

Uses and Gratifications Theory and E-Consumer Behaviors: A Structural Equation Modeling Study

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Abstract

Drawing from uses and gratifications theory, this study explores influences of informativeness, entertainment, and irritation on various online consumer behaviors such as attitude toward the Web, Web usage, and satisfaction. Particularly, web usage and satisfaction are explored as the consequences of attitude toward the Web, while informativeness, entertainment, and irritation are the antecedents of attitude toward the Web. This nomological model was tested with a structural equation modeling (SEM) approach. SEM results indicated that the uses and gratifications theory explains well consumers' attitude toward the Web. Internet users who perceive the Web as entertaining and informative generally show a positive attitude toward the Web. In contrast, those who perceive the Web as irritating indicate a negative attitude toward the Web. Finally, this study found that web users with a positive attitude toward the Web browse the Net more oftentimes and feel more satisfied.

Introduction and Background

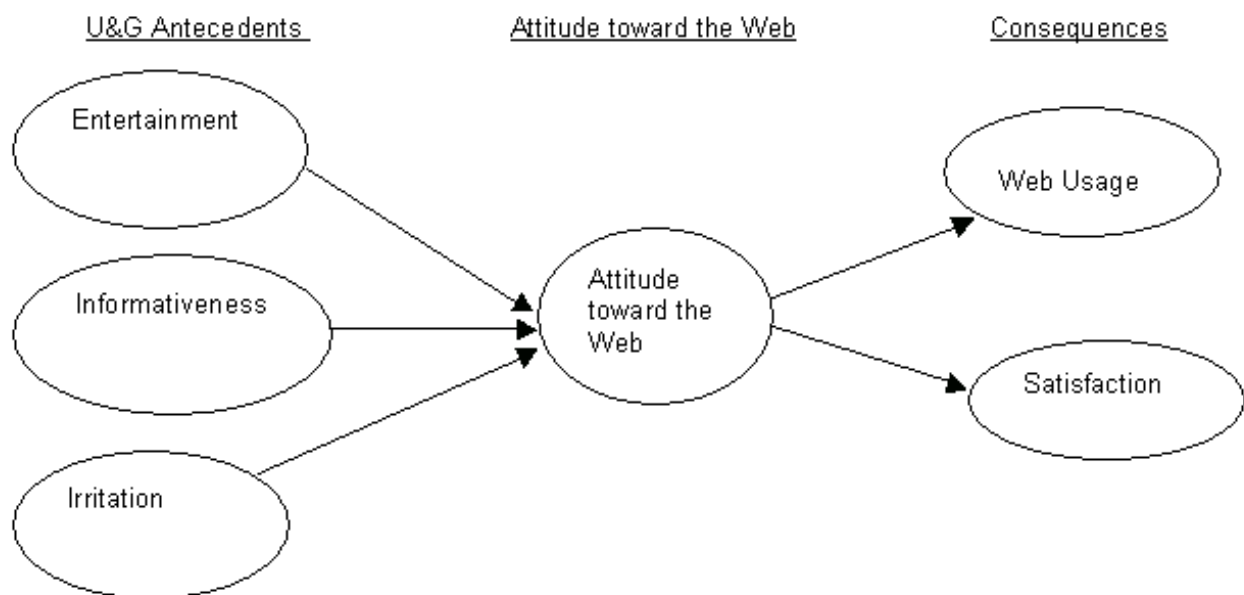
Although it is widely acknowledged that the Web as a marketing tool or medium offers great potentials and advantages (Cool and Coupey 1998), less is known about the motivations for using the Web and associated online consumer behaviors (Chen and Wells 1999; Korgaonkar and Wolin 1999). Uses and gratifications theory may provide novel insights into the meaning and determinants of consumer online behaviors such as attitude to the Web, Web usage and satisfaction, and shopping online.

