Effectiveness of personalization of information

in the information overloaded era

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Abstract

In today's information overloaded era, "personalization" of information   is attracting attention as an indispensable tool. Personalization is "To provide information to consumers based on consumers' preferences", and it is said that it reduces information overload in previous studies. However, practically, it seems that personalization is not functioning properly. Therefore, our research question is what appropriate personalization in information overloaded era is. Based on the research question, we supposed that "ease of imaging" and "enjoyment" are indispensable for personalization from previous studies.

In order to clarify the effectiveness of these 2 factors, we conducted a quantitative research set residents in Japan and America as subjects. As a result of collecting respondents of 175 residents in Japan and 86 residents in America for hypothesis verification, we verified that personalization as a function is not likely to lead to a reduction in information overload, common to both of two. Our results contradict with previous studies that have found positive relation between personalization and information overload. Now that personalization is used by many companies as a tool to reduce information overload, this study will provide valuable suggestions to companies.

keyword： Information overload, Personalization, Ease of imaging, Enjoyment, Apparel industry, EC

Ⅴ．Conclusion and Future Research

Ⅰ. Introduction

Consumers nowadays have multiple channels to access different kinds of information. However, consumers have limited time to consume all the information. This tends to be information overload, resulting in consumers' difficulties of judging the authenticity of the information and making proper purchase decisions. According to a survey by the Ministry of Internal Affairs and Communications, the main channels people use to access information are smartphones, personal computers, and tablet-type devices, which 79.2% of people in Japan use smartphones, over 74.0% people use personal computers, and the tablet-type device ownership ratio doubled from 21.9% to 40.1% in the past five years. (Ministry of Internal Affairs and Communications, 2019). These data further shows that the popularization of mobile devices accelerate the information overload. This tendency has been seen not only in Japan but also in other countries (Hootsuite & We are social, 2019 : Pew Research Center, 2019).

 To eliminate the negative influences of information overload, "personalization" which "providing information based on consumers' preferences" can be a key measure. Its effectiveness to solve information overload has been proven academically and is an indispensable tool today. Especially in the online environment, personalized recommendation advertisements can provide information based on consumers' preferences and needs.

However, the biggest complaint about EC website is "recommending products they don't want", which shows the personalization is not functioning properly (Nikkei Inc., 2019).

Initially, personalization was developed as a tool to reduce information overload and help making decisions. However, as the information environment has changed and

technology has developed, i ts possible to deliver information constantly, and it has turned into a tool aimed at corporate strategies (Schafer et al., 2001).

Due to such changes in the information environment, consumers are constantly exposed to a large amount of information, so information overload has been normal . Ariely (2000：233) stated "Company don't know information which consumers want" as the company's top issue. Nagai (2015： 192) suggested that the current consumers' confusion is unavoidable, and stated that the need for provision of information has a positive influence on consumers. Currently, the conventional way of providing information is being reconsidered. What is the appropriate personalization considering the background of modern times？ In this study, we focus on Japanese consumers and American consumers in terms of differences in cultural norms, and we will quantitatively clarify what appropriate personalization of information is, which leads to reduction of information overload.

In particular, this study focuses on the online market in the apparel industry. In the apparel industry, consumers are exposed to almost infinite choices such as trends, clothing shapes, sizes and colors, and are prone to information overload when making purchase choices. Therefore, as described above, personalization is adopted as a measure for reducing information overload. However, according to Mr. Yamamoto, Director of Retail Management, Levi Strauss Japan Co., Ltd., the apparel industry is facing the problem to implement offline appropriate personalization into online environment. Despite this current problem, apparel has the highest online purchasing rate by industry, and its growth continues. Therefore, in the apparel online market, it is essential to consider appropriate personalization of information.

In today's information overloaded era, the provision of appropriate personalization of information can be a differentiator and bring a competitive advantage to companies. We will try to develop hypothesis after identifying issues from previous research reviews.

Next, we will conduct an empirical study and finally present academic and practical implications and describe future research topics as a summary.

Ⅱ. Previous Research

1. Research about information overload

(1)Definition of information overload

Jacoby et al.(1974) defined information overload as "Phenomenon that human information processing ability has a limit, and when information exceeding the limit is presented, it becomes confused and malfunctions" (Jacoby et al, 1974 : 33). While, Herbig & Kramer (1994) defined information overload by standing on the consumers' side, "A phenomenon in which excessive information is presented to consumers, which is burdensome and has an adverse effect on decision making and judgment" (Herbig & Kramer, 1994 : 45).

Based on the previous research, we defined information overload as "Phenomenon that unnecessarily information is presented exceeds the limits of consumers' information processing abilities and has an adverse effect on decision making and judgment" in the following research.

