

WHAT CONSUMERS THINK, FEEL, AND DO TOWARD DIGITAL ADS: A MULTI-PHASE STUDY

Ping Zhang, Syracuse University, Syracuse, NY 13244, USA, pzhang@syr.edu

Abstract

With the wide deployment of digital technologies, come along information artefacts in various forms for various purposes that consumers have to interact with. This paper reports a multi-phase study to address the following questions in the digital advertising context: (1) to what extent did consumers use ads in the past? (2) What are consumers' perceived values toward ads? (3) What are consumers' attitudes toward ads? (4) What is the likelihood that consumers will continue to use or recommend ads in the future? And (5) to what extent can we predict consumers' perceived values, attitudes, and future behavioral intention toward ads? Phase 1 used two focus groups and identified types of ads in three technological platforms. Phase 2 focused on targeted ads in the desktop/web platform and used an online survey with 279 consumers. Phase 3 used another online survey from 218 consumers on two specific types of ads. Collectively, the study provides answers to the questions as well as many other insights for research and practice on digital ads in particular and information artefacts in general.

Keywords: Consumers, Perception, Attitude, Behaviour, Digital Advertisement.

1 Introduction

Information artefacts are digital creations to fulfil certain needs for various parties. Our understanding on consumers' interactions with information artefacts is improving but still limited, thus begs for continued investigation. One type of such information artefacts is digital advertisements that every online user would encounter numerous times on a daily basis. By studying consumers' reactions toward digital ads, we can gain understanding and insights that may be applicable toward other information artefacts. This study addresses five general questions within the digital advertising context: (1) to what extent did consumers use ads in the past? (2) What are consumers' perceived values toward ads? (3) What are consumers' attitudes toward ads? (4) What is the likelihood that consumers will continue to use or recommend ads in the future? And (5) to what extent can we predict consumers' perceived values, attitudes, and future intention toward ads?

Ad designers can use two advertising strategies for different purposes: brand building and targeted (Fernandez and Rosen 2000; Wang, et al. 2002; Zhang and Wang 2005). Brand building advertising is synonymous with product advertising and is commonly seen in traditional mass media, including TV, radio, magazine, and newspaper. Brand building ads tend to be product/service- (or retailer-) oriented with the purpose to establish a positive image and creating demand for a product or service that leads to eventual purchase (Rosenberg 1995). Targeted advertising is designed to help potential consumers locate interesting information (Fernandez 1995). Targeted ads have the potential of meeting consumers' specific needs in a timely and convenient fashion, especially in the Internet era. In order to be more precise, advertisers need to know about targeted consumers. Thus such advertising also raises concerns on privacy. From the consumers' perspective, in order to be better served, they have to provide some relevant information. They need to compromise to sacrifice certain privacy in the hope of getting valuable returns. Therefore, their perceived value and benefit of using targeted ads are very important. Finally, regardless of what they think, if consumers do not actually use digital ads, all advertising related efforts from the application providers, network owners, advertisers, content providers, and other interested parties are wasted. Thus from the perspectives of designers, marketers

and policy makers, it is very important to find out what factors might contribute to consumers' perceived values, benefits, attitudes, and intention to use such targeted advertisements.

This study does not investigate how to better understand consumers' needs. It does not directly address marketers, ad content or ad design either. Rather, we examine what consumers did in the past in interacting with digital ads, what their perceptions are on values, benefits, and attitude towards such ads, what their future behavioural intentions might be, and what factors might contribute to the perceptions, attitudes, behavioural intentions. Given the exploratory nature, the study uses a multi-phase design that combines both qualitative and quantitative analyses to answer the research questions.

2 Conceptual Development

Consumers' perceived value and attitude toward advertising are two related but different concepts. Perceived advertising value is a cognitive assessment of the advertisements (Ducoffe 1996). It explains the worth or utility of advertising to the consumers. On the other hand, attitude toward advertising (Aad) is a multidimensional construct that combines both cognitive and affective dimensions of evaluation (Petty, et al. 1997; Zhang, et al. 2008; Zhang and Sun 2009). Due to its cognitive and affective nature, attitude is often dependent on perceived value (the cognitive part) and other affective factors, and often used as a strong predictor of consumers' behavioural intention toward the target, such as using digital ads.

