Study on How Service Usefulness and Privacy Concern Influence on Service Acceptance

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ABSTRACT

As the highly improved Internet and information technology has led to the diversification of users' demands, personalization service attract lots of attention as a means to meet highly diversified demands of users. However, personalization service costs a lot. Also concerns over a possible violation of privacy have been raised since the service uses technology to find out the users' profiles. This research studies the advantages individuals acquire from personalization service and how privacy concern influences service acceptance. Research on related documents and information gathering from e-commerce sites derived six representative types of service. Questionnaires were utilized to research privacy concern according to services, service usefulness, and service acceptance. As expected, privacy concern has a negative relation to acceptance while service usefulness has a positive relation to it, thereby resulting in an offset between two variables. Moreover, they play a different role depending on what kinds of service or information should be provided. The results derived from this paper will help the e-commerce sites provide personalization service by collecting personal information while protecting users' privacy.

Keywords: Personalization, Personal Information, Privacy Concern, Service Usefulness, Service Acceptance

1. BACKGROUND AND OBJECTIVES

During a recent decade, the development and wide spread of Internet has made that technology be part of our everyday life. Such advance has also led to a diversification of users' demands and an increase of their buying power. Thus, to gain more customers, a wide range of service should be provided. Toward the ends, most companies are striving to utilize Internet more effectively.

Considering further developed e-commerce and Internet, the businesses' dependency on the Internet must have increased as well.

Lately, personalization has been under the spotlight as an effective way to attract more customers by satisfying their various needs. Among them, personalized websites by engaging in a one-on-one marketing have been proved successful in eliciting customer loyalty(Kim Myung-Hee, 2003).

However, there are some barriers to personalized Internet service through websites, such as, technological problems or possible privacy violation.

So, the potential of that service has not been fully realized except few cases, like My Yahoo.

This paper primarily addresses a possible balance between personalization and privacy since personalization service requires gathering of users' private information. Also it seeks to document the specific services of personalization and how privacy concern responds to each.

2. THEORETICAL BACKGROUND

2.1 Definition and Characteristics of Personalization

According to Allen , Kania and Yaeckel, personalization means providing goods and services personalized to the users' specific needs(Allen, Kania and Yaeckel, 1998). To do this, finding out users' particular requirements is essential, which is the same with collecting their profiles. In the past, information was derived from personal data provided by the user himself.

Recently, however, more specified and various personal profiles can be obtained through more sophisticated frameworks, such as, search engines, site transaction logs, cookies, shopping carts, and forms. Search engines can profile the opinions stated by a user in the news, chatting groups or other official online forums, thereby compiling his social and political standpoints. Site transaction logs collect and analyze specific information on the pages that the user visits. Of the most popular use are cookies, which track down personal information over a single websites or thousands of ones, and of which technology is advancing each day.

2.2 Effectiveness of Personalization

Peppers and Rogers(1994), and Rogers stated that personalization is an important factor in a success in a newly structured e-commerce market. Personalization is also an effective means to elicit customer loyalty, thereby, obtaining a competitive. Merits of personalization do not stop there. From a user's standpoint, he can save time to search the information and also has a wide array of options available to him(Allen, Kania and Yaeckel, 1998).

Despite some negative opinions on the personalization, a survey conducted by one American research firm revealed that American Internet users are willing to provide their private information as long as the website does not use it for other purposes or disclose it without his explicit consent(Kevin Mabley, 2001).

According to the survey by Intelliquest, more than a half responded that personalized service is the very reason for visiting a certain website. 56% said that the service is interesting while 54% said it attracts their attention. 53% said that the service is very useful, and 45% responded it provides the needed information.

As such, personalization draws users' attention as well as saves time and cost in exploring information, thus, is of much value to users. To sum up, the wide spread use of personalization is expected.

2.3 Definition of Privacy and Private Information

The concept of privacy first came up in a book, *"The Right to Privacy,"* by Samuel D. Warren and Louis Brandeis(Samuel Warren and Louise Brandeis, 1890). They defined privacy as 'a right to be alone, not disturbed by anyone.' Since then, with the development of Internet, there have been worries over a possible disclosure of private information to a third party, and a subsequent violation of privacy. Accordingly, the concept itself has been evolved to 'an active right to prevent others from acquiring personal information.'(Bang Seok-ho, Kim Eun-

Ki, Kim Jin, 2001). Currently, the concept, privacy is defined in a legal term as follows; supremacy of private life and inviolability of freedom is a right not to be disclosed of personal life; a right to protect and control personal information; a right whose protection is in an urgent need as informationization of the society is rapidly progressing.