(2) Overview of information overload

Initially, the research of information overload only focused on how amount of information influences consumers increased. It became clear that consumers can not review all of the information, therefore they can only use limited information to make decisions, which decrease the accuracy of decision-making (Ikeda, 2010 : Malhotra, 1982 : Jacoby, 1984 : Keller & Staelin, 1987). What's more, this kind of inaccurate decision-making will lead to regrets and the decrease in satisfaction, causing a vicious circle in

consumer purchasing behavior (Jacoby, 1974：Iyengar & Lepper, 2000：Togawa, 2015).

However, there are also some studies expressed different opinions. Some researchers argued that abundant information that has a positive impact on consumer decision-making, and insisted that various types of products connect to gain a competitive advantage (Arnold et al., 1983：Berger et al., 2007：Alba et al., 1997).

Moreover, it was clarified that information overload is not only caused by the increase in the amount of information but also by the quality of information (Keller & Staelin, 1987). Keller and Staelin (1987：211) clarified that improving the quality of information can make consumers felt less confusing when they face information overload, and have a positive influence on decision-making and satisfaction. Besides, the similarity of information makes consumers feel confused and prevent them from doing accurate choice which will lower their loyalty has also be pointed (Helgeson et al., 1993：Walsh et al., 2006). In recent years, there have been many studies focusing on the purchasing process at EC sites (Nagai：2013). Research is being carried out in response to the complex information environment. Walsh et al. (2006：699) found that consumers' confusion due to the quantity and quality of information is caused by these three factors, overload, ambiguity, and similarity confusion.　Today's consumers are exposed to vague and unreliable information resulting from diversification of devices and source of information. Therefore, how to provide information appropriately to consumers has become a big issue that all marketers are facing.

2. Research about personalization

(1) Definition of personalization

Roberts (2003：462) defined personalization as "The process of preparing individual communications for specific people based on explicit and implicit preferences". limited in online personalization area, Adomavicius & Tuzhilin (2005：2) defined

personalization as "To provide customers with customized content and services based on information gained through service and user interaction". This study only assumes personalization of information provided to consumers online so in this study personalization defined as "To provide information based on consumer preferences" based on previous research.

(2) The function of online personalization

There are two phases in the procedure for personalization, the learning phase and Americaage phase (Schafer et al., 2001). During the learning phase, companies analyze information such as preferences and interests, past purchasing behavior and consumer profiles through online interaction with consumers, and during Americaage phase, they provide information that suits each individual (Schafer et al., 2001). The method for presenting personalized information are mainly divided into three types: content filtering type, collaborative filtering type, and hybrid type (Khusro, 2016). The content filtering type recommends products that are similar to their favorite products based on past consumer behavior, while the collaborative filtering type recommends products by matching the behavior of other consumers with similar hobbies and preferences (Khusro, 2016). In the case of the hybrid type, more advanced information can be presented by combining these two technologies (Khusro, 2016).

The way of presenting information has been changing with the evolution of technology. Now companies can use push technology for delivering recommendations such as e-mail or notification that make it possible to build long-term relationship (Goy et al., 2007 : Schafer et al., 2001). In addition, the number of targeted consumers who can receive personalized information has been increased, and a wide range of personalization such as category-based ranking display and product attribute-based recommendations has been conducted for new consumers (Schafer et al., 2001)

⑶ The relationship between online personalization and information overload

It has become clear that online personalization allows consumers to make efficient choices and have a positive impact on decision making (Ha, 2000：Srinivasan et al., 2000).

In addition, in the studies that focuses on confused consumers, personalization reduce information overload. Previous studies have shown that personalization is effective for supporting consumer decision-making under information overload (Tam & Ho, 2006：Xiao & Benbasat, 2007). Aljukhadar et al. (2012：64) showed that consumers suffering from information overload make choices that rely on recommended features, and personalized decision-making tools will be a competitive advantage for retailers (Aljukhadar et al., 2012).

From such a background, it can be seen that personalization developed to reduce information overload is an indispensable tool for current companies (Ha：2000).

However, it has also been pointed out that consumers may have negative emotions in information based on personal data. Under the current situation, personalization has not been accepted widely by consumers suffering from information overload (Murray & Häubl, 2008; Pappas et al.2014). Thus, although personalization has been shown to have a positive impact on consumer decision-making under information overload, its validity is not clear.

3. Identifying issues

As mentioned in the previous section, personalization has been developed to reduce information overload and is an indispensable tool in today's information overloaded era. However, under the present circumstances, consumers are suffering from information overload. Therefore, there is some doubt as to whether personalization is effective in

information overload.

