

Do Irritations of Ads in Line Really Matter?

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Abstract

The Advertisings (ads) in LINE are the marketing promotions for enterprises to increase consumers' purchase intentions. People are likely to feel ads as unwelcome and irritating information and get unfavorable behavioral intentions. Information quality (IQ) and access convenience are the key factors of people satisfaction to decrease their unfavorable behavioral intentions including complaints, blockade, and negative WOM (NWOM). With data collected from a sample of 230 people in Taiwan, the results got the IQ and access convenience of ads impacted on unfavorable behavioral intentions through satisfaction and was particularly moderated by irritation with AMOS 21.0. The implications for theory and practice are discussed.

Keywords: information quality (IQ), access convenience, unfavorable behavioral intentions, irritation

1. Introduction

Social media allows internet users to directly communicate and interact with one another instantly (Correa *et al.* 2010). LINE is among the most popular and innovative information and communication social media platforms in Taiwan, and the number of LINE users in Taiwan is over 1.7 million as of 2018 (Su, 2018). Given the popularity of LINE, enterprises have created funny stickers with promotions to attract people who can respond with icons. This strategy is considered as viral marketing, whereby products are dramatically promoted by satisfied users through stickers in social media such as LINE. Information quality (IQ), system quality (SQ), and user satisfaction are vital factors of information system (IS) success (DeLone and McLean 1992), however the SQ of technologies is mature, therefore the paper focused on IQ. IQ includes accuracy, completeness, currency, and format which are important factors in a mobile data service environment (Kim and Han 2011). Studies have been conducted on IQ, aimed at web-based decision support systems (Bharati and Chaudhury 2004) and the design process documentation of quality management systems (Grudzień and Hamrol 2016). Satisfied users can enhance enterprises' competitive advantages (Tsao, 2014). Empirically studying both traditional ads and digital ads (such as mobile, pop-up, and pre-roll video ads) can help enterprises generate more attraction. Most ads are irritating to users who ultimately choose to avoid them (Cho 2004). Ads have also been found to irritate and affect bad feelings and shrink product value (Tsang *et al.* 2004; Okazaki 2004; Altuna and Konuk 2009; Ünal *et al.* 2011; Luna Cortés and Royo Vela 2013). However, few studies have revealed that the effect of IQ on users' unfavorable behavioral intentions toward ads with mediated by satisfaction and moderated by irritation. Therefore, a better understanding of the "annoying" or "irritating" tactics used for advertisements is necessary for effective promotions. Unfavorable behavioral intention refers to the willingness of users to quit using or spend less time using an application, with specific unfavorable behaviors such as complaints, patronage reduction, and negative word of mouth (NWOM) (Smith and Bolton 2002; Zeithaml *et al.* 1996). Following Singh and Wilkes' (1996) definition, complaint refers to users' protests to ads, such as those in LINE, which can be in the form of releasing negative comments or further blocking of the message. Maxham III and Netemeyer (2002) explored the intention to complain in modeling customer perceptions of complaint handling over time. Chu (2011) found that the attitudes of college-aged Facebook group members toward viral advertising were higher than those of non-group members. Chuang *et al.* (2009) pointed out the effect of terminologies on attitudes toward advertisements and brands. Moreover, Wu (2013) and Wu and Huang (2015) linked complaint intentions in online shopping to satisfaction. Lee *et al.* (2016) found that users' ad skepticisms were negatively related to their attitude toward advertising and their intention to share on social media. Blockade is an act or means of sealing off a place to prevent goods or people from entering or leaving. In the context of the characteristics of LINE, blockade is used in place of patronage reduction in this study to approach a more

relevant phenomenon regarding users' negative feelings. NWOM is defined as "any negative informal communication made by potential, actual, or former customers about a product or company, directed at other consumers about the ownership, usage, or characteristics of particular goods and services and/or their sellers via the Internet (Hennig-Thurau *et al.* 2004). In this paper, blockade refers to patronage reduction as an unfavorable behavioral intention.

In decision making, a high IQ leads to high user satisfaction (Bharati and Chaudhury 2004). Kim and Han (2011) stated that IQ includes completeness and currency. They also pointed out that completeness and currency were important for user value in a mobile data service environment. Meanwhile, convenience also influences behavioral intentions through the mediating role of satisfaction in a Taiwanese leisure setting (Chang and Polonsky 2012). In this study, the factors influencing complaint, blockade, and NWOM as unfavorable behavioral intentions toward ads in LINE are chosen as outcomes. Bogart (1985) proposed that an ad has a negative function as an annoying or irritating medium. Hence, the following key questions are considered in this paper: (1) Do users' feelings about the ads' completeness and currency of information and ads access convenience in LINE influence their satisfaction? (2) Do users' perceptions of ads irritation have a moderating effect between satisfaction and unfavorable behavioral intentions? (3) Does the users' satisfaction have a mediating effect on unfavorable behavioral intentions? Therefore, this paper explores ads completeness, currency, and access convenience as the determinate factors that affect unfavorable behavioral intentions via satisfaction as a mediating variable and irritation as a moderating variable. The relationship diagram is illustrated in Figure 1. The remainder of this paper is arranged as follows: Section 2 introduces the literature review and hypotheses; Section 3 presents the methodological research; Section 4 details the data analysis; and the last section, i.e., Section 5 offers a conclusion, including a discussion of the study's contributions and limitations and potential directions for future work.