One of the established works in the advertising literature is Ducoffe's framework for predicting consumer's value and attitude toward traditional advertising (1995). Entertainment, informativeness, and irritation are identified as factors contributing to consumers' evaluations of advertising values and attitude. Ducoffe (1996) then applied the model to the Web environment. Without distinguishing the two types of advertising strategies (brand building and targeted), he confirmed that attitude toward Web advertising is directly dependent on advertising value. Furthermore, advertising value is dependent on perceived levels of entertainment, informativeness, and irritation. Brackett and Carr (2001) further validated Ducoffe's model and extended the model to include credibility and consumer demographics. Credibility is directly related to both advertising value and attitude. Demographic variables such as college major and gender are shown to affect only attitude toward advertising. Brackett and Carr did not separate brand building from targeted purposes.

One of the many differences between traditional and digital advertising is the level of interactivity a consumer may experience with an ad. Zhang and colleagues (Wang, et al. 2002; Zhang and Wang 2005) extended the previous models by considering interactivity. They tested the model separately for the two different advertising strategies with more than 300 college students in 2003. Their results show that the model can explain more than 70% variances in perceived value and almost 70% in attitude toward advertising for both strategies.

To build on the literature, we extend the model to include factors that can be highly relevant to digital ads. Perceived privacy is one such important factor where consumers may experience that they do not have control over the use of personal information that either given by them to received particular products or services or being gathered from their computers or other online repositories. Perceived privacy has been defined in various ways. For example, it is a consumer's perception of the likelihood or intention of vendors' unauthorized use or disclosure of his or her confidential information (Kim 2008). It is also defined as the degree to which a consumer believes he or she has the right to control the collection and use of his or her personal information after he or she has disclosed to others (Hossain and Prybutok 2008). In this study, perceived privacy is the extent to which a consumer is concerned that vendors or advertisers may track or use personal information without permission. It is a cognitive appraisal a consumer has when exposed to and interact with digital ads.

As Figure 1 shows, perceived value of ads is influenced by a set of factors including entertainment, informativeness, irritation, credibility, interactivity, and privacy. These factors are underlying information bases for cognitive and affective evaluations. Perceived value directly influences attitude,

which in turn determines a consumer's future intention of using ads. Since entertainment and irritation are emotion latent factors, they should directly influence attitude as the affective information base. In addition, past behaviour of using the same or similar ads can have a direct impact on future intention. The relationships among perceived value, attitude, intention and behaviour are based on the theory of reasoned action and theory of planned behaviour (Ajzen 1991; Fishbein and Ajzen 1975). These theories have been validated in many social contexts including the web, as well as information and communication technologies (Petty, et al. 1997; Zhang, et al. 2008; Zhang and Sun 2009). The model provides guidance on what and how to collect empirically in order to answer the five questions.

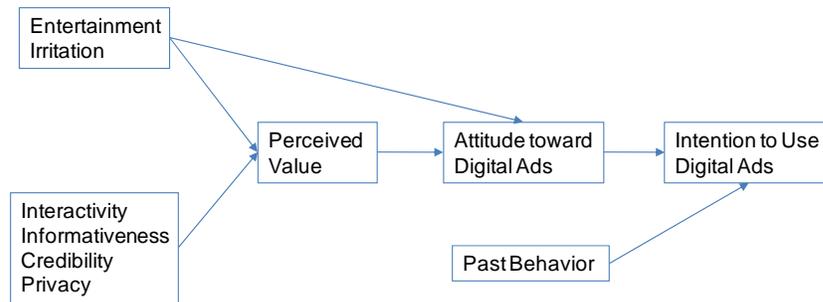


Figure 1. Research Model of Consumers' Evaluations of Targeted Digital Ads.

3 Empirical Study Design and Conduct

3.1 Phase 1: Focus Groups

The objectives of Phase 1 were: (1) to gather information about the recent ads in digital forms, and (2) to gather information about factors contributing to consumers' perceptions, attitudes and intention. Due to the exploratory nature of such objectives, the data collection method is focus groups. The first type of information provides guidance for Phase 2 data collection on the types of ads. The second type of information is to test whether the model in Figure 1 misses any other important factors.