According to a survey conducted by infogroup in 2019, 93% of research subjects responded that personalized information not relevant to them is recommended from companies, and 90% of test subjects responded that it was annoying (infogroup, 2019). Moreover, the survey conducted by Accenture pointed out that modern consumers are discomforted by personalized information sent from companies one after another, and they tend to lose interest in information from companies (accenture, 2017).

Under the present circumstances, it is clear that personalization is not functioning properly as a tool to support consumer decision-making. Schafer et al. (2001; 133) stated that location of a real store is the advantage, however, in an EC site, the business must depend heavily on information advantages. Therefore, seeking more effective personalization providing benefit to consumers is a problem that marketers can face.

Regarding to the issues mentioned above, we will develop hypotheses to further study on the potential causes that lead to personalization issues.

4. Hypotheses developing

(1) Causes of personalization issues

In the previous section, we talked about that personalization is not functioning properly in today's information overloaded era.

In this section, after clarifying the reason, we will discuss what more effective personalization is. We compared the method that have been shown to be effective in reducing information overload in previous studies with the part where personalization functions can be achieved in the figure below in order to clarify the reason why personalization is not functioning properly.

The table of left side shows solutions for information overload based on previous studies, and right side shows the items of functions of personalization in particularly

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that meet the solutions for information overload.

Table 1: Methods for reduction of information overload and functions of personalization

Solutions for Information Overload				Functions of Personalization
Iyengar & Lepper (2000); Huffman & Kahn (1998)	Categorizations	➡	○	Schafer et al. (2001); Gorgoglione et al. (2019)
Chen(2009)	Filtering	➡	○	Khusro & Ullah (2016); Benjamin et al. (2002); Goy et al. (2007)
Diehl et al. (2003)	Ranking Based Presentation	➡	○	Khusro & Ullah (2016); Benjamin et al. (2002); Goy et al. (2007)
Chernev (2003)	Understanding Consumers' Preference	➡	○	Roberts (2003); Adomavicius & Tuzhilin (2005); Khusro & Ullah (2016)
Keller & Staelin (1987)	Improvement of Quality of Information	➡	△	Roberts (2003); Adomavicius & Tuzhilin (2005)
Spassova & Isen (2013)	Giving Positive Emotion	➡	△	Pappas et al. (2014)

Source: Author.

Table 1 shows that the reduction of information overload can be generally achieved by the functions of personalization, however, "improving the quality of information" and "giving positive emotions" are not effectively solved by the functions. In terms of "improving the quality of information", personalization is provided based on consumer relevance, such as consumer preferences and interests. Nonetheless personalization has these functions, as mentioned in the previous section, many consumers are unsatisfied with the recommendations that are not related to their demands. Because of the dissatisfaction, "improving the quality of information" is considered to be a current personalization issue. In addition, as for "giving positive emotions", Pappas (2014; 193) pointed out the importance of positive emotionss in personalization. The appropriate personalization including enjoyment affects positively on intention to purchase (Pappas, 2012). However, consumers nowadays feel irritated with the personalized recommend notifications (accenture, 2017; infogroup, 2019). Therefore, for current personalization,

"giving positive emotions" is also an issue to work on.

According to Goy et al. (2007：511), the functions of personalization itself has no value. Considering these functional limitations and the current situation described in the previous section, the lack of "improving the quality of information" and "providing positive emotions" can be considered as the reasons why current personalization is not functioning properly to reduce information overload.

Therefore, in this study, we clarify the impact of personalization considering "improving the quality of information" and "providing positive emotions" on the reduction of information overload compared to personalization as a function. In the next section, we will describe in detail about these 2 elements in the next section.

⑵ About "improving the quality of information" and "providing positive emotions"

First, we will discuss "improving the quality of information". In order to improve the quality of information, we focused on the relevance and concreteness of information and thought that "ease of imaging" should be taken into account. Bone & Ellen (1992：93) expresses "imagery" as "multi sensory；may involve sight, taste, sound, smell, and tactile sensations". In online purchasing, physical confirmation of products is not possible, and it is difficult to make judgments based on realistic experiences.

Therefore, in this study, "ease of imaging" is defined as "Easy to evoke the scene of use".

As mentioned in the personalization problem, consumers are uncomfortable with providing information that is not relevant to them. In addition, according to the Nikkei xTECH survey, "Recommendation of products that are not suitable for my life" is cited as a consumer complaint about the recommendation function (Nikkei Inc., 2019). Therefore, it can be seen that low-quality information that is not relevant to consumers

is being presented.