The uses and gratifications research (Herzog 1944; McGuire 1974) has been quite fruitful in understanding consumers' motivations and concerns in the context of traditional media such as radio and TV (see Eighmey and McCord (1998) for a review of uses and gratifications applications). However, only several researchers have explored uses and gratifications (U&G) applications in the Internet context (Chen and Wells 1999; Eighmey and McCord 1998; Korgaonkar and Wolin 1999). For example, Eighmey and McCord (1998) noted that research participants who browsed five commercial websites show uses and gratifications behaviors similar to those reported in studies of traditional media such as TV.

This paper is intended to address this literature deficiency by linking the well-grounded uses and gratifications framework to online consumer behaviors. Specifically, variables based on U&G theory are considered the antecedents of attitude toward the web, while Web usage (e.g., the number of hours spent per week on the Internet) and e-satisfaction are modeled as the consequences of attitude toward the Web. This nomological model (as shown in Figure 1) of the antecedents and consequences of attitude toward the Web is, then, tested by structural equation modeling (SEM) analysis. The SEM approach

is adopted because this study is also intended to vigorously test the convergent, discriminant, and nomological validity of both U&G constructs and the recently developed scale of the attitude toward the Web by Chen and Wells (1999). Consumers' attitude toward the Web has been considered as a key indicator of Web effectiveness and consumers' belief of Internet technology (Chen and Wells 1999), just as attitude to advertising has been supported as a key predictor of advertising effectiveness in the literature (e.g. Aaker and Stayman 1990; Batra and Ray 1986; Haley and Baldinger 1991; MacKenzie, Lutz and Belch 1986; Shimp 1981).

Figure 1. A Model of Attitude toward the Web



Literature Review and Hypotheses Development

Uses and Gratifications Theory and Attitude toward the Web

The uses and gratifications (U&G) theory originated from the functionalist perspective on mass media communication. It was first developed in research on the effectiveness of the radio medium in the 1940s. Basically, it focuses on the explanations for audience members' motivations and associated behaviors. Psychologist Herta Herzog (1944) coined the term gratifications to depict the specific dimensions of usage satisfaction of radio audiences. Following this, mass communication theorists applied the U&G perspective in the context of various mass media such as television and electronic bulletins. For example, Rubin (1994) found that certain kinds of television programs have been shown to be related to various human needs, including information acquisition, escape, emotional release, companionship, reality exploration, and value reinforcement. The U&G research has been quite fruitful in understanding consumers' motivations and concerns for using various media such as radio, TV, and electronic bulletins (Eighmey and McCord 1998). A basic assumption of U&G theory is that users are actively involved in media usage and interact highly with the communication media. Since the interactive nature of the Web requires high consumer involvement, the application of uses and gratification theory to improve our understanding of e-consumer behavior seems legitimate (e.g. Eighmey and McCord 1998; Korgaonkar and Wolin 1999). As such, there is no wonder that this theory has been recently applied to examine consumer experience associated with Web sites (Chen and Wells 1999; Eighmey and McCord 1998; Korgaonkar and Wolin 1999; Mukherji, Mukherji, and Nicovich 1998).

U&G theory has multiple underlying constructs. In the literature, the most important and robust dimensions of U&G theory include entertainment, informativeness, and irritation (Chen and Wells 1999; Eighmey and McCord 1998; Eighmey 1997; Herzog 1944; Korgaonkar and Wolin 1999; Plummer 1971; Rubin 1994). Each of these three factors is discussed in the following sections.

Entertainment. The entertainment construct refers to the extent to which the web media is fun and entertaining to media

users (Eighmey and McCord 1998; Eighmey 1997). U&G research has demonstrated that the value of media entertainment lies in its ability to fulfill users' needs for escapism, hedonistic pleasure, aesthetic enjoyment, or emotional release (McQuail 1983). Previous research suggests that providing higher entertainment value is likely to lead to an advantage for media users and to motivate them to use the media more often. For example, it is found that that web users who perceive a banner ad on the Web as entertaining leads to more brand loyalty to the advertised products and higher chance of purchasing the brand (Stem and Zaichowsky 1991). In addition, Alwitt and Prabhaker (1992) report that the capability of advertising to entertain determines the experience of advertising exchanges for users. Similarly, Ducoffe (1995; 1996) evidences that entertainment is positively related to ad value and attitude to advertising. Finally, Chen and Wells' (1999) study found that entertainment is positively associated with the attitude toward the site, although their study has not vigorously tested (e.g., using the structural equation modeling approach) the scales of attitude toward the site and uses and gratifications underlying dimensions. Following this stream of research, the following hypothesis is offered.