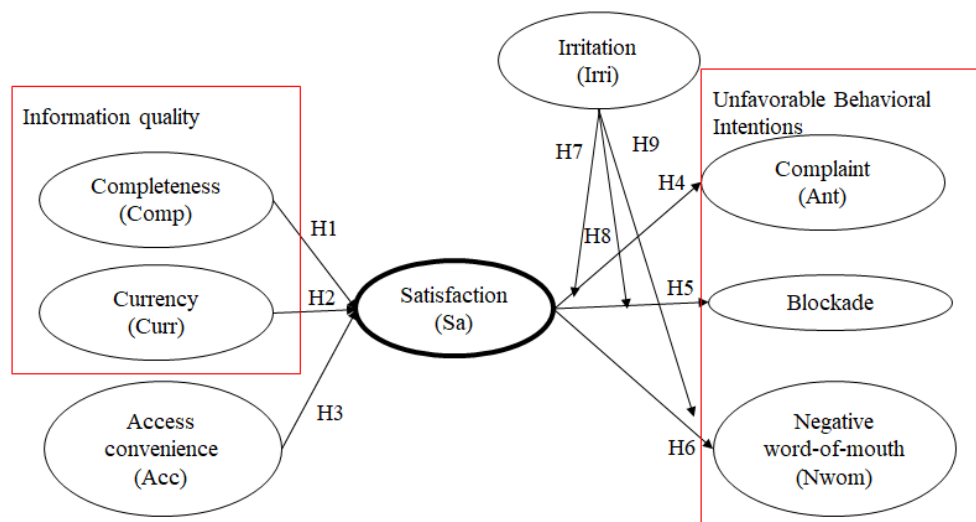


Figure 1. research model

Note 1. satisfaction is a mediator

Note 2. irritation is a moderator

2. Literature Review and Hypotheses

2.1 Completeness and Currency of Information and Satisfaction

IQ and user satisfaction are vital constructs of IS success (DeLone and McLean 1992). According to the definitions provided by Kim and Han (2011), completeness refers to the degree to which the ads in LINE produce all the required information, for example the price, quality, and country of manufacture. The currency is defined as the degree to which the ads in LINE are up to date. Kim and Han reported completeness and currency as IQ dimensions that are important factors in a mobile data service environment. A related research reports that completeness and currency influence satisfaction toward web-based decision support systems (Bharati and Chaudhury 2004), blogs (Hsieh *et al.* 2010), social networks (Zhang 2010), and logistics programs (Daud and Fang 2017). In market orientation, IQ and product price via social media to understand user behavior (Kohli and Jaworski 1990; Ngai *et al.* 2015). Erkan and Evans (2016) found that IQ had a relationship with consumers' purchase intentions in social media. Laumer *et al.* (2017) found that IQ was important in determining end-user

satisfaction of enterprise content management system. Featuring highly required information and updated information in the ads in LINE can lead to high user satisfaction. Therefore, the completeness and currency of information regarding the ads in LINE have important effects on user satisfaction. On the basis of this logic, the following hypotheses are proposed in this paper:

Hypothesis 1: Users feel that the completeness of ads influences their satisfaction.

Hypothesis 2: Users feel that the currency of ads influences their satisfaction.

2.2 Access Convenience and Satisfaction

Access convenience saves the perceived time and effort about a service (Chang and Polonsky 2012). Convenience is an influential factor that leads to acceptance in a universal environment (Yoon and Kim 2007). Colwell *et al.* (2008) found that convenience is a vital factor of satisfaction in the context of personal cellular telephone and internet usage. Srivastava and Kaul (2014) found that convenience influenced shoppers' satisfaction for department store. Srivastava *et al.* (2015) found that women's access convenience determined satisfaction with maternal health care in developing countries. Ramanathan *et al.* (2017) found that the convenience of social media enhanced customer satisfaction. Considering the ad stickers in LINE, it has been found that access convenience directly affects user satisfaction. That is, the access convenience of ads in LINE has an important effect on user satisfaction. Thus, the following hypothesis is proposed in this paper:

Hypothesis 3: Users feel that ad access convenience influences their satisfaction.

2.3 Irritation and Unfavorable Behavioral Intentions

Ha (1996) defined irritation as the interruption of ads, which is annoying to users. Bauer and Greyser (1968) found that advertising is related to annoyance or irritation, and Edwards *et al.* (2002) studied four aspects of ads (timing of display, duration of ad, congruence with editorial content and perceived informational and entertainment value) that moderated perceptions of pop-up advertisements as irritation. Waller (2006) proposed brand attitude to be a factor of purchase intentions and built a response model for irritation toward advertising. He found that irritation was not significant in predicting brand attitudes in advanced to intention. However, Jin and Villegas (2006) reported that irritation leads to the avoidance of ads and is directly related to avoidance behaviors. Irritation is the crucial factor that leads consumers to avoid advertising while watching TV or streaming on YouTube (Loureiro 2018). Negative emotion and irritation are advertising experience motivations (Bronner and Neijens 2006) which have been related to social media (Rohm *et al.* 2013). Campbell *et al.* (2017) found that that less complexity of emotional ads characteristics increases skipping by failing to engage cognitive resources and therefore making people disposed to experience irritation. Unfavorable behavioral intention is defined as an indication that most users of an application are preparing to quit using or spend less time using an application (Scaglione 1988), such as LINE. The satisfaction of members in LINE is the vital factor determining what users intend to propagate (Tsao 2018). Such intentions include complaints, patronage reduction, and NWOM (Zeithaml *et al.* 1996; Smith and Bolton 2002). Users may utilize complaint to deal with their strong dissatisfaction (Singh and Widing 1991). Ads blockade is an incoming action of users to stop the ads. Negative words of mouth are negative feelings expressed by users regarding their experiences with ads in LINE, whereby the dissatisfied users intend to tell other users or potential users about their dissatisfaction (Litvin *et al.* 2008). Therefore, dissatisfied users will generate complaints and NWOM (Dubé *et al.* 1994; Stevens *et al.* 1995; Soriano 2002). More precisely, user dissatisfaction typically leads to complaints (Singh, 1988), negative feelings (Liu and Jang 2009), and NWOM (Richins 1983). Ducoffe (1996) stated that irritation is the main determinant of attitudes toward advertising on interactions between sellers and buyers. The majority of the studies indicated having none, little moderate experience (irritation) with ads in LINE. Irritation is viewed as a negative psychological feeling and represents consumers' avoidance (blockade) of advertising (Lin, 1999). It is a negative intrinsic motivator (Davis *et al.* 1992). The intrinsic motivation has a moderating effect between satisfaction and work performance (Kuvaas 2006). However, Nakagami *et al.* (2008) proved that the intrinsic motivation had no moderating effect between neurocognition and psychosocial functioning. Thus, low levels of satisfaction among users, moderated by irritation, can lead to a high degree of complaints, blockade, and NWOM. In terms of ads, irritation will aggravate the relationship between satisfaction and unfavorable behavioral intentions. The following hypotheses are proposed in this paper:

Hypothesis 4: Users who are satisfied with the ads in LINE have fewer complaints.

Hypothesis 5: Users who are satisfied with the ads in LINE express less intention to blockade.

Hypothesis 6: Users who are satisfied with the ads in LINE express fewer NWOMs.

Hypothesis 7: Users feel irritation has a moderating effect between their satisfaction and complaint.

Hypothesis 8: Users feel irritation has a moderating effect between their satisfaction and blockade.

Hypothesis 9: Users feel irritation has a moderating effect between their satisfaction and NWOM.

2.4 IQ, Satisfaction, and Unfavorable Behavioral Intentions

Satisfaction is defined as users' positive feelings about their prior use of a product (Kang *et al.* 2009), and it has previously been reported to have a mediating effect on behavioral intentions (Finn *et al.* 2009), employees' financial performance (Chi and Gursoy 2009), purchase intentions (Udo *et al.* 2010), and loyalty at a Chinese telecom (Lai *et al.* 2009). Customer satisfaction partially mediates the effects of justice on WOM intent and purchase intent (Maxham III and Netemeyer 2002). Voorhees and Brady (2005) found that service quality had a significant and negative effect on future complaint intentions through satisfaction. Yen (2013) found that customer satisfaction had a mediating effect on usage intention in social networking sites. Fornell *et al.* (1996) and Olive (1997) had the similar propositions that consumer's satisfaction acted as a mediator between IQ and behavior intention. The satisfaction of festival visitors also exerts a mediating effect on quality of behavioral intentions (Cole and Illum 2006). Chang and Polonsky (2012) reported that access convenience influenced satisfaction and behavioral intentions in a Taiwanese leisure setting. They also found that satisfaction played a mediating role on intention. In other words, the completeness and currency of information and ads access convenience influence intention through satisfaction. Bai *et al.* (2008) found that the satisfaction of online Chinese visitors had a direct and positive impact on purchase intentions. Satisfaction will partially mediate the effects of perceived IQ on WOM intention in a website (Ha and Im 2012). Therefore, the completeness, currency, and access convenience of ads in LINE have significant effects on user satisfaction, and satisfaction has a mediating effect between the above factors and unfavorable behavioral intentions. Thus, the following hypotheses are proposed in this paper:

Hypotheses 10a,b,c: User satisfaction has mediating effects on the respective relationships among completeness, currency, access convenience, and complaint.

Hypotheses 11a,b,c: User satisfaction has mediating effects on the respective relationships among completeness, currency, access convenience, and blockade.

Hypotheses 12a,b,c: User satisfaction has mediating effects on the respective relationships among completeness, currency, access convenience, and NWOM.

3. Methodology

3.1 Instrument Development

The questionnaire used in the study contained eight constructs that were adopted and modified from prior studies to fit the scope of a web-based survey research form. Participants agreed to answer with statements using a five-point Likert-type scale (with 1 being "strongly disagree" and 5 being "strongly agree"). Questions regarding completeness and currency were adopted and modified from Kim and Han's (2011) items. Three items were provided to indicate the degree of users' feelings about the ads. Items evaluating access convenience and satisfaction were adopted and modified from Seiders *et al.*'s (2005) three items to determine the degree of users' feelings toward ads. Questions regarding users' perceptions of complaints were adopted and modified from Sanchez-Franco *et al.*'s (2009) three items to indicate the degree of users' feelings of pain and dissatisfaction. Items about users' perceptions of blockade were adopted and modified from Kim *et al.*'s (2009) three items to indicate the degree to which users were annoyed and willing to blockade the ads. Users' NWOM (three items) was measured using modified questions from Kalamas *et al.* (2008) to indicate the degree of users' negative feelings about ads. Finally, irritation about ads was determined using modified questions from Edwards *et al.*'s (2002) five items to measure the degree to which users feel annoyed about ads.

3.2 Pretest and Pilot Test

A pretest was used to assess the questionnaire in terms of its logical consistency, easiness to read, effectiveness of the sequence of items, and relevance. Specifically, the questionnaire was pretested for content and readability by 35 users with previous experiences in accessing ads using email surveys. No modifications were suggested by the pretest users; all the items of the questionnaire were regarded as being clear and easy to understand. A pilot study involving 50 MIS-graduated students at Chin-Yi University of Technology in Taiwan, all of whom had previous experiences of accessing ads in LINE, was then conducted to gain additional feedback about the questionnaire.

4. Data Analysis

In this paper, four criteria were used in the development of the scale: validity, action ability, efficiency, and

generalizability. Unfavorable behavioral intentions are crucial with regard to users of ads in LINE, and they include complaints, blockade, and NWOM. The questionnaire used in this study had three questions about each of these subtypes of unfavorable behavioral intentions to provide a holistic view of unfavorable behavioral intentions regarding ads in LINE. A validity criterion referred to as construct validity, which included the assessments of convergent and discriminant validity, is discussed in Section 4.3. Finally, path analysis with AMOS was used to evaluate the hypotheses; the analysis is discussed in Section 4.4.