Keller & Staelin (1987 : 211) focused on the quality of information, and showed that information overload was reduced by presenting information relevant to consumers as high-quality information. In addition, Yoo & Kim (2014 : 2464) stated that presenting more specific image of consumption sceneses rather than presenting only product images, and making it easier to recall usage scenes have a positive impact on consumers purchase intentions.

In practice, when ITOCHU Techno-Solutions Co., Ltd. provided information that can be used to recall usage scenes tailored to individual needs, both the purchase rate and understanding of products increased. In fact, Levi Strauss Japan Co., Ltd., Director of Retail Management, Mr. Yamamoto also stated his view that to recall usage scenes is effective for consumer decision making. For these reasons, in modern information provision, it will be required to give concreteness to information and to recall usage scenes easily. In other words, presenting specific information, consumers can receive information that is relevant to their preferences. This helps them to select useful information more efficiently, and thus, leading to the reduction of information overload. Based on the above, giving personalization "ease of imaging" is considered as an effective way to reduce information overload. Therefore, we propose the following hypotheses.

Hypothesis 1 "Personalization" has a positive impact on "ease of imaging".
Hypothesis 2 "Ease of imaging" has a positive impact on "reduction of information overload".

Next, we will discuss "providing positive emotions". "Enjoyment" itself is not clearly conceptualized. However, "enjoyment" is expressed as the excitement and good feelings in some previous studies (Childers et al., 2001; Navi & Krcmar, 2004).Therefore, in this

study, we defined "enjoyment" as "Emotions that bring excitement and good feelings".

Among positive emotionss, "enjoyment" of online purchasing has a positive impact on consumer purchasing behavior. Therefore "enjoyment" is an important factor for marketers.

In particular, providing "enjoyment" to consumers who are uncomfortable with excessive advertisements can attract their attention to revitalize EC purchases (Nikkei Ink., 2018). Therefore, taking "enjoyment" into consideration when presenting information is thought to reduce the discomfort that consumers have. As for information provision, Pappas et al. (2012：172) clarified that, when appropriate personalization is applied, it brings "enjoyment" to consumers.

For these reasons, it can be said that in modern information provision, it is required to add "enjoyment" to personalized information and provide excitement to consumers.

In addition, regarding the relationship between positive emotionss and decision-making, Ishibuchi (2016：46-47) illustrated "Positive Affects" as "It is enjoyable to shop at a store", which has a positive impact on consumers' information processing ability and promotes purchases.

Spassova & Isen (2013：406) conducted four experiments that manipulated the subject's emotions. Result of the research, it was clarified that people who were given positive emotionss, reduced the perception of difficulty in selection compared to giving neutral emotions. That is, posgiving positive emotionss has a positive impact on reduction of information overload.

Based on the above, it is considered that adding "enjoyment" to "personalization" is effective in reducing information overload. Therefore, we propose the following hypotheses.

Hypothesis 3 "Personalization" has a positive impact on "enjoyment".

*Hypothesis 4 "Enjoyment" has a positive impact on "Reduction of information overload".*

As mentioned before, it has been clarified in previous studies that personalization affects the reduction of information overload (Tam & Ho, 2006 : Xiao & Benbasat, 2007). However, considering the changes in the information environment due to the spread and diversification of mobile terminals in recent years, its validity is doubtful.

Based on the above, we propose the following hypothesis to verify the effectiveness of personalization in today's information overloaded era.

Hypothesis 5 "Personalization" has a positive impact on "Reduction of information overload".

Table 2 shows the hypothesized model.

Table 2: Hypothesized Model
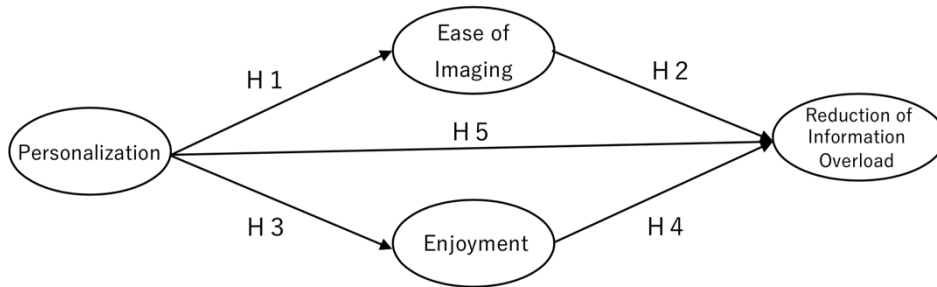
Source: Author.