H1: Entertainment of the Web is positively associated with the attitude toward the Web.

Informativeness. Different from entertainment, the informativeness construct of uses and gratifications theory can be defined as the extent to which the Web provides users with resourceful and helpful information (Chen and Wells 1999; Ducoffe 1995). In an original study, Bauer and Greyser (1968) suggest that media users consider advertising's ability to provide audience information the fundamental reason for accepting the ad itself. Similarly, Rotzoll, Haefner, and Sandage (1989) hold that advertising's informational role is its major legitimizing function. Without the time and space barriers in the virtual world, the Web can offer consumers with instant and insightful content. Maddox (1998) reports that the most important reason for people to use the Net is to gather various kinds of information. Again, Chen and Wells (1999) find that informativeness and attitude to the site are positively related. Finally, Ducoffe (1995; 1996) notices a substantial and positive correlation between informativeness and advertising value, and attitude to advertising. Thus, based on this body of research, it is hypothesized:

H2: Informativeness of the Web is positively associated with attitude toward the Web.

Irritation. Irritation can be defined as the extent to which the Web is messy and irritating to surfers (e.g. Eighmey and McCord 1998). In the e-advertising context, Ducoffe (1996) notes that irritating banner ads may exploit human anxiety, distract consumers' attentions, and dilute human experiences. Bauer and Greyser (1968) note that people criticize advertising and marketing mostly due to the annoyance or irritation that advertising causes. Irritation may even lead to a general reduction of ad effectiveness and perceived value to audience (Aaker and Bruzzone 1985). When e-business employs techniques that are too flashy with big-size graphics or abuses those techniques by tracking consumer information and behavior online, Web users may perceive this as an unwanted, offending, and negative influence. Empirically, data from Ducoffe's (1995) mall-intercept study yielded a significant and negative influence of irritation on the attitude toward ad. In a separate study, Ducoffe (1996) reported that there is a negative correlation between irritation and the ad value and attitude toward Web advertising. As such, the following hypothesis is offered:

H3: Irritation of the Web is negatively associated with attitude toward the Web.

Consequences of Attitude toward the Web

Based upon studies of traditional mass media advertising literature, Chen and Wells (1999) are among the first to propose a seminal scale - Web users' attitude toward the site. Attitude toward the Web is considered as a key determinant of both consumer adoption and usage of the Web, and Web marketing effectiveness (Chen and Wells 1999), just as attitude toward ad is a key predictor of ad effectiveness in advertising literature.

Previous advertising research has shown that the attitude toward ad is the most noteworthy indicator of advertising effectiveness and outcomes (Aaker and Stayman 1990; Haley and Baldinger 1991; MacKenzie, Lutz, and Belch 1986). For example, MacKenzie, Lutz, and Belch (1986) found support that the attitude toward the ad influences brand attitudes and purchase intentions. In addition, Haley and Baldinger (1991) found that the degree to which audiences like an advertisement is the foremost predictor of sales. In the same manner, it is believed that consumers who hold a positive attitude toward the Web would spend more time browsing the web for fun or information, and feel satisfied with the convenient and resourceful

Web.

H4: Attitude toward the Web is positively associated with consumers' web usage and satisfaction.

Research Methodology

Sample and Data Collection

Web surveys suggest that the web users population, for the first time, moved closer to the characteristics of the general population in the late 1990s (Korgaonkar and Wolin 1999), and that web users are generally college educated and young with median or high-income levels. Data in this study were collected from undergraduate business students in two major universities, one in a Southern state and the other in a Northern state in the U.S. A total of 268 surveys were distributed to marketing classes (e.g., consumer behavior, principles of marketing, and marketing research). Of the 238 surveys received, 205 were fully completed and useable for purposes of the study. The 205 useable surveys lead to an 86.13% useable response rate. The sampled subjects have about 3.5 years of web experience in average. The mean of their ages is 21 years. Fifty-five percent of the students are male, and 45% of them are female. Most of the students (74.5%) are connected to the Internet through university servers. A majority of the subjects (63.7%) have purchased at least once via the Web.