4.1 Sample

At the beginning of the survey, it was ensured that the respondents had experience using LINE. The sample data were collected through a web survey of 230 respondents who have experiences about ads in LINE. The survey was conducted for nine months from January 1st to September 30, 2016, in Taiwan at www.mysurvey.com.tw/ads. Three assistants were asked to distribute the link to the web survey through LINE, Facebook, and mail. In the first three months 168 responses were obtained, and 62 responses were obtained in the rest months. The gender-based response ratio was 43.5% males and 56.5% females. Approximately 51.3% of the participants were 31–40 years old. In terms of location, 57.8% lived in the five cities in the middle of Taiwan. The highest education level was college education (70.0%). This education level of most of the respondents was mostly college; therefore, control variables were not included. The occupation with the most number of participants was related to the information industry (57.4%). The participants' monthly incomes can be summarized as follows: 30.4% had a monthly income below NT\$ 30k; 25.7% had a monthly income between NT\$ 30k and 40k; 29.6% had a monthly income between NT\$ 40k and 50k; and 14.3% had a monthly income above NT\$ 50k. In terms of job experience, 1.7% reported less than 10 years, 10.4% reported 11–20 years, 43.5% reported 16–20 years, 43.5% reported 21–25 years, and 0.9% reported above 26 years. The details are presented in Table 1.

Table 1. Demographic outline of respondents

Division	item	Frequency	Percent (%)
gender	male	100	43.5
	female	130	56.5
age	<=30	8	3.5
	31~40	118	51.3
	41~50	72	31.3
	51~60	22	9.6
	>=61	10	4.3
location	North	20	8.7
	middle	133	57.8
	south	53	23.0
	east	24	10.4
education	high	15	6.5
	college	161	70.0
	graduate	54	23.5
job	Information	132	57.4
	manufacturing	49	21.3
	Service	40	17.4
	Military and teacher	9	3.9
income	<=30000	70	30.4
	30001~40000	58	25.7
	40001~50000	68	29.6
	>=50001	33	14.3
Job experience	<10 years	4	1.7
	11~15	24	10.4
	16~20	100	43.5
	21~25	100	43.5
	>26	2	0.9

4.2 Nonresponse Bias

Nonresponse bias was evaluated in two ways. First, following the procedure suggested by Armstrong and Overton (1977), tests were conducted for statistically significant differences between the responses of early (168 or 73% of the respondents) versus late respondents (62 or 27% of the respondents) using job segment and income per month in Taiwan. Chi-square tests comparing the categories across the two groups revealed no significant differences for the types of job ($F = 0.915$; $p = 0.340$) or income per month ($F = 0.032$; $p = 0.858$). The test also indicated no significant differences between the two groups (i.e., the types of job and income per month), thereby indicating no systematic nonresponse bias for the survey data. Second, the gender distribution of

the respondents who returned questionnaires was compared with the gender distribution of the overall population (department of household registration, 2016, (<https://zh.wikipedia.org/zh-tw/%E8%87%BA%E7%81%A3%E4%BA%BA%E5%8F%A3>); the percentages of males and females were almost equal), and no significant differences were found ($\chi^2 = 0.734$, $p = 0.392$). The result showed that the sample was generalized to the population.

4.3 Reliability and Validity

Reliability confirms internal consistency, and validity comprises convergent and discriminant validities. Cronbach's alpha of all the study constructs exceeded 0.7, which is the recommended minimum for a reliability test in social science studies (Nunnally and Bernstein 1994). All the constructs passed the reliability test; therefore no item was dropped. The reliability values were as follows: completeness (0.920), currency (0.892), access convenience (0.874), irritation (0.910), satisfaction (0.938), complaints (0.895), blockade (0.907), and NWOM (0.896), as shown in Table 2. Following Podsakoff *et al.*'s (2003) suggestion, Harman's one-factor test was used in the present study to examine the common method bias, in which either a single factor will emerge from factor analysis or one general factor will account for the majority of covariance among measures. The first factor explains under half of the variance (23.137%) even where common method bias does not exist in reality (Ylitalo 2009). The composite reliability (CR) and average variance extracted (AVE) of the study constructs were as follows: completeness (0.955, 0.875), currency (0.880, 0.711), access convenience (0.887, 0.724), irritation (0.909, 0.667), satisfaction (0.882, 0.713), complaint (0.816, 0.598), blockade (0.824, 0.610), and NWOM (0.899, 0.749). Both the CR and AVE of all constructs exceeded the suggested thresholds (0.6 and 0.5, respectively). These results indicate that the convergent validity of the scale was good (Fornell and Larcker 1981). Furthermore, as shown in Table 3, the square root of each construct's AVE exceeded its corresponding correlation coefficients with other factors, indicating good discriminant validity.

Table 2. Results for overall measurement model (n = 230)

