The Effect of Online Behavioral Advertising on Purchase Attitude

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ABSTRACT

Personalized advertising, which is a technique that selects and presents advertisements suitable to the needs and behavioral characteristics of online users by collecting and analyzing information on them, is receiving much attention as a useful alternative that can effectively overcome the limitations of traditional advertising companies. However, the increasing precision of targeting by advertising has raised the problem that the indiscriminate collection of consumer online activity may lead to the invasion of privacy. The present study views the problems of personalized advertising from the position of the consumer and examines the factors affecting consumer purchase attitudes, and with this as a basis, attempts to propose a direction of development for personalized advertising.

Keywords: Online Behavioral Advertising, Online activity, Purchase Attitude.

1. INTRODUCTION

Recently, in major advanced nations like the US, Europe, and Japan, 'Online Behavioral Advertising (OBA)', which targets only consumers suited to particular advertisements based on their online activity, is receiving much attention as a useful alternative to effectively overcome the limitations of traditional advertising companies. Online behavioral advertising refers to a technique that selects and presents advertisements that are suited to the needs and behavioral characteristics of online users by collecting and analyzing information on them. Specifically, online behavioral advertising is a type of one-to-one advertising in that it targets individuals, not the masses. It is also defined as interest-based advertising in that it provides personalized advertisements suited to the user by analyzing the online user's concerns and interests. Online behavioral advertising is also defined as behavior-targeting or online activity-based advertising because it provides personalized advertisements after selecting individuals suited to particular advertisements by using the

online activity of a user. Online behavioral advertising is able to selectively expose advertisements to only a potential customer base who may be interested in a certain advertisement on the basis of information from online users, so it can not only drastically reduce the 'inefficient exposure' of advertisements, but also enables users to see only product and service advertisements that they are ordinarily interested in, which is expected to further increase the persuasion effect of advertisements. However, the more that personalized advertisements target consumers with precision, the more do they inevitably and actively use the information of consumers, and thus, as many suggest as problematic, they may lead to the invasion of consumer privacy. The present study examines the effect of personalized advertising on consumer purchase attitude, and, based on the findings, attempts to present a development direction for personalized advertising.

2. LITERATURE REVIEW

Research on Purchase Attitude

The introduction of the internet is widely recognized as a new marketing method in terms of cost reduction, quality improvement, and service quality improvement for corporations, distributors, and consumers. The internet provides a widespread connectivity all over the world, easy information sharing, and the reduction of transaction costs, and also enables corporations to get equipped with the speed required by ordering and customer service. Moreover, consumers are quickly provided with a large quantity of information through the internet and obtain the convenience of purchasing products and services unrestricted by time or space. In such a way, the internet is innovatively changing purchase behavior, and, therefore, it is urgently required that researchers study consumer characteristics in an internet environment. In such a context, it is necessary to understand the factors that are valued in purchase behaviors made through the internet and to learn what factors determine purchase intent, which is one of most important concerns from a corporate internet marketing strategy aspect (M.A. Shah & Swanminathan & M. Baker, 2008, Li. Hairong & Terry Daugherty & Frank Biocca, 2002). Online behavior advertising is an advertising technique that makes use of online user information. It is also a targeting technique that systematically selects subjects suited to particular advertisements by way of information technology and provides personalized advertisements accordingly. Depending on such characteristics, consumer perceptions of online behavioral advertising may differ following variables related to the advertisement, variables related to privacy, and variables related to technology (Gardner & Meryl Paula, 1985, Lee J. M & Rha J. Y, 2015). For online advertisements with high interactivity, involvement in the advertisement affects the recollection of web-based information and the degree of satisfaction for the information, and when consumer involvement in advertising is high, it positive affects the attitude and purchase intent toward the given online advertisement as well as the brand (Lee J. M & Rha J. Y, 2015, Balakrishnan & Lalitha & C. Shalini Kumar, 2011). In order to analyze the outside factors influencing the purchase attitude of personalized advertisements, the study used the technology acceptance model(Davis, Fred D, 1989, Davis, Fred D & R.P. Bagozzi & P.R. Warshaw, 1989) as a basis. Factors affecting purchase attitude include Web 1.0, Web 2.0, information quality, privacy, and negative emotion.