Measurements

All measurement scales (except web usage) are Likert-type with 7-point format, anchoring at "1"--strongly disagree and "7"--strongly agree. As reported in Appendix A, the fifteen items measuring the U&G three dimensions in this paper are derived from previous studies (Chen and Wells 1999; Ducoffe 1996; Korgaonkar and Wolin 1999). Particularly, each of the *informativeness*, *entertainment*, and *irritation* scales is measured by five separate items.

Attitude toward the Web is measured by the scale suggested by Chen and Wells (1999). This scale involves six items. The reliability and validity of this scale were also achieved in their seminal study. *Satisfaction of the Web* is measured by five Likert-type items used in the *Harris Online Survey 2000*. Examples of the items include: "I feel satisfied with the easy of use of the Web", "I am satisfied with information on the Web", "I am satisfied with online products and services", "I feel satisfied with the prices on the Web", and "Overall, I am satisfied with the Web." Finally, *Web usage* is measured by one item, the number of hours per week spent on the Web (Korgaonkar and Wolin 1999).

Evidence of the internal consistence of the constructs was found in this study. Cronbach's alpha was .91 for entertainment, .89 for informativeness, and .88 for irritation. Attitude toward the Web and Satisfaction of the Web also possessed sufficient reliability, as Cronbach's alphas were .82 and .84 for attitude toward the Web and satisfaction of the Web, respectively.

Analysis and Results

Measurements Validation

Since entertainment, informativeness, and irritation are three dimensions of U&G theory, the items of these three constructs are included in one measurement model to rigorously test the validity. A separate measurement model includes the scales of attitude toward the Web and Web satisfaction. According to Gerbing and Anderson (1988), it is more appropriate to adopt the two-step procedure in structural equation modeling. That is, one should separately estimate the measurement model before a simultaneous estimation of measurement and structural models. All measurement models were evaluated on multiple criteria such as unidimensionality, reliability, and convergent and discriminant validity (Gerbing and Anderson 1988).

Uses and gratifications theory measurement model. Before a confirmatory factor analysis (CFA) of the U&G measurement model, an exploratory factor analysis (EFA) was executed by maximum likelihood extraction method, with varimax rotation. In

order to decide the number of factors to be extracted and rotated in the U&G model, three methods were used: 1) a cut point of .4 and no significant cross loading criteria, 2) scree plot tests, and 3) consideration of eigen value magnitude and discontinuity (Hair et al. 1998). EFA results of the U&G model suggest a clean three-factor solution corresponding to informativeness, entertainment, and irritation (with item loading > .40 and small cross loading). The total variance explained by the three factors is 68.45%. Then, a three-factor model with all indicators of these three constructs of uses and gratifications theory was estimated using confirmatory factor analyses (CFA). As Table 1 indicates, all items' loadings on their corresponding construct were significant at $p < .05$ (i.e., $t > 2.0$), demonstrating adequate convergent validity. Since the modification indices and estimated residuals of the U&G model were small, not significant, unidimensionality was also achieved (Sujan, Weitz, and Kumar 1994). In addition, discriminant validity of the U&G model was supported by checking the pairwise correlations in Table 2. As expected, the factor correlations ranged from -.46 to .65 and significantly different from one, establishing discriminant validity. For this uses and gratifications measurement model, the goodness-of-fit (GFI), adjusted goodness-of-fit (AGFI), root-mean-square error of approximation (RMSEA), and comparative fit index (CFI) were .916, .903, .069, and .949 respectively, therefore indicating an adequate model fit.