items	1	2	3	4	5	6	7	8	α	CR	AVE
comp1	0.000	0.134	0.917	0.097	0.153	-0.052	-0.057	-0.014	0.938	0.934	0.826
comp2	0.065	0.123	0.926	0.150	0.120	-0.011	-0.027	-0.010			
comp3	0.041	0.092	0.883	0.172	0.202	0.005	0.009	-0.004			
curr1	-0.033	0.933	0.118	0.146	0.193	-0.046	0.004	-0.032	0.953	0.945	0.851
curr2	-0.025	0.924	0.144	0.129	0.189	-0.064	-0.048	0.010			
curr3	0.014	0.911	0.092	0.057	0.143	-0.050	-0.069	0.007			
convenience1	0.144	0.097	0.182	0.884	0.063	-0.052	-0.057	-0.004	0.922	0.922	0.797
convenience2	0.157	0.089	0.167	0.917	0.108	-0.027	-0.031	-0.080			
convenience3	0.149	0.136	0.075	0.877	0.120	-0.059	-0.043	0.018			
sa1	0.094	0.193	0.163	0.139	0.836	-0.080	-0.109	-0.172	0.921	0.900	0.751
sa2	0.019	0.187	0.169	0.144	0.890	-0.098	-0.144	-0.032			
sa3	0.072	0.190	0.188	0.039	0.873	-0.083	-0.125	-0.022			
Irritation1	0.796	-0.033	-0.067	0.055	0.024	0.022	0.093	-0.048	0.904	0.923	0.707
Irritation2	0.852	-0.056	0.061	0.047	-0.026	-0.027	0.102	-0.093			
Irritation3	0.801	0.051	-0.023	0.204	0.055	-0.022	-0.004	-0.043			
Irritation4	0.862	0.001	0.123	0.089	0.089	-0.062	0.102	0.024			
Irritation5	0.890	0.006	0.036	0.073	0.041	-0.008	0.097	0.059			
complaint1	0.162	-0.134	-0.084	0.031	-0.142	0.121	0.833	0.103	0.865	0.891	0.731
complaint2	0.061	0.068	0.020	-0.083	-0.082	0.121	0.869	0.006			
complaint3	0.168	-0.063	-0.017	-0.070	-0.118	0.176	0.863	0.039			
Blockade 1	-0.039	-0.070	-0.006	-0.067	-0.092	0.843	0.149	0.195	0.864	0.879	0.709
Blockade 2	-0.013	-0.049	-0.049	-0.038	-0.075	0.867	0.130	0.187			
Blockade 3	-0.031	-0.039	-0.007	-0.029	-0.065	0.814	0.140	0.266			
neg1	-0.024	0.024	-0.125	0.010	-0.015	0.206	0.008	0.827	0.749	0.822	0.609
neg2	0.018	-0.043	0.037	-0.011	-0.002	0.170	0.031	0.828			
neg3	-0.105	0.015	0.073	-0.066	-0.217	0.270	0.109	0.675			

Note 1. bold for loading factor > 0.6

Note 2. CR (Composite reliability) = $(\sum \text{standardized loading})^2 / (\sum \text{standardized loading})^2 + \sum \epsilon_j$.

Note 3. AVE (Average variance extracted) = $\sum (\text{standardized loading})^2 / \sum (\text{standardized loading})^2 + \sum \epsilon_j$

where ϵ_j - Indicator measurement error

Table 3. Correlation estimates with square root of AVE

constructs	mean	std.	1	2	3	4	5	6	7	8
1 completeness	2.267	1.279	0.909							
2 currency	1.743	1.039	0.288**	0.922						
3 access convenience	2.617	1.335	0.329**	0.262**	0.893					
4 satisfaction	2.190	1.130	0.385**	0.414**	0.284**	0.867				
5 Irritation	3.733	0.835	0.087	0.001	0.271**	0.115	0.841			
6 complaint	4.207	0.708	-0.086	-0.131*	-0.099	-0.282**	0.217**	0.855		
7 blockade	3.797	1.049	-0.078	-0.141*	-0.132*	-0.236**	0.053	0.327	0.842	
8 negative WOM	3.651	1.014	-0.047	-0.046	-0.084	-0.202**	0.074	0.159*	0.499**	0.780

Note 1. **: $p < 0.01$; *: $p < 0.05$

Note 2. the diagonal bold means square root of AVE

4.4 Analysis and Results

AMOS 21.0 (structural equation modeling) was used to test the hypotheses of the model. The hypotheses were analyzed to confirm the hypothesized relationships among these constructs. AMOS is well suited and simple for testing such constructs (Tsao 2013). First, the index of fit for the measurement model was examined. The criteria of chi-square = 1.706; GFI (0.800 > 0.800), AGFI (0.800 > 0.800), NFI (0.900 > 0.900), CFI (0.901 > 0.900), and IFI (0.902 > 0.900). Second, the index of fit for the structural model was examined. The criteria of chi-square = 2.930; GFI (0.802 > 0.800), AGFI (0.892 > 0.800), NFI (0.901 > 0.900), CFI (0.900 > 0.900), and IFI (0.900 > 0.900). The above are all values suggested by Hair *et al.* (1998). The RMSEA was also satisfactory (0.047 < 0.05). Second, the standardized path coefficients and their statistical significance for the hypotheses in this model were estimated. The results indicated that users felt that the completeness, currency, and access convenience of ads in LINE positively impacted their satisfaction ($\beta = 0.207$; $t = 3.883$, $p < 0.001$; $\beta = 0.315$; $t = 5.142$, $p < 0.001$; $\beta = 0.122$; $t = 2.324$, $p > 0.05$, non-significant n.s.). Evidently, users' perceptions of higher levels of completeness, currency, and access convenience with regard to ads in LINE generally led to higher levels of satisfaction. Therefore, hypotheses 1 and 2 were supported, and hypothesis 3 was not. Second, users' satisfaction negatively impacted their harmful feelings including complaints, blockade, and NWOM regarding ads in LINE ($\beta = -0.483$, $t = -9.716$, $p < 0.001$; $\beta = -1.424$, $t = -16.553$, $p < 0.001$; $\beta = -1.271$, $t = -15.028$, $p < 0.001$, respectively, as shown in Table 4). These results demonstrated that users' satisfaction significantly affected their feelings about complaints, willing to blockade, and NWOM from ads in LINE. Higher levels of user satisfaction regarding LINE led to significantly fewer complaints, less willingness to blockade, and few NWOMs. Therefore, hypotheses 4, 5, and 6 were supported.