Technology Acceptance Model

The technology acceptance model (Davis, Fred D, 1989) attempts to explain and predict the behavior of information technology users based on the theory of reasoned action (TRA) from the field of social

psychology. This model expanded the relationship between attitude toward behavior and behavioral intent, from the theory of reasoned action, to the research of information technology adoption by users (Davis, Fred D & R.P. Bagozzi & P.R. Warshaw, 1989). Davis uses perceived usefulness and perceived ease of use as major relevant variables of information technology acceptance to explain that the attitude formed from such variables affects real action with action intent as a parameter. When information technology users have easier interaction with information technology, they have increased confidence (Bandura & Pierre R, 1982) and increased control over information technology, which positively affects attitude toward the use of information technology.

Difference between Web 1.0 and Web 2.0

Internet advertisements deliver communication through the web and provide information content or product information as services through the internet. Web 1.0 is an internet environment in which the service provider unilaterally provides services. On the other hand, Web 2.0 involves the creation of new value by means of participation, sharing, and openness, as in community websites and information sharing, and it bilaterally exchanges, shares, and participates in information. As one form of communication, advertising content creates information on products or services into a content and deliver products or services to recipients (Berthon, Pierre. R, 2012, Joo. H. S, 2013).

(Joo. H. S, 2013) says that customers encountering the advertisement may be affected by the advertisement according to the system performance of the customer. Therefore, the personalized advertisements observed in Web 1.0 differ from the advertisements observed in Web 2.0.

Information Quality

Information quality in personalized advertisements can be defined as 'the level of difference perceived by the consumer regarding services displayed in personalized advertisements'. Kienan's research states high quality content as an element that makes users revisit a website and that users value the quality of information rather than the quantity of information provided by a website. Cho regards the interface aspect with customers as the core element of service quality perception based on the definition of website service quality by Parasuraman and others (Joo. H. S, 2013).

Privacy

Privacy has been variously defined according to the era and the situation of application. The classic meaning of privacy is "the right to freely be alone away from outside interference or invasion" (Warren, S. D. & Brandeis, L. D, (1890). Dinev and Hart propose social awareness and internet literacy as preceding factors for privacy concerns and verifies a relationship between these variables with privacy concerns and transaction intent. Privacy concerns were shown to have negative association with online transaction intent (Lee J. M & Rha J. Y, 2015)). Lee Mi-na and others claim that privacy concerns are about the invasion of privacy from a personal aspect. The IUIPC measures the information privacy concern of users in terms of collection, control and awareness (Stephen A. Weis, Sanjay E. Sarma, Ronald L. Rivest & Daniel W. Engels, 2004, C. Wang, Q. Wang, K. Ren & W. Lou, 2010).

Negative Emotion

The appraisal theory of emotion assumes that the feeling or emotion toward an object affects the cognitive assessment, attitude and ultimately the action of a person.(Kotanj, 2001; Sohn J. S, 2007) Consequently, positive feelings or emotions enable people to actively process positive cognitive information while negative emotions, in the same manner, form unfavorable attitudes. From the view point of the appraisal theory of emotion, feelings and emotions are not simply a reaction but act as elements that play a leading role in affecting cognitive assessment, attitude and action through a process of reasoning. According (Ahern Geoffrey L & Gary E. Huang, 1985) to existing studies, the feelings or emotions toward an object appear to affect attitudes (Ahern Geoffrey L & Gary E. Huang, 1985, Kensinger & Elizabeth A, 2007) including like/dislike and satisfaction/dissatisfaction which are formed subsequent to cognitive assessment. Lerner and Keltner say that even consumers with negative feelings or emotions may mitigate their positive quality assessment and express negative attitudes and purchase actions.