Table 1 Results of Uses and Gratifications Measurement Model

Paths ^a	Standardized Estimates	T values
INFORM1<----- INFORM	0.75 ^b	
INFORM2<----- INFORM	0.89	18.44
INFORM3<----- INFORM	0.80	14.96
INFORM4<----- INFORM	0.92	19.56
INFORM5<----- INFORM	0.63	10.32
ENTERTA1<----- ENTERTA	0.79 ^b	
ENTERTA2<----- ENTERTA	0.91	15.20
ENTERTA3<----- ENTERTA	0.74	11.62
ENTERTA4<----- ENTERTA	0.90	15.05
ENTERTA5<----- ENTERTA	0.77	12.08
IRRITA1<----- IRRITA	0.87 ^b	
IRRITA2<----- IRRITA	0.81	13.75
IRRITA3<----- IRRITA	0.75	12.35
IRRITA4<----- IRRITA	0.76	12.48
IRRITA5<----- IRRITA	0.70	11.30

^a Goodness-of-fit statistics: $\chi^2 (87)=196.98$; CFI = .949; GFI =.916; AGFI = .903; RMSEA = .069

^b Fixed parameter.

Table 2 Summary Statistics and Correlation among Variables

	Mean	SD	INFORM	ENTERTA	IRRITA	ATTITUD	SATISF	WEBUSE
INFORM	6.19	0.91	1.00					
ENTERTA	5.46	1.20	0.65**	1.00				
IRRITA	2.60	1.38	0.47**	-0.46**	1.00			
ATTITUD	5.60	0.99	0.67**	0.78**	0.50**	1.00		
SATISF	5.40	1.08	0.58**	0.58**	0.44**	0.63**	1.00	

WEBUSE?	8.12	8.07	0.15*	0.26**	-0.11	0.23**	0.17*	1.00
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* p < .05

** p < .01

Attitude toward the Web and satisfaction measurement model. Similar to the uses and gratifications measurement model, both confirmatory factor analyses (CFA) and exploratory factor analyses (EFA) were employed to test this two-factor model. First, exploratory factor analysis using maximum likelihood with varimax rotation results clearly show two factors of attitude toward the Web and satisfaction. Similarly, CFA results support the convergent, discriminant validity of attitude toward the Web and satisfaction. Overall, model goodness-of-fit indexes also support this measurement model ($\chi^2(43)=152.83$; CFI = .919; GFI = .882; AGFI = .863; RMSEA = .079).

It should be noted that although Chen and Wells (1999) developed the Attitude toward the Web scale, their study did not test this scale by confirmatory factor analysis. Thus, the present study extends their research, and confirms that the attitude toward the Web scale achieves convergent and discriminant validity, besides the content validity as evidenced in their previous effort.

Structural Paths and Hypotheses Tests

To test the structural relationships, the hypothesized causal paths were estimated and all hypotheses (H1, H2, H3, and H4) were supported. The results are reported in Table 3. The overall fit of the model is acceptable because the goodness-of-fit statistics (CFI = .912, GFI = .876, AGFI = .847, and RMSEA = .074) are satisfactory, with the χ^2/df ratio close to 2.0.

Table 3 Parameter Estimates for Causal Paths

<i>Hypotheses</i>	<i>Regression Weights:</i>	<i>Standardized Parameter Estimates</i>	<i>t- value</i>
H1	ATTITUD<----- ENTERTA	0.68	7.51
H2	ATTITUD<----- IRRITA	-0.16	-3.04
H3	ATTITUD<----- INFORM	0.19	2.90
H4	SATISF <----- ATTITUD	0.79	7.60
	WEBUSE <----- ATTITUD	0.25	3.40

^a Goodness-of-fit statistics: $\chi^2(317)=657.27$, p = .00; CFI = .912; GFI = .876; AGFI = .847; RMSEA = .074