Ⅲ. Experimental Research

1. Methodology

(1) Country Surveyed

Although the commercial depression has lasted in the current apparel market in Japan, market growth is still expected in overseas (Fukuda, 2017). Many Japanese brands pay attention to the overseas market growth and they are eager to expand to overseas (Forbes Japan, 2018). From this tendency, an international perspective is indispensable and may provide useful suggestions in practice.

In addition, it is clarified that consumer decision-making deeply based on the country's cultural norms, and the information used for decision-making is different (Hong et al., 1987 : Chu et al., 1999). Therefore, the impact of the above two factors on the decision-making of consumers suffering information overload may differ depending on differences in cultural norms. Cultural considerations are essential for marketers to provide information internationally. In particular, high-context culture is prominent in Japan. (Hall & Hall, 1990) Then, in this study, focusing on low-context culture and high-context culture, America was selected for comparison with Japan.

Countries with low-context culture require explicit information in language, while countries with high-context culture like Japan require non-linguistic and implicit information (Hall, 1976). In fact, in America, rational information based on facts such as numerical values, product characteristics and comparing with other companies' products is presented (Hong et al., 1987 : Donthu, 1998). On the other hand, in Japan, such direct expressions are regarded as aggressive and are not widely accepted. Therefore, present information that relies on emotion induction (Hong et al., 1987). Chu et al. (1999 : 166) noted that Americans prefer explicit information that focuses on numbers rather than Japanese, and pointed out that there is a need for different information between the two

countries. Due to differences in cultural norms, the impact of the above two factors on decision-making of consumers under information overload will be different.

Though the country with low-context culture is mainly America and Europe, we focus on America because of the difference in the information environment. This is because the differences between the two countries were clear in Japan and America, not only in the needs of consumers for information, but also in the information environment they interact with on a daily basis. For example, in America, comparative advertisements that emphasize the characteristics of their products by comparison with competitor's one are common, however in Europe and Japan, it was not common (Donthu, 1998). Therefore, America and Japan have the big difference in the information environment.

Based on the above, this study selects America among countries with a low context culture and compares it with Japan.

(2) An Outline of the survey

In previous research on information overload, respondents were placed in an information overload environment, and comparative experiments were conducted (Aljukhadar et al, 2012：Tam & Ho, 2006：Xiao & Benbasat, 2007). However, information processing ability and perceived information overload varies among individuals (Chen et al, 2009：Henry, 1980). Therefore, in this study, we conducted a questionnaire survey.　Respondents were required to answer the questionnaire based on their usage experience of specific apparel EC site.

(3) Implementation date of the survey and sampling

This research period in Japan lasted from September 21st, 2019 to September 25th, 2019, and this research period in America lasted from September 21st, 2019 to October 21st. Online survey questionnaire on Google form was conducted which targeted two

kinds of residents who live in America and live in Japan respectively. The total number of respondents was 333, and of 261 were valid for the analysis, as the target is people who have used apparel EC site (Japanese: 175, Americans: 86). The measurement model and the proposed hypotheses were validated using convergent validity and discriminant validity. Hypotheses are tested using structural equation modeling (SEM). The analyses were adopted through "SPSS Statistics 23" and "AMOS 23.0" which are analytics software technologies.

(4) Questionnaire items

The questionnaire was based on constructs that were measured using and adapting existing scale items in the literature. There are 13 questionnaire items concerned with four constructs; "personalization", "ease of imaging", "enjoyment", "reduction of information overload". All measures were rated on a 5-point Likert-type scale (Table 3).

Table 3: Constructs and items used in the questionnaire

Constructs	Source	Measures		Scale
Personalization	Pappas et al. (2014) Ha et al. (2010)	Q01	This EC site could provide me with personalized information tailored to my activity context.	strongly disagree - strongly agree
		Q02	This EC site could provide me with information tailored to my preferences or personal interests.	strongly disagree - strongly agree
		Q03	This EC site had the tool to recommend products that suit you.	strongly disagree - strongly agree
Ease of Imaging	Bone & Ellen (1992)	Q04	As you see information on this online clothing store, to what extent did any images come to mind?	to a very small extent - to a very great extent
		Q05	I can imagine of wearing or texture while I saw this EC site.	strongly disagree - strongly agree
		Q06	How difficult or easy were the imagination of use the scene to create?	extreamly easy - extreamly difficult
		Q07	How quickly the images were aroused ?	very quickly - very slowly
Enjoyment	Childers et al. (2001)	Q08	Shopping with this EC site would make me feel good.	strongly disagree - strongly agree
		Q09	Shopping with this EC site would be exciting.	strongly disagree - strongly agree
		Q10	Shopping with this EC site would be enjoyable.	strongly disagree - strongly agree
Reduction of Information Overload	Chen et al. (2009)	Q11	There was too much information on this EC site so that I was burdened in handling it.	strongly disagree - strongly agree
		Q12	I was certain that the information on EC site was relevant to my needs.	strongly disagree - strongly agree
		Q13	I didn't know where is the information I needed in this EC site.	strongly disagree - strongly agree

Source: Author.