3. RESEARCH MODEL AND HYPOTHESES

Research Model

The technology acceptance model (TAM) expanded the relationship between attitude toward behavior and behavioral intent, from the theory of reasoned action, to the research of information technology adoption by users (Davis, Fred D, 1989, Davis, Fred D & R.P. Bagozzi & P.R. Warshaw, 1989). When information technology users have easier interaction with information technology, they have increased confidence and increased control over information technology, which positively affects attitude toward the use of information technology (Bandura & Pierre R, 1982). In such a way, the present study accepted the technology acceptance model, and, with it as a basis, attempted to find out how the information technology use of personalized advertisements affects user purchase attitude.

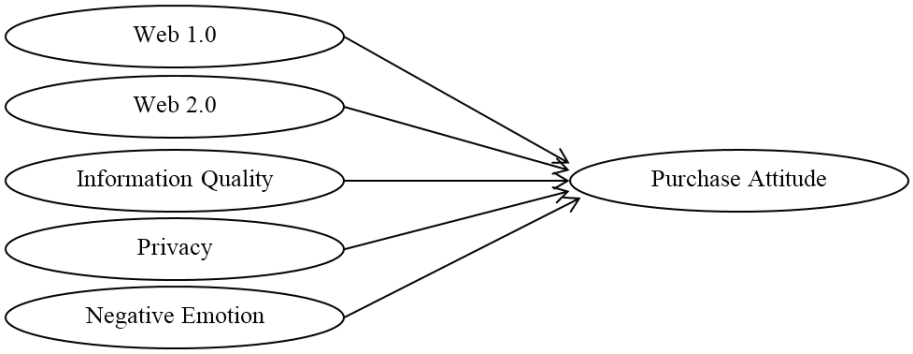

Figure 1: Research Model

Setting Hypotheses

In order to find out the purchase attitude of personalized advertisements, the study establishes hypotheses regarding the factors affecting purchase attitude and deducts the correlation and weighted value of the assessment elements. The study investigates the factors affecting purchase attitude in personalized advertisements to achieve this end. Below are described the definition and model of each variable and the hypotheses following each variable.

Relationship of the Purchase Attitude of Personalized Advertisements and Webpage Type

An examination of website information reveals largely two types of websites, one of which provides information as in news sites or shopping sites and the other of which enables communication between several people as in communities or information sharing sites. By establishing the variable that websites that provide information are referred to as Web 1.0 while websites that allow communication between several people are referred to as Web 2.0, the study established the hypothesis that the information of such webpages would affect the purchase intent of personalized advertisements.

Hypothesis 1(H1, H2): The webpage type will have a positive (+) effect on the purchase attitude of personalized advertisements.

Relationship between the Information Quality and Purchase Attitude of Personalized Advertisements

Information quality refers to the degree of providing an amount of information sufficient enough to fulfill the needs of a user by a website and the degree of providing the latest information or updates on information by a website (Seo, W.J. & Woon, W.W. & Hong, J.W, 2010). On this basis, the study established the hypothesis that the information quality provided by personalized advertisements would affect the purchase attitude of the user.

Hypothesis 2(H3): The information quality of personalized advertisements will have a positive(+) effect on purchase attitude.

Relationship between Privacy Invasion and the Purchase Attitude of Personalized Advertisements

Current personalized advertisements are increasingly collecting online activity without the consent of the user. If the online activity of the user is used in advertisements without his or her consent, the user will feel that his or her privacy is being invaded. Privacy invasion was used as an item for measuring anxiety over personal information leakage due to online activity collection for personalized advertisements. The study established the hypothesis that privacy invasion would negatively affect the purchase attitude of personalized advertisements.

Hypothesis 3(H4): Privacy invasion will have a negative(-) effect on personalized advertisements

Relationship between Negative Emotion of Personalized Advertisements and Purchase Attitude

The first feeling when viewing a personalized advertisement was assumed to play a critical role on purchase attitude which can determine purchasing. If the things I searched for are displayed as personalized advertisements, they may evoke considerable unpleasantness because the internet is a space of privacy. Each and every information I search for may be small, but the combination of such information can be personal information that can identify myself, a fact that enables the user to negatively perceive personalized advertisements.