Usually information contained in privacy is the information about a living person, and its contents would include personalized symbols, words, sound, or multimedia approached by a name or a social security number(Kim Jung-woo, 2001).

3. HYPOTHESES, FRAMEWORKS AND METHODS
3.1 Hypotheses and Frameworks
The most difficult obstacle in realizing personalized service is the problem s related to privacy(Allen, Kania and Yaeckel, 1998). Such problems are arisen because while personal information makes possible personalized goods and service, depending on the purposes of its usage, it can also pose a threat to the user himself.

Kenneth claimed that the main issues concerning privacy are: what kinds of personal information is being collected for what purposes; who did the gathering?; whose information is being subjected?; how much the collected information is being utilized(Kenneth C. Laudon & Carol Guercio Traver, 2002). These issues have been spawn a variety of opinions since sellers and buyers of personal information are taking a different view. Kenneth said that sellers claim that collecting personal information leads to target ads for specific users, thereby helping them explore goods and service that they would find interesting. In addition, businesses can save expenses since they can narrow down the target customers. Then, the industry, as a whole, can increase the effectiveness of advertisements, and the increased profits will go to service improvement in the form of free-of-charge online contents. Also, businesses can predict demands on new goods and services by surveying profiles and history of online activities of users.

On the other hand, some people claim that gathering private information of users not only damages their expectations for privacy during they are on-line but also discourages them from searching sensitive or controversial issues or websites. Most important, users do not know that they are being profiled, and companies are reluctant to let them know. In fact, it is so easy to collect information anonymously and to change information about collection policies without any notices to users.

The most problematic issue over privacy protection is a virtual absence of users' control over their private information. As a countermeasure, some countries are setting up a number of protection mechanisms. In many countries, for instance, e-commerce law stipulates that individual consent be required to gather personalized information.

A study which hypothesized that the lower control over information would lead to highly violated privacy showed that people who think they have power over the usage of their information perceive less requiring privacy. Another study showed that the less power over their information led to more negative attitudes towards the secondary usage of the information (Kim Eun-kyung, 2003).

When information is being utilized for secondary purposes without a consent, privacy is being violated (Culnan M.J. and Bies, R.J., 1999). And privacy concern is alleviated when information is being collected for the first purpose, when users retain control over the future usage of their information, when the utilized information is related to the e-commerce that she engages and when information is used in appropriate survey on users.

Adding all these previous results, we can derive our first hypothesis.

H1. Concern for privacy of personal information will have a negative effect on service acceptance.

Laufer and Wolfe concluded that individuals do not willingly disclose their information unless it will be utilized in a fair and positive way to promote their economic and social benefits (Laufer, R. S., & Wolfe, M., 1977). Moreover, previous studies have indicated that two seemingly contradicting sides of information disclosure, gains and potential threats, are balanced (Delega, V.J., Metts, S., Petronio, S., & Margulis, S. T., 1993). That is, people would disclosure their information as long as such act would be reciprocated, which is when gains would surpass potential dangers (Thibaut, J., & Kelley, H. H., 1959).

Figure 1. Framework
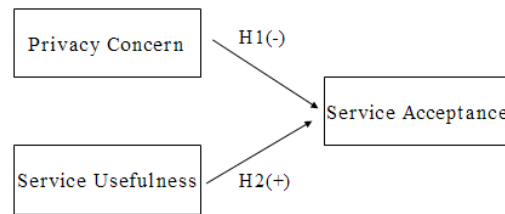
Such information exchange in the society also applies especially when users believe in an analysis of cost-benefit. Under that principle, people will give up privacy of their private information when such act would give them benefits, especially when the potential value exceeds potential dangers. However, this presupposition has not been empirically proved under different scenarios of privacy-benefit trade-off cases (Culnan, M.J. and Bies, R.J., 1999). So, the following hypothesis is drawn.

H2. Service usefulness of personalized service will have a positive effect on service acceptance.

3.2 Methods
To confirm the aforementioned hypotheses, previous studies were used to find different types of online personalized services.   In Allen et al.'s study, it is divided into 5 types of personalization: Personalized Experience, Personalized Information, Personalized Care, Cross & Up-Selling, Personalized Community. Another studies suggested 4 different types of personalized services: visiting and inquiring after someone´s health, differentiation of web pages and auto-updating about interest contents, and personalized information into providing information reflected user's inclination and providing recommended information and so on(Kim Jonh-won, 2001). Based on the previous research, we restructured the services into six personalized services: greetings, customized pages, notices for credit card payments, customized according to users' tastes, introducing goods in tune with users' past purchases, service in need of a wide range of personal information.

