was 0.926, Factor 2 was 0.923, Factor 3 was 0.861, and Factor 4 was 0.804. We show higher three items of factor loadings in table 1. We resulted in the following factors:

Competence: this factor consists of seven items about the trust for the company. These items express competence of Trustee known as a factor of the trusts of the cognitive trust. This factor shows that the company has competence not to leak personal information.

Kindness: this factor consists of twelve items about the support of the company in case of trouble and usability of the system. These items express integrity and benevolence of Trustee known as factors of the trusts of the cognitive trust.

Familiarity: this factor consists of nine items to be related to feel familiarity for service from past experience or collective impression. In this factor, the case that subjects cannot explain concretely to feel Anshin is included.

Reputation: This factor consists of four items to be related the famous company or famous company's lines. The users feel Anshin that company or company's lines have a high reputation.

Table.1 Higher three items of factor loadings

No		1	2	3	4
9	It is felt that the service-provider company will not leak private information	1.010	-.115	.016	-.023
8	It is felt that the service-provider company is implementing measures to manage private information in an appropriate way.	.952	-.094	.004	.028
10	The service-provider company stipulates clearly the handling of private information.	.834	.034	-.036	.001
14	It is felt that a way to solve a mistake you make in operation or procedure is ready to help you.	.025	.928	-.141	-.017
15	In case of money trouble, the credit-card company offers security.	.023	.882	-.149	-.044
13	It is felt that a mistake you make in operation or procedure will be treated leniently such as by cancellation of contract or willingness to refund money.	.052	.854	-.123	-.001
32	You generally feel safe about it without any concrete reason.	.059	-.228	.908	-.021
33	You like it without any concrete reason.	.001	-.171	.898	-.008
31	You feel no problem with the system on the basis of your experience of using a similar system.	.031	.039	.750	-.030
7	The service-provider company is presented on TV and in newspapers.	.047	-.069	.040	.884
5	The service-provider company is dealing in well-known merchandise presented on TV and in newspapers.	.030	-.004	.032	.855
12	The service-provider company has not only an on-line shop but also an actual store.	-.033	.331	-.067	.410
	Eigenvalue	13.502	2.910	1.762	1.421
	Cumulative	42.194	51.288	56.796	61.235
	Alpha coefficient	0.926	0.923	0.861	0.804

4. DISCUSSION

We compared the differences between the factors extracted from the surveys conducted in the previous survey and the new survey.

The item that comprised the first factor extracted from this survey consisted of part of the cognitive trust factor (competence) from the previous survey.

The item that comprised the second factor consisted of part of the cognitive trust factors (Integrity, Benevolence) and kindness factors from the surveys conducted in the previous survey and new question items we added. The question items that reflect the users without technical knowledge was included in the second factor and the fourth factor. The question items in Kindness factor are not the contents of users without technical knowledge but the contents of individual users. It is necessary to discuss specialized interface in the individual users to give Anshin of Kindness factor. Also, Integrity and Benevolence of cognitive trust were included

in the kindness factors from the previous survey. It is deduced from this that Integrity and Benevolence have a relationship with the subjectivity of users.

The item that comprised the third factor consisted of familiarity and preference factors from the surveys conducted in the previous survey.

The item that comprised the fourth factor consisted of new question items we added. It is thought that Fame factor is the new Anshin factor.

5. CONCLUSION

In this survey, we extracted four factors of Anshin for information security. Comparison between main survey and previous survey showed that cognitive trust factor in previous survey was extracted as two different types in the main survey. This finding revealed that cognitive trust of integrity and benevolence has a relationship with the subjectivity of users. In future work, we will investigate relations with cognitive trust and the subjectivity.

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