Hypothesis 4(H5): Negative emotions will have a negative(-) effect on the purchase attitude of personalized advertisements.

The Operation Questionnaire of Variables

The measurement items are shown in the following Table 1

Table 1
The operation Questionnaire of Variables

Varibles	*Question*
Web 1.0	How much do you think shopping sites are exposed to personalized advertisements?
	How much do you thing internet news is exposed to personalized advertisements?
Web 2.0	How much do you think various community sites are exposed to personalized advertisements?
	How much do you think information sharing sites are exposed to personalized advertisements?
Information Quality	Personalized advertisements provide abundant information.
	Personalized advertisements show various types of products for each good.
	Personalized advertisements are timely updated according to my preferences.
Privacy	Personalized advertisements will invade my privacy.
	If I continue to use personalized advertisements, they will expose my privacy.
Negative Emotion	I thought that using the internet was insecure.
	I felt like I was being monitored.
	I was afraid to use the internet.
Purchase Attitude	I thought about purchasing a product after seeing a personalized advertisement.
	I thought positively about purchasing a product through the personalized advertisement.
	I will talk positively about personalized advertising to those around me.

4. HYPOTHESIS VERIFICATION AND ANALYSIS RESULTS

Data Collection and Sample Characteristics

The surveys in the present study were performed during November 19-23 2015, by using Google Docs through SNS, with subjects between the ages of 19 and 34. A total of 147 surveys were collected. Excluding sloppy responses and overlapping answers, the study arrived at a final valid sample size of 137 surveys and use them for analysis. The analysis involved the use of the SmartPLS 2.0 program. The demographic characteristics of the samples used in the analysis of the results are indicated by Table 2 below.

Table 2
Demographical Characteristics

	Classify	*Frequency (Number of person)*	*Rate(%)*
Gender	Male	79	57.664%
	Female	58	42.335%
Age	19~24	31	22.627%
	25~29	72	52.554%
	30~34	34	24.817%
Shopping time (a month)	Less than 30 minutes	30	21.897%
	30 minutes ~ less than 1 Hour	32	23.357%
	1 Hour ~ less than 2 Hours	25	18.248%
	2 Hours ~ less than 3 Hours	18	13.138%
	More than 3 Hours	32	23.357%

	Classify	*Frequency (Number of person)*	*Rate(%)*
Number of shopping (a month)	0	12	8.759%
	1~2 times	71	51.824%
	3~5 times	34	24.817%
	6~9 times	10	7.299%
	More than 10 times	10	7.299%
Purchase Experiences	Yes	53	38.686%
	No	84	61.313%
Total		137	100%

Measurement Model

PLS analysis requires internal consistency, convergent validity, and discriminant validity for the measurement questions and constructs. To verify internal consistency, the study analyzed the composite reliability and dependability of Fornell and Larcker(1981) targeting exposed web type, information quality, privacy, negative emotion, and purchase intent. The analysis results are indicated in Table 3. Composite reliability was over the standard value of 0.7, as claimed by Thompson and others(1995), while Cronbach's alpha value, widely used to verify dependability, was over 0.7. Therefore, internal consistency appeared to be suitable.

Table 3
Internal consistency analysis

	Composite Reliability	*Cronbachs Alpha*
Web 1.0	0.925	0.880
Web 2.0	0.868	0.699
Information Quality	0.868	0.782
Privacy	0.920	0.875
Negative Emotion	0.900	0.833
Purchase Attitude	0.933	0.894

Convergent validity was verified with the factor loading value for AVE (average variance extracted) and constructs. As indicated in Table 4, AVE was over the standard value of 0.5, as claimed by Fornell & Larcker (1981) and Chin (1998), while the factor loading value of the constructs were all over the verification standard value of 0.7, as claimed by Fornell & Larcker (1981).