Date is collected through questionnaires surveying 139 persons of whom males are 86(56.6%), females 53(43.3%). For the age, below 24 are 14(10.1%), 25 through 34 are 107(77%), and above 35 are 18(12.9%). Occupations are divided into four groups; college students 73(52.5%), administrative positions 37(26.6%), specialists 25(17.8%), and none of the above 5(3.1%). Questionnaires have a scale of one to seven with 12 questions which are divided into five sub-questions. From question number 1 to 6, privacy concern is measured, while from number 7 to 12, service usefulness and service acceptance are surveyed. For each personalized service, required personal information for service is derived. Then privacy concern for the service was asked for the most private information for the service. For instance, the service 2 is about the personalized web front showing current stock prices of interest. To service this, information such as log-in and Favorite stock information is required. Then the privacy concern question was asked for the favorite stock information.

4. RESULTS AND IMPLICATIONS FOR FUTURE STUDIES
4.1 Results
To analyze the results, the average points of six types of service are drawn first. Through this, how the respondents rate each service on privacy concern, service usefulness, and service acceptance is derived. As a result, among six kinds of service, the highest one in privacy concern turns out to be the one which requires monthly income, social security number, and workplace contact number.

On service usefulness and service acceptance, service that provides information about favorite stocks is rated the most useful one.

To analyze a casual relationship among two independent variables, privacy concern, service usefulness and service acceptance. Table 2 shows that the results of multiple linear regression. The following. R square for greeting service is 0.496, indicating that privacy concern is not much related to service usefulness and acceptance.

Table 1. Average points for each service

Information	Service (1~7 points)	Privacy Concern	Service Usefulness	Service Acceptance
Log-in, Name	[Greetings] On your website, "Hello, 000. Good morning" Such service requires your name on the page.	5.15	3.17	2.95
Log-in, Favorite stock information	[Customized web page] On your website, Samsung Electronics 493,000(from yesterday 2,000▼), SKT 180,500(from yesterday 1,000▼) This service provides you with favorite stock information. Such service requires an input of your favorite stock (company name).	5.14	4.91	4.56
Log-in , Credit Card Number, Credit Card Payment Day	[Notice for credit card payments] On your website, "Mr./Ms. OOO, two days are left for OO card monthly payment. Do you want to do it now? Such service requires you to give your credit card number and payment date to an website.	5.56	4.06	3.58
Log-in, Favorite Sports Team	[Customized service according to users' tastes] On your website, "News for today's match between FC Seoul and LG Twins" This service gives you latest information on your favorite sports team. Such service requires you to provide your favorite sports team information with the website.	4.59	4.40	4.16
Purchase History (Name , price, date of purchase)	[Introducing goods in tune with users' past purchases] 'Mr./Ms. OOO, A new book on Toeic by OOO has just released. Do you want to find out more information? This service analyzes your past purchasing pattern and recommends you other goods. Information of your purchasing history, price and date is required for such service.	4.85	3.99	3.68
Monthly Income, Social Security Number, Workplace Contact Number	[Service in need of various personal information)] "Mr./Ms. OOO. We will compare your current monthly insurance payment with a new insurance without dividends for singles." This service recommends goods in accordance with your information. Such service demands an input of social security number, monthly income and workplace contact number.	5.68	3.10	2.47

For the customized web page service, R square is .668, however, privacy concern, which is -0.95, does not affect much on service acceptance.

As in the case of the notice service for credit card payment, R square is .646; privacy concern -.170; service acceptance .884. This implies that privacy concern has a negative relationship with service acceptance while service usefulness has a positive one with it. Similar probability is also .000 for service usefulness, .047 for privacy concern, implying a highly reliable result.

For the customized service according to users' tastes, R square is .695; privacy concern, -.168; service usefulness, .970. This means that privacy concern has a negative effect on service acceptance while service usefulness has a positive effect on it. Similar probability is also .000 for service usefulness, .009 for privacy concern, indicating a highly reliable result.

Service introducing goods in tune with users' past purchases has .670 R square, -.077 privacy concern, and .929 privacy usefulness. Such result means that service usefulness is positively related to service acceptance while privacy concern is negatively related to it.

For service in need of various personal information, R square is .618; privacy concern -.139, service usefulness .839. This says that while privacy concern has a negative effect on service acceptance, service usefulness has a positive effect on it. Similar probability is .000 for service usefulness, indicating reliability, however, privacy concern records .056, a much less reliability.

Lastly, a result analyzing a relationship between the average for privacy concern and service usefulness and service acceptance on each six types of service is followed as: R square .694, privacy concern -.153, and service usefulness .932.