Table 4. Results of hypotheses with Amos

	Path	Estimate	t value	P	Label
Satisfaction	<--- Completeness	0.207	3.883	***	H1 supported
Satisfaction	<--- Currency	0.315	5.142	***	H2 supported
Satisfaction	<--- Convenience	0.122	2.324	0.02	H3 not supported
Complaint	<--- Satisfaction	-0.483	-9.716	***	H4 supported
Blockade	<--- Satisfaction	-1.424	-16.553	***	H5 supported
NWOM	<--- Satisfaction	-1.271	-15.028	***	H6 supported

Note. ***: $p < 0.001$

Subsequently, a bootstrapping approach with AMOS was used to test the indirect and direct mediating effects of satisfaction on unfavorable behavioral intentions. Bootstrapping is a technique to estimate the properties of variables from the initial observations and includes indirect effect, direct effect, and total effect. An indirect effect is the effect of one variable on another that is mediated by at least one other variable in a model. The upper and lower bounds of indirect effect exclude zero in 95% confidence interval to show the mediating effect exists (Bollen and Stine 1990). In this paper, the indirect effects of completeness, currency, and access convenience on the complaint were characterized with 95% confidence intervals, all of which included zero. This implies that the user satisfaction with ads in LINE did not have mediating effects on complaint. Second, the indirect effects of completeness, currency, and access convenience on the blockade were characterized with 95% confidence intervals, where the last two of them excluded zero. This implies that user satisfaction with ads in LINE had mediating effects on blockade. The upper and lower bounds of direct effect excluded zero in 95% confidence interval to prove the partial mediator; otherwise, the full mediator. The direct effect of completeness and currency included zero. Thus, the result showed that user satisfaction had full mediating effects between the completeness and currency of information and blockade, as detailed in Table 5. Therefore, Hypotheses 11a and 11b, i.e., satisfaction has mediating effects on blockade, were proved. Finally, following the same steps, the effects of completeness, currency, and access convenience on the

NWOM were characterized with 95% confidence intervals. User satisfaction had full mediating effects between the completeness and currency of information and NWOM. Therefore, Hypotheses 12a and 12b, i.e., satisfaction has mediating effects on NWOM, were proved.

Table 5. Result satisfaction of mediating indirect and direct effects on unfavorable behavioral intentions

constructs	point estimate	Product of Coefficients		Bootstrapping Bias-Corrected 95% CI		Mediating effect	result
		SE	Z	Lower	Upper		
Total effect							
sustainability	0.110	0.050	2.200	0.012	0.208		
enjoyment	0.034	0.088	0.386	-0.139	0.206		
reputation	0.108	0.075	1.440	-0.039	0.255		
economic benefit		0.124	0.056	2.214	0.015		
Direct effect							
sustainability	0.068	0.047	1.447	-0.025	0.160		
enjoyment	-0.114	0.085	-1.341	-0.281	0.053		
reputation							
economic benefit		0.133	0.052	2.558	0.031		
Indirect eff							
sustainability		0.042	0.028	1.500	-0.015		
total effect							
completeness	-0.295	0.171	-1.725	-0.640	-0.008	exist	
currency	-0.448	0.251	-1.785	-0.971	-0.007	exist	
convenience	-0.174	0.125	-1.392	-0.489	0.016	not exist	
indirect effect							
completeness	-0.295	0.171	-1.725	-0.640	-0.008	exist	
currency	-0.448	0.251	-1.785	-0.971	-0.007	exist	
convenience	-0.174	0.125	-1.392	-0.489	0.016	not exist	
direct effect							
completeness	-0.06	-0.175	0.343	-0.175	0.029	full	H11a
currency	-0.131	-0.309	0.424	-0.309	0.071	full	H11b
convenience							
NWOM							
total effect							
completeness	-0.263	0.150	-1.753	-0.040	-0.040	exist	
currency	-0.400	0.212	-1.887	-0.076	-0.076	exist	
convenience	-0.155	0.107	-1.449	0.004	0.004	not exist	
indirect effect							
completeness	-0.263	0.150	-1.753	-0.260	-0.040	exist	
currency	-0.400	0.212	-1.887	-0.398	-0.076	exist	
convenience	-0.155	0.107	-1.449	-0.203	0.004	not exist	
direct effect							
completeness	0.089	-0.035	-2.543	-0.035	0.240	full	H12a
currency	0.222	-0.017	-13.059	-0.017	0.468	full	H12b
convenience							

Note. SE: standard error

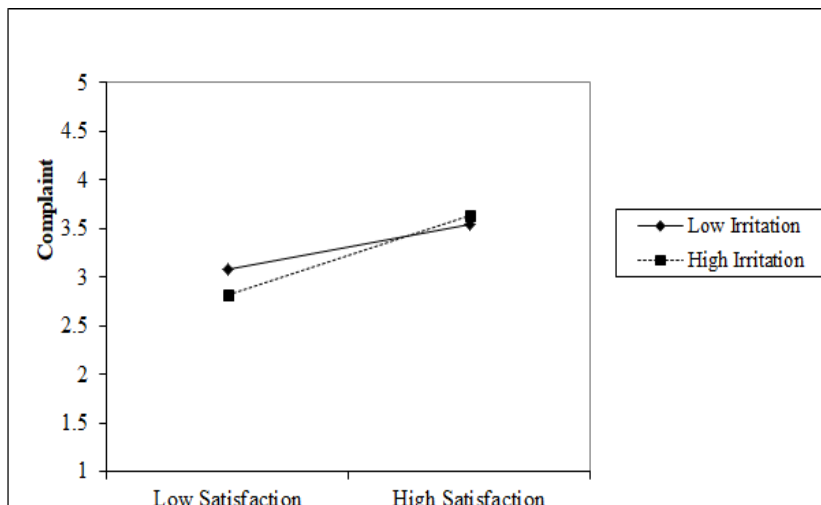


Figure 2. Moderating effect of people's irritation between satisfaction and ads complaint

Finally, irritation was assessed as a moderator of unfavorable behavioral intentions toward the ads in LINE. Three significant interactions (saXirri) of satisfaction and irritation on complaint ($\beta = -0.095$, $t = -2.914$, $p < 0.01$) and blockade ($\beta = 0.144$, $t = 4.451$, $p < 0.001$) yielded significantly moderated effects, but those of NWOM did not ($\beta = 0.086$, $t = 1.816$, $p > 0.05$, as shown in Figure 4). With high advertising irritation, users presented high satisfaction with the ads that would increase complaint (Figure 2). With high advertising irritation, users' demonstrated high satisfaction with the ads that would rapidly raise blockade (Figure 3) Therefore, hypotheses 7 and 8 were supported.