Table 4
Convergent validity analysis

	AVE	*Measure questionnaire*	*Factor load*	*T-Value*
Web 1.0	0.806	W10-1	0.879	43.043
		W10-2	0.915	92.590
Web 2.0	0.768	W20-1	0.899	64.218
		W20-2	0.856	8.564
Information Quality	0.771	IQ 1	0.896	11.877
		IQ 2	0.752	5.019
		IQ 3	0.988	11.092

	AVE	*Measure questionnaire*	*Factor load*	*T-Value*
Privacy	0.795	PV 1	0.861	10.137
		PV 2	0.918	15.273
		PV 3	0.895	12.147
Negative Emotion	0.751	NE 1	0.788	24.259
		NE 2	0.912	90.405
		NE 3	0.895	56.600
Purchase Attitude	0.823	PA 1	0.946	8.299
		PA 2	0.920	8.655
		PA 3	0.853	8.776

As indicated by Table 5, discriminant validity was verified by whether the square root value of the AVE indicated on the diagonal axis of coefficient values between constructs was greater than the coefficient values between other constructs (Fornell & Larcker, 1981). The analysis shows that the smallest value (0.7819) among the square root values of the AVE exceeded the greatest coefficient value (0.7334), so discriminant validity appeared to be suitable.

Table 5
Discriminant validity analysis

	Web 1.0	*Web 2.0*	*Information Quality*	*Privacy*	*Negative Emotion*	*Purchase Attitude*
Web 1.0	0.898					
Web 2.0	0.179	0.876				
Information Quality	0.199	0.449	0.878			
Privacy	–0.202	0.324	0.327	0.891		
Negative Emotion	0.644	0.082	0.133	–0.079	0.867	
Purchase Attitude	–0.135	0.231	0.134	0.514	0.055	0.907

The present study conducted confirmatory factor analysis, as indicated by Table 6. In confirmatory factor analysis, the factor loading value for constructs must be greater than the factor loading value for other constructs, and the analysis results show that all survey questions satisfy the requirement.

Table 6
Confirmatory factor analysis

	Purchase Attitude	*Web 1.0*	*Web 2.0*	*Negative Emotion*	*Information Quality*	*Privacy*
PA 1	0.879	0.229	0.164	–0.068	0.496	–0.051
PA 2	0.915	0.171	0.217	–0.213	0.617	–0.144
PA 3	0.899	0.094	0.152	–0.240	0.608	–0.154
W10-1	0.144	0.856	0.496	0.284	0.110	0.181
W10-2	0.167	0.896	0.306	0.284	0.038	0.221
W20-1	0.051	0.355	0.752	0.333	0.162	0.193
W20-2	0.219	0.440	0.988	0.303	0.117	0.111
NE 1	–0137	0.253	0.338	0.861	-0.062	0.352
NE 2	–0.226	0.290	0.262	0.918	-0.091	0.499

	Purchase Attitude	*Web 1.0*	*Web 2.0*	*Negative Emotion*	*Information Quality*	*Privacy*
NE 3	-0.153	0.323	0.298	0.895	–0.050	0.501
IQ 1	0.487	0.087	0.021	–0.056	0.788	0.032
IQ 2	0.643	0.085	0.206	–0.056	0.912	0.066
IQ 3	0.529	0.039	0.093	–0.097	0.895	0.042
PV 1	–0.155	0.209	0.065	0.496	0.007	0.946
PV 2	–0.085	0.144	0.116	0.422	0.078	0.920
PV 3	–0.106	0.266	0.209	0.465	0.091	0.853

Structural Model

The PLA analysis verified the path-coefficient and the significance of the path-coefficient. To accomplish this, the study obtained the path-coefficient for the structural model by using the whole sample and calculated the T-value of the path-coefficient by using the bootstrap method provided by PLS. Table 7 is a summary of the analysis results. The analysis results, in terms of research hypothesis order, are as follows.