As such, for all the service and its subsequent collection of information, privacy concerns have a negative effect on service acceptance while service usefulness has a positive effect on it. In sum, in the remaining service except the ones for greetings, favorite stock information, and introducing goods in tune with users' past purchases, privacy concern is negatively related to service acceptance. Moreover, service usefulness is positively related to service acceptance in all above six types of service.

4.2 Implications for Future Studies
This paper is limited in a number of ways: the samples are not representative in a matter of age, restricting only in 20s and 30s; they are also highly educated people with college degrees, at the very least; a sample of 139 persons is also unrepresentative; only six types of online services are surveyed while there are countless numbers of available service on the Internet; the implication of this research is limited only on the current e-commerce. There is no guarantees for the coming online trades, such as, m-commerce or u-commerce.

Thus, studies on various markets (e-commerce, m-commerce, and u-commerce) as well as on a wide variety of people, age groups, and education, for the sake of much improved data reliability, are needed.

Table 2. Results of multiple linear regression coefficient

Information / Service	R Square	Non-standardized coefficent		T	Similar probability
		B			
Log-in, Name [Greetings]	.496	(Constant)	1.03	2.18	0.31
		usefulness	.747	11.4	.000
		privacy concern	-.086	-1.12	.265
Log-in, Favorite stock information [Customized web page]	.668	(Constant)	.324	.685	.494
		usefulness	.962	16.5	.000
		privacy concern	-.095	-1.31	.193
Log-in , Credit Card Number, Credit Card Payment Day [Notice for credit card payments]	.646	(Constant)	.938	1.58	.116
		usefulness	.884	14.6	.000
		privacy concern	-.170	-2.20	.047
Log-in, Favorite Sports Team [Customized service according to users' tastes]	.695	(Constant)	.654	1.72	0.88
		usefulness	.970	17.5	.000
		privacy concern	-.168	-2.65	.009
Purchase History (Name , price, date of purchase) [Introducing goods in tune with users' past purchases]	.670	(Constant)	.347	.855	.394
		usefulness	.929	16.4	.000
		privacy concern	-.077	-1.12	.233
Monthly Income, Social Security Number, Workplace Contact Number [Service in need of various personal information)]	.618	(Constant)	.663	1.47	.144
		usefulness	.839	14.8	.000
		privacy concern	-.139	-1.93	.056
All of the above	.694	(Constant)	.689	1.97	.051
		usefulness	.932	17.4	.000
		privacy concern	-.153	-2.86	.005

10. REFERENCES

[1] Kim Myung-Hee (2003). A study on the effects of user satisfaction and loyalty on the perceived personalized services.

[2] Kim Eun-kyung (2003). Consumer attitude research on personal information the second use.

[3] Kim Jung-woo (2001). Law main contents and enforcement way on Information network system utilization advancement and information protection etc. No. 6 Information protection symposium.

[4] Kim Jonh-won (2001). Consumer Reaction Research on Personalization and Mutually Action. A master´s thesis, Yonsei University.

[5] Bang Seok-ho, Kim Eun-Ki, Kim Jin (2001). Research on privacy protection countermeasure that prepare to information society. Korea Information Society Development Institute.

[6] Allen, Kania and Yaeckel (1998). Internet World Guide to One-to-one Marketing. Wiley Computer Pub, New York.

[7] Christopher Kresser (1996). Special focus: web business models: Building "Webcentricity". Jupiter Communication 1996.

[8] Culnan M.J., Bies, R.J. (1999). Managing Privacy concerns strategically: The implications of fair information practices for marketing in the twenty-first centry. In C. J. Bennett & Grant(Eds.), Visions of privacy : Policy choices for the digital age(pp. 149-167). Toronto, Ontario, Canada: University of Toronto Press.

[9] Delega, V.J., Metts, S., Petronio, S., & Margulis, S. T. (1993). Self-disclosure, Newbury Park, CA: Sage.

[10] Kenneth C. Laudon & Carol Guercio Traver (2002). E-Commerce. Addison Wesley.

[11] Kevin Mabley (2001). Privacy VS Personalization Cyber Dialogue Inc.

[12] Laufer, R. S., & Wolfe, M. (1977). Privacy as a concept and a social issue: A multidimensional Developmental theory, Journal of Social Issues, 22, 24-42.

[13] Peppers & Rogers (1994). The one-to-one future. Piakus, London.

[14] Samuel Warren and Louise Brandeis (1890). The Right to Privacy. Harvard Law Review 4, 4(5), 193~220.

[15] Thibaut, J., & Kelley, H. H. (1959). The social psychology of groups. New York: Wiley.

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