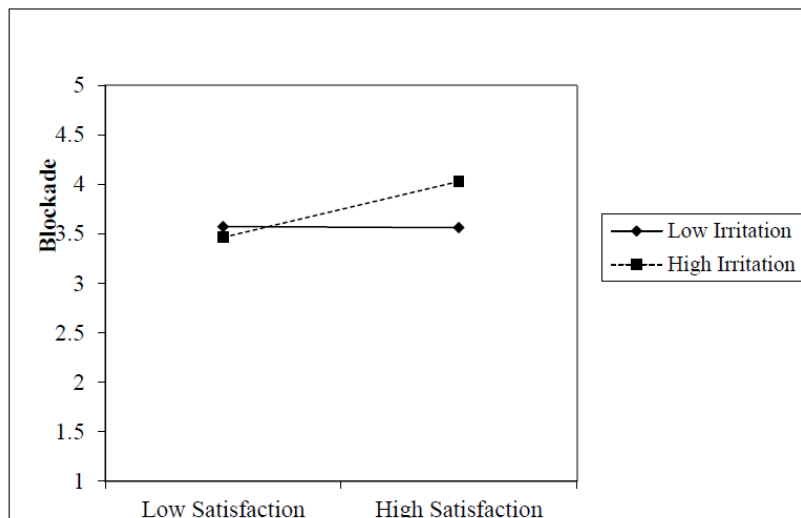


Figure 3. Moderating effect of people's irritation between satisfaction and ads blockade

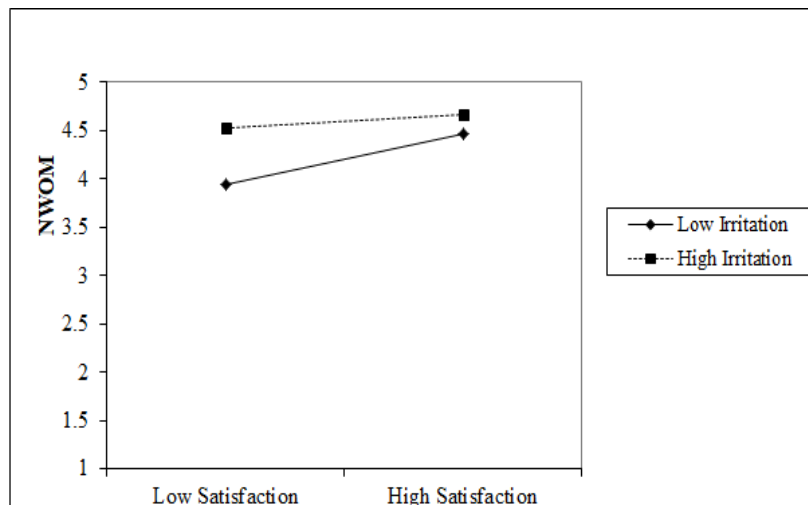


Figure 4. Moderating effect of people's irritation between satisfaction and ads NWOM

5. Conclusion

5.1 Discussion and Contribution

On the basis of an analysis of prior literature, a moderated mediated model is developed in this study to explore the relationships among IQ (as indicated by completeness and currency), access convenience, satisfaction, irritation, and unfavorable behavioral intentions about ads in LINE. The findings reinforces that IQ dimensions of ads' such as completeness and currency of information decrease uncomfortable feelings through user satisfaction; it appears to have an important impact that ever found; users felt that complete, current, and conveniently accessible ads used in LINE increased their satisfaction. Satisfaction was also confirmed to have a full mediating effect in the causal pathway from completeness and currency to unfavorable behavioral intentions. A moderator, irritation, was found to weaken the strength of the relationships between satisfaction and unfavorable behavioral intentions. Therefore, irritation is still an annoyance factor to make users uncomfortable.

In the context of LINE usage in Taiwan, related studies on unfavorable behavioral intentions have frequently been based on service failures (Smith and Bolton 2002; Zeithaml *et al.* 1996). Baker and Crompton (2000) found that tourists' negative feeling produced an unfavorable judgment. However, few studies have evaluated satisfaction of ads to have a mediating effect on complaints, blockade, and NWOM, which is moderated by irritation. As expected mostly, the results support the hypotheses that the completeness and currency of ads in LINE have positive impacts on user unfavorable behavioral intentions through satisfaction.