2. Empirical Results

(1) Results for item descriptive and convergent validity

Table 4 includes the basic indexes of central tendency (i.e., mean and median) and

variability (i.e., standard deviation). To assess the adequacy of the measures, the authors estimated the convergent validity through: item reliability, construct reliability, and average variance extracted (AVE) (Table 3). Firstly, as all the factor loadings were higher than the threshold value of 0.6, convergent validity was supported (Hair et al, 2014). Secondly, as all the CR values were higher than the threshold value of 0.6, convergent validity was supported (Bagozzi & Yi, 1988). Thirdly, as all the AVE values were higher than the threshold value of 0.5, convergent validity was supported (Hair et al, 2014).

Table 4: Item descriptive and convergent validity

Construct	Items	Mean	SD	Factor loadings	Cronbach alphas	CR	AVE
Personalization	Q01	3.274	1.052	0.769	0.659	0.815	0.595
	Q02	3.459	1.008	0.769			
	Q03	3.393	1.123	0.777			
Ease of Imaging	Q04	3.652	0.908	0.528	0.613	0.775	0.47
	Q05	3.247	1.096	0.629			
	Q06	3.359	0.995	0.844			
	Q07	3.208	0.924	0.703			
Enjoyment	Q08	3.695	0.804	0.793	0.784	0.874	0.699
	Q09	3.644	0.971	0.849			
	Q10	3.853	0.911	0.865			
Reduction of Information Overload	Q11	3.474	1.145	0.727	0.569	0.778	0.539
	Q12	3.571	1.051	0.741			
	Q13	3.644	0.917	0.736			

SD : standard deviation, CR : composite reliability, AVE : average variance extract.

Source: Author.

(2) Results for discriminant validity

The authors also estimated discriminant validity to further ensure the adequacy of the measures. As all the square roots of AVE were higher than the bivariate correlations among the constructs, discriminant validity was supported (Table 5).

Table 5: Discriminant validity

	Personalization	Ease of Imaging	Enjoyment	Reduction of Information Overload
Personalization	0.585[a]			
Ease of Imaging	0.276[b]	0.655		
Enjoyment	0.145	0.383	0.714	
Reduction of Information Overload	0.034	0.349	0.185	0.744

a Square root of AVE.

b Correlations among constructs.

Source: Author.

(3) Results for the hypothetical model

SEM was conducted to examine the hypothesized relationships among constructs; model fit was like this: Japan ： $\chi 2$=111.3; GFI=0.914; AGFI=0.869; CFI=0.890; RMSEA=0.071 (Table 6), America ： $\chi 2$= 95.3; GFI=0.832; AGFI=0.744; CFI=0.836; RMSEA=0.007 (Table 7).

Table 6 shows the results of Japan. The positive relationship between "personalization" and "ease of imaging" (ß=0.327, p<0.01), and between "ease of imaging" and "reduction of information overload" (ß=0.247, p<0.05) support H1 and H2.

The positive relationship between "personalization" and "enjoyment" (ß=0.330, p<0.01), and between "enjoyment" and "decrease of information overload" (ß=0.377, p<0.01) support H3 and H4. The coefficient estimates for the paths from "personalization" to "reduction of information overload" are not significant (ß=0.261, p=0.065), failing to support H5.

Table 7 shows the results of America. The coefficient estimates for the paths from "personalization" to "ease of imaging" are not significant (ß= -0.257, p=0.208), failing to support H1. The negative relationship between "ease of imaging" and "reduction of information overload" (ß= -0.517, p<.01) not supports H2. The positive relationship between "personalization" and "enjoyment" (ß=0.415, p<0.01) supports H3. However, the

coefficient estimates for the paths from "enjoyment" to "reduction of information overload" are not significant (ß=.785, p=n.s.), failing to support H4. The coefficient estimates for the paths from "personalization" to "reduction of information overload" are not significant (ß= -0.126, p=0.434), failing to support H5.

Table 6: Analytical Result of Covariance Structure (Japan)

Hypotheses	Standardized loadnings	Standardized error	p-Value
H1 Personalization→Ease of Imaging	0.327**	0.086	0.007
H2 Ease of Imaging→Reduction of Information Overload	0.247*	0.106	0.034
H3 Personalization→Enjoyment	0.330**	0.114	0.006
H4 Enjoyment→Reduction of Information Overload	0.377**	0.09	0.005
H5 Personalization→Reduction of Information Overload	0.261	0.091	0.065

x^2=111.3, GFI=0.914, AGFI=0.869, CFI=0.890, RMSEA=0.071, AIC=173.269

Source: Author.