Hypothesis 1 states that entertainment is positively related to attitude toward the Web. In Table 3, the entertainment - attitude toward the Web path loading was .68 (p < .01), supporting H1. In addition, the results provide support H2, as informativeness is positively related to attitude toward the Web (loading = .19, p < .05). As predicted, irritation leads to a negative attitude toward the Web (loading = -.16, p < .05), supporting hypothesis H3. Also a comparison of the estimated coefficients of all independent variables shows that entertainment is the most important determinant for Web users' online behaviors. These empirical results support Eighmey and McCord's (1998, p.189) argument that "the primary use of computer-mediated forms of communication and the Web involves entertainment." Overall, entertainment, informativeness, and irritation explain 87% of the variance of attitude toward the Web. This finding lends strong support for the nomological validity of U&G theory and attitude toward the Web scale. The final hypothesis states that attitude toward the Web is positively related to Web usage and consumer satisfaction. The attitude toward the Web - Web usage path loading was .79 (p < .01), while the attitude toward the Web - user satisfaction path estimate was .25 (p < .01), supporting H4. Users' attitude toward the Web

explains 63% of the variance of Web satisfaction.

We also tested unhypothesized direct paths from entertainment, informativeness, and irritation to attitude toward the Web by comparing different models. Following the process suggested by Gerbing and Anderson (1988), models comparison results indicated only the model with the directions hypothesized fits the data the best. As such, it is supported that attitude toward the Web mediates the effects of U&G theory and Web usage and satisfaction. This mediating effect is similar to the finding in Ducoffe's (1996) study.

Discussion and Conclusion

This study, drawing from uses and gratifications theory (Herzog 1944; McGuire 1974), attempted to explore the influences of informativeness, entertainment, and irritation on various online consumer behaviors such as attitude toward the Web, Web usage, and Web satisfaction. Particularly, web usage and satisfaction were explored as the consequences of attitude toward the Web, while informativeness, entertainment, and irritation are the antecedents of attitude toward the Web. This nomological model was tested with a more rigid theory testing methodology--structural equation modeling (SEM) approach.

SEM results indicated that the U&G theory explains consumers' attitude toward the Web. Internet users who perceive the Web as entertaining and informative generally like the web and show a positive attitude toward the Web. On the other hand, those who perceive the Web as irritating are more likely to report a negative attitude toward the Web. In addition, this study found that web users who have a positive attitude toward the web are more likely to surf the Net and feel more satisfied.

The findings of this study offer several implications for e-business. First, electronic marketers should not only provide useful information to Web users, but also go beyond this by entertaining them in cyberspace. This is because Web entertainment value was found to be the most important determinant of users' attitude toward the Web, which may lead to more satisfied users and repeated use of the Web. Ultimately, repeated visits and click through, consumer satisfaction, and loyalty of the Web site are the key to success of e-business (Hoffman, Novak, and Peralta 1999; Fukuyama 1995). Second, e-marketers should avoid confusing or irritating surfers by such practices as too flashy and big size graphics, messy presentation of the information, or even deceptive content on the Web. By irritating Web users, e-businesses will find it is notoriously difficult to get consumers back to their websites in the future.

The present study contributed to the literature in a couple of ways. First, to the best of our knowledge, it is the first study intended to investigate antecedents and consequences of attitude toward the Web simultaneously. Second, by using the structural equation modeling method, this study supports the convergent and discriminant validity of various scales such as attitude toward the Web and uses and gratifications--entertainment, informativeness, and irritation. Further research efforts are called for to validate the findings of this study. For example, further efforts may survey Web users other than college students. The student sample was one limitation of the present study, possibly biasing the findings. As such, more research with other samples is needed to generate the current results and provide pivotal implications for e-businesses. Finally, given the important role of uses and gratifications theory (Eighmey and McCord 1998; Herzog 1944; McGuire 1974), future research is warranted to explore its applications in Web advertising and e-commerce fields.

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Appendix A. Measurement Items.

Items	Coefficient Alpha
Surfing on the Web is entertaining to me	.91
I think the Web is fun to use	
I feel excited when surfing on the Web	
I enjoy surfing the Web	
I think the Web is cool	
Web gives me quick and easy access to large volumes of information	.89
Information obtained for the Web is useful	
I learned a lot from using the Web	
I think the information obtained from the Web is helpful	
Web makes acquiring information inexpensive	
I think the Web is irritating	.88
The Web is annoying to me	
I feel that the Web is confusing	
I think the Web is messy	
The Web is deceptive to me	

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