Table 7
Path analysis Results

Hypothesis	*Path-Coefficient*	*T-Value*	*Result*
H1 = Web 1.0 → Purchase Attitude	0.163	3.637	Supported
H2 = Web 2.0 → Purchase Attitude	0.121	2.710	Supported
H3 = Information Quality → Purchase Attitude	0.608	15.160	Supported
H4 = Privacy → Purchase Attitude	-0.130	2.610	Supported
H5 = Negative Emotion → Purchase Attitude	-0.179	2.733	Supported

Hypothesis 1 adopted: An analysis of the hypothesis that exposed website types positively(+) affects purchase attitude revealed a significant result including the β-value of Web 1.0 at 0.163 and T-value at 3.637, and the β-value of Web 2.0 at 0.121 and T-value at 2.710, so hypothesis 1 was adopted. Hypothesis 2 adopted: An analysis of the hypothesis that information quality positively(+) affects purchase attitude revealed significantly β-value at 0.608 and T-value at 15.160 so hypothesis 2 was adopted. Hypothesis 3 adopted: An analysis of the hypothesis that privacy negatively(–) affects purchase attitude revealed β-value at –0.130 and T-value at 2.610, so hypothesis 3 was adopted. Hypothesis 4 adopted: An analysis of the hypothesis that negative emotion negatively(–) affects purchase attitude revealed β-value at-0.179 and T-value at 2.733, so hypothesis 4 was adopted. Thus, the five hypotheses presented by the present study all appeared to be significant. The five significant hypotheses were adopted.

Research Results Discussion

An examination of the meaning of the research results in terms of the size of the factors influencing the purchase attitude of personalized advertisements are as follows.

Information Quality: Information quality appeared to greatly effect (β = 0.608) the purchase attitude of personalized advertisements. This shows that, just like other advertisements, personalized advertisements must have high information quality regarding the goods they try to advertise when advertising goods.

Negative Emotion: Negative emotion appeared to negatively (0) affect ($\beta = -0.179$) the purchase attitude of personalized advertisements. People take a lot of time to accept new information. Personalized advertisements are not yet able to get the trust of consumers. Personalized advertisements put up advertisements on websites without the consent of the consumer. Businesses must comprehend the emotions of the users by putting up such advertisements without only comprehending the need for an item.

Type of Web Exposed: The type of web exposed appears to have affected the purchase attitude in personalized advertisements (Web 1.0 [$\beta = 0.163$], Web 2.0 [$\beta = 0.121$]). When I am doing something on the internet, and a personalized advertisement appears, the type of web affects purchase attitude, according to its type. In particular, the effect is greater when receiving information from a particular homepage like an internet news or shopping site rather than a homepage for communicating with people like a community or information sharing site.

Privacy: The privacy invasion of personalized advertisements negatively(–) affects ($-\beta = 0.130$) purchase attitude. Personalized advertisements are a personalized service for individuals based on the online activity of the consumer. However, to deliver such a service, it inevitably collects information of the individual. Consumers have no choice but to be reluctant toward personalized advertisements because they consider such collected information as private. It seems that corporations need to collect information by obtaining user content as much as possible.

5. CONCLUSION

Advertisements that seem like personalized advertisements on websites are currently increasing. Consumers may regard this as convenient because an item I need is displayed on a website, but the indiscriminate collection of online activity without personal consent may be ill-advised. As shown in the research above, the servicing website, the quality of information, the privacy risk, and the negative emotion from viewing the personalized advertisements influence the purchase attitude of personalized advertisements. First, an examination of website information reveals that websites that provide information like news sites or shopping sites have a greater influence than websites that enable the communication several people like communities or information sharing sites. This means that advertisements viewed in websites that provide information are felt negatively by those who view them. Also, as they have the greater influence in terms of information quality, corporations, based on trust, must try to create advertisements for consumers and not for selling products.

The limitation of the present study is that 52.2% of survey subjects were workers and university students between 25-30. This may be because personalized advertisements are not much known yet, but the age group seems fairly concentrated. Currently, personalized advertisements are shown knowingly or unknowingly on the internet including PCs and mobile devices. Future research must diversify the age of research subjects, systematize the types of personalized advertisements, and find more diversified variables so that more in-depth research from various aspects may be followed.

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