Table 7: Analytical Result of Covariance Structure (America)

Hypotheses	Standardized loadnings	Standardized error	p-Value
H1 Personalization→Ease of Imaging	−0.257	0.208	0.091
H2 Ease of Imaging→Reduction of Information Overload	−0.517*	0.154	0.011
H3 Personalization→Enjoyment	0.415**	0.208	0.007
H4 Enjoyment→Reduction of Information Overload	0.785	0.151	n.s.
H5 Personalization→Reduction of Information Overload	−0.126	0.166	0.434

x^2=95.3, GFI=0.832, AGFI=0.744, CFI=0.836, RMSEA=0.097, AIC=170.281

Source: Author.

IV. Discussion

In this study, "ease of imaging" and "enjoyment" with "personalization that is simply provided as a function" examines how it affects the reduction of information overload, set residents in Japan and America. as subjects. In this section, we discuss the result of Japan and America.

In this study, for the purpose of the reduction of information overload, we verified the effectiveness of personalization which includes "ease of imaging" and "enjoyment" in Japan and America. In this section, we discuss the result.

Firstly, we discuss result of Japan. As a result of the quantitative survey in Japan, H1, H2, H3, and H4 were supported, and H5 was not supported. Therefore, when personalization includes "ease of imaging" and "enjoyment", it is likely to reduce information overload. In other words, when you provide the personalized information to consumers, it can be effective to reduce information overload in case of consumers can image the texture, comfort of the product, and the actual usage situation easily or in case of personalization brings excitement and good feelings.

From the viewpoint of "ease of imaging", when providing product information, it is necessary to recall the concrete usage of the product, rather than simply displaying the product image on a monochrome background (Yoo & Kim, 2014). Table 8 shows the examples of "ease of imaging" and "enjoyment".

Table 8: Examples.

Examples			
Factor	Company Name	Description of Business	How they provide 2 factors.
Enjoyment	LEVI'S	LEVI'S has set up a corner to post wearing images coordinated by staff in their EC site. They promote impulse buy by posting combinations with various products	They make it easier for consumers to imaging the coordination that suits them.
	adidas	In adidas EC site, for example of the category of running wear, they post images of models running in the city, and videos of models wearing products not only product image.	They make it easier to imagine consumers' situation of usage and the detailed texture.
	Stripe International	In Stripe International EC site, they offer the coordinates that are intended for consumer use such as "party style" and "holiday style".	They make consistent with consumers' needs and the products.
Ease of Imaging	ZOZOTOWN	ZOZOTOWN offers a bargain named "time sale only for you" to each customer for a limited time.	They provide excitement to shopping
	with	They offer recommendations using "diagnosis chart" in their website. They request consumers to answer some questions, and according to the answers, analyses the consumer's fashion type and offer the coordinates with virtual storyline.	It provides excitement with consumers by playability made by "diagnosis chart" and virtual storyline rather than simply recommending products.

Source: Created by authors based on companies' website.

From the above, companies can solve the problems such as abandonment of decision-making or irrational decision-making caused by information overload, and may lead to promotion of purchase activities by improving purchase satisfaction (Spenner & Freeman, 2013 : Aoki, 2012).

Next, we discuss result of America. As a result of the quantitative survey in America, in contrast to Japan, H1 and H2 were not supported, and reveal a negative relationship in H2. Therefore, consumers did not perceive "ease of imaging" from personalization, however, "ease of imaging" is likely to cause information overload. Also, H3 was supported and H4 was not supported. Although personalization has a positive relationship with "enjoyment", it is likely that it will not lead to a reduction of information overload. As in case of Japan, H5 was not supported, which indicates that personalization as a function does not lead to a reduction in information overload. The difference in the results between Japan and America can be attributed to the difference in information environment and cultural norms.

The information environment in which consumers live in Japan and America is different. In Japan, emotional approaches are often seen (Hong et al, 1987). On the other hand, lots of information provided in America is rational, and there are many advertisements that emphasize facts and numbers (Donthu, 1998 : Hong et al, 1987 : Nakayachi & Ishibashi, 1991). Therefore, the result suggests that they cannot perceive "ease of image" from personalized information.