5.2 Implications and Practice for Research

Ads characteristics (completeness and currency of information) and access convenience decrease the unfavorable behavioral intentions of LINE through satisfaction, to an extent moderated by irritation. Considering the current discussion concerning the sources of unfavorable behavioral intentions toward the ads in social communication applications, such as the ads in LINE, the results prove that users' satisfaction is a bridge between the IQ of ads in LINE and their unfavorable behavioral intentions (such as complaints, blockade, and NWOM), especially with the irritation of ads to annoy them. From the managerial perspective, the findings of this research should be considerably helpful in a series of chains in ads of LINE, such as enterprises should know customers are dissatisfied with or disappointed by the promotion's offerings of ads. The paper theoretically extends the applicability of the ads in LINE to increase satisfaction and decrease unfavorable behavioral intentions and fills the gap in the current advertising literature. Compared with prior IS success studies that mainly focus on the positive relationships among these dimensions, this study examines the mediating effects among these negative feelings and highlights how quality and convenience play roles in the IS post-adoption outline. As long as users are satisfied with ads containing complete and updated information, in addition to access convenience, they will have favorable behavioral intentions toward the ads without complain, blockade, or say negative words to others; this can lead to the popularization of the ads in LINE. Boateng *et al.* (2016) implied that targeting customers have the potential for reducing the negative effect of irritation toward mobile advertising.

5.3 Managerial Implications

Ads (Bogart 1985) or pop-up ads (Edwards *et al.* 2002), pre-roll video ads (Campbell *et al.* 2017) were viewed as annoying media that are directly related to feelings of irritation and avoidance behaviors. Although many existing studies have explored the favorable behavioral intentions, empirical studies have not done much to confirm that irritating ads can increase the perception of unfavorable behavioral intentions. This conclusion adds a new path from IQ through satisfaction to attenuate users' unfavorable behavioral intentions with less ad irritation. Such findings may enrich the practical perspective; the findings agree that user satisfaction is an important mediator, like bridge to connect both sides, of a user's favorable (Chang and Polonsky 2012) and unfavorable intentions (Zeithaml *et al.* 1996; Smith and Bolton 2002). Originally, ads are annoying objects that irritate people unless the content of the ads is needed. The advertisers or creators who create ads to promote products should be cautious because people's unfavorable experiences may lead to severe consequences. The mobile network designers should design the network to be easily accessible. Within the context of this study, user satisfaction mediates the relationship between IQ dimensions such as completeness and currency and user intentions such as blockade and NWOM. User satisfaction is a bridge connecting IQ to blockade and NWOM. This research is important as it clarifies that ads should be eye-catching, informative, and current to arouse users' interest to click on them. Companies that advertise or intend to promote their products and services through LINE can realize effective and efficient promotion by adhering to the findings of the current study. Managers need to deal ads carefully; they should deliver ads that are useful and relevant in the moment; the size of ads should be size and float on the screen without irritating; sending touching short films to catch users' eyes may soften negative unfavorable behavioral intentions, especially in social media such as LINE. Therefore, the present study successfully evaluates a moderated and mediated model to explore factors affecting ads in LINE for academics.

5.4 Limitations and Future Works

Although these findings provide meaningful implications for ads in LINE, this study also has several limitations that need to be overcome. Considering control variable, Chu *et al.* (2003) found that educational level was significantly related to job satisfaction; this may be explored in the future. Moreover, this study presents only a sample of factors affecting unfavorable behavioral intentions through satisfaction as moderated by irritation. The results still require further verification. For example, the access convenience of ads was found to have a slight impact on satisfaction. This could be because convenience should be inherent in the Internet world and the LINE users did not mention. Second, substantial efforts were made to explore the relationship among these important factors affecting unfavorable behavioral intentions; however, considerable work is still required to fully explore

them. User satisfaction was not found to have a mediating effect on the respective relationships between completeness, currency, and access convenience and the users' intention to complain; this may be because the users tend to keep their dissatisfaction to themselves rather than expressing it. In other words, the users were accustomed to saying nothing. This aspect needs to be explored further. Finally, the irritation toward ads in LINE influences user satisfaction; this is an important driving force that explains why ads or pop-up ads may be negatively related to blockade and avoidance behaviors (Bogart, 1985; Edwards *et al.* 2002) or positively related to willingness to click for further query. These factors are also interesting phenomena to explore further.

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Questionnaire

Completeness [from Kim and Han's (2011) to indicate the degree of users' feelings about all the required information of ads, five-point Likert type scale]

1. The ads will provide me with a complete set of information.
2. The ads will produce comprehensive information.
3. The ads will provide me with all the information I need.

Currency [from Kim and Han's (2011) to indicate the degree of users' feelings the ads to be up to date, five-point Likert type scale]

1. The ads will provide me with the most recent information.
2. The ads will present the most current information.
3. The information from the ads will be always up to date.

Access convenience [from Seiders *et al.* (2005) to indicate the degree of users' access the ads with less time and effort, five-point Likert type scale]

1. It is easy to get the ads.

2. It does not take much time to get the ads.
3. I can easily figure out the ads.

Irritation [from Edwards *et al.* (2002) to indicate the degree of users been interrupted by the ads, five-point Likert type scale]

I think that the ad is

1. Infuriating
2. Phony
3. Annoying
4. Bothersome
5. Disturbing

Satisfaction [from Seiders *et al.* (2005) to indicate the degree of users' positive feelings about the ads, five-point Likert type scale]

1. I am pleased with the overall ads.
2. Accessing ads is a delightful experience.
3. I am completely satisfied with the ads.

Complaint [from Sanchez-Franco *et al.* (2009) to indicate the degree of users' negative experiences of the ads, five-point Likert type scale]

1. I will complain to other members about the ads.
2. I will complain to others about the ads.
3. I will complain enterprise of LINE about the ads.

Blockade [from Kim *et al.* (2009) to indicate the degree of users' willing the blockade the ads, five-point Likert type scale]

1. I intend to blockade the ads in the future.
2. I will blockade the ads.
3. I plan to blockade the ads.

Negative WOM [from Kalamas *et al.* (2008) to indicate the degree of users to tell other users or potential users about the ads negatively, five-point Likert type scale]

1. I will not recommend the ads to my friends and acquaintances.
2. I will discourage friends and acquaintances to spread the ads.
3. I will not tell the ads in LINE to my friends and acquaintances for ads.

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