In addition, it has been confirmed that differences in cultural norms bring about differences in the way of decision-making, and the criteria of importance in decision-making differ depending on the culture (Hong et al, 1987). American consumers with a high-context culture prefers rational and ease-to-understand information that clearly confirms what it wants to convey (Hall, 1976). In other words, the "ease of imaging" that

emphasizes the background information of the product provides information that is not directly related to the product.   Providing "ease of imaging" to Ameridans can make it difficult to choose products and perceive information overload.

It was also found that while American consumers perceived "enjoyment" by appropriate personalization is offered, it is likely that such enjoyment will not reduce information overload. This is because not only emotional approach is not common in America, like "ease of imaging", and also online apparel purchasing involves significant perceived risk (Nakamura & Yano, 2013). Consumers is feeling concern and anxiety to the perceived risks such as quality and performance, product lifetime, and way of dressing at the time of apparel online purchasing (Kamiyama et al., 1989). To reduce the perceived risk, it is necessary to check them (Kamiyama et al., 1989). For this reason, it seems that consumers are focusing on collecting the necessary information efficiently rather than seeking empirical enjoyment in collecting information (Schlosser 2003). Also, it is considered to have a tendency to collect information efficiently since American consumers with a high-context culture require clear and rational information such as the merits and functions of products (Hall, 1976).

Therefore, it is necessary to provide rational information to American consumers and place emphasis on measures that consider whether efficient information collection is possible. These differences in the results between Japan and America suggest that there are needs to change the measures for each country with different cultural norms and information environments in order to reduce information overload.

Finally, it indicates that personalization as a function does not lead to a reduction in information overload, both Japan and America. Originally, personalization was developed as a consumers' decision-making support tool to reduce information overload. However, with the spread of the Internet and smartphones and the evolution of technology, it has become possible to provide personalized information constantly, and

its purpose has changed from reducing information overload to corporate strategic tools (Schafer et al., 2001). With these changes, consumers are constantly exposed to a large amount of information. Under these circumstances, consumers are dissatisfied with personalization and no longer interested in the information provided by companies (accenture, 2017).

Although personalization has become common in many companies, there is a need to add value to personalization in order to reduce information overload.

Ⅴ．Conclusion and Future Research

Generally, this study contributes to both literature and practical side.

First, while many previous studies showed that personalization of information reduce information overload, this study found out that personalization does not always reduce information overload. Nowadays, it is common that many companies use personalization to deliver information, however, according to Mr. Ishikawa, Managing Director, Accenture Japan Ltd, consumers are no longer interested in the information they provide. Under the circumstances, the results of this research have theoretical contributions and practical implications.

Secondly, this study focused on EC sites, and in Japan, suggesting what appropriate personalization in information overloaded era is. According to Mr. Yamamoto, Director of Retail Management, Levi Strauss Japan Co., Ltd., although personalization can help companies making difference from others and gives them a competitive advantage, they are facing problems how to adopt offline appropreate personalization to online environment. As companies actually face these problem s in the information overloaded era, the results of this research have practical implication in Japan.

Thirdly, this study suggested that it is necessary to change the way of providing personalization with consumers in each country; Japan and America. Nowadays,

personalization of information is attracting worldwide attention, and there is a trend that companies are going to focus on its development (eMarketer, 2019). Under such circumstances, it would be practically implications to confirm the necessity of providing personalization based on the cultural norms of the country.

Although this study has a lot of theoretical contributions and practical implications, it also has some limitations.

First, this study is only focused on the apparel industry. The degree of consumers' interest and the willingness to collect information will differ from one product category to another (Hakuhodo Institute of Shopper Insight, 2017).

Secondly, EC sites were not classified. In fact, according to Mr. Yamamoto, Director of Retail Management, Levi Strauss Japan Co., Ltd., many companies not only have their own sites but also put their products in the mall sites, and the purpose of using own sites and mall sites are different, therefore the information they want to convey may also be divided, so, depending on different types of EC sites the results may also differ .

Thirdly, this study focuses on the information overload in the online environment, and does not target offline environment. EC sites and offline stores play a complementary role with each other, and many companies are also paying attention to OMO (Online-Merge-Offline), which combines digital and analog (Nikkei Inc., 2019).

Fourth, the size of samples is small and it can be considered as the reason why one of the hypotheses in this study was not supported.

For further research, we would like to continue future research while taking such issues into consideration.

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付録(インタビュー一覧)

①リーバイ・ストラウス ジャパン株式会社　②アクセンチュア株式会社

日時	2019 年 9 月 24 日	2019 年 8 月 27 日
調査対象	リテール統括部 ディレクター 山本 顕男氏	マネジング・ディレクター 戦略コンサルティング本部 石川 雅崇氏
内容	情報過負荷時代での取組について	情報過負荷時代への見解