The first group had two male and five female full time staff members from a US university. The second group had four male and three female graduate students from the same university. Participants were first introduced the two types of ads: branding and targeted. Then they were asked a set of questions (shown in Table 1) so that they could reveal the digital ad types, the factors and behaviours associated with the ads. Focus group sessions lasted less than one hour; were audio taped and transcribed into text, which was further content analyzed.

Question Type	Specific Question
Types of digital ads	Q1.1 What types of ads do you encounter as digital ads for the purposes of branding and directional? Q1.2 Which ones seem more common to you to encounter? In what situations and at what times?
Factors on what you think of ads	Q2.1 What might be the factors to influence you to judge the ads for its potential value (or lack of), or for how you like/dislike it? Q2.2 Which factors seem more important to you? In what situations and at what times? Why?
Factors on what you do with ads	Q3.1 When you have to deal with unwanted ads, what do you normally do? In what situations and at what times? Why? Any general strategies? Q3.2 Which of the strategies are more popular to you to use? Why?

Table 1. Questions Used to Prompt Participants in the two Focus Groups.

Three platforms were identified: large digital displays, desktop/web, and mobile. Among all ads mentioned, participants were most concerned with digital ads in the web or desktop platform. Based on these findings, Phase 2 survey was to focus on general web ads that are perceived to be either branding or targeted. Participants also identified factors that contribute to their reactions toward ads. Most factors, especially the ones that are considered more important than others, have been identified in the literature. Overall, we decided to keep all and only the factors in Figure 1 to be tested.

3.2 Phase 2: Survey on General Types of Digital Ads

Phase 2 was to gain an understanding of consumers' responses toward general types of either branding or targeted ads. Similar to previous studies (Wang, et al. 2002; Zhang and Wang 2005), online survey was used with the exception that participants this time were representatives of the broad digital ad consumer population, not just college students. A total of 291 participants (yielding 279 usable cases) were recruited from Amazon.com Mechanical Turk where workers complete human intelligent tasks (HITs) to get compensation. Participants were randomly assigned to one of the two groups: branding and targeted. Table 2 column 3 summarizes the demographics in the third column.

		Phase 2 (N=279)		Phase 3 (N=218)	
		Mean	SD	Mean	SD
Number of hours on Internet daily		5.9	3.4		
Number of hours using email daily				2.6	3.0
Number of hours using the web daily				6.7	6.7
Age		31.9	10.7	31.9	10.8
			%		%
Gender	Male		41.2		42.2
	Female		53.0		54.1
	Unknown		5.7		3.7
Ethnicity	African-American		5.7		4.6
	Asian/Pacific Rim		7.9		5.0
	Hispanic		4.3		6.0
	Multi-racial		3.9		4.1
	Native American		.7		1.4
	White		70.3		75.2
	Other/unknown		7.2		3.7
Highest Degree Earned	Associate/some college		15.4		30.7
	BS/BA		37.3		35.8
	High school		27.2		16.5
	Masters		10.8		12.8
	PhD/DPA		2.5		0.5
	Unknown		6.8		3.7
Employment Status	Fulltime Job		48.0		50.5
	Self Employed		7.9		3.2
	Full time Stu		12.9		17.4
	Part time Stu		6.5		2.8
	Unemployed		5.7		13.3
	Unknown		19.0		12.8

Table 2. Demographics of Participants in Phase 2 and Phase 3 Surveys.

In order to gain some insight on the specific types and reasons of ads being considered positively and negatively, we used open-ended questions to ask the participants to give an example of the most positive ad and list three reasons for it being most positive; and same for the most negative ad and three reasons. In a nutshell, the top reasons for being most positive were save money, relevant, non-

intrusive, and can get rid of. The top reasons for most negative were: deceptive, pop-up, high appearance frequency, and cannot get rid of. These findings helped us make decisions for Phase 3 design, which was to narrow down to focus on two particular types of targeted ads.

3.3 Phase 3: Survey on Specific Types of Targeted Digital Ads

Phase 3 was to gain further understanding on consumers' responses on particular types of targeted ads, which were identified from the responses in Phase 2: email ads and sponsored link ads. Very often, they are based on the behaviours of the consumers (such as doing a search or browsing, signed up for email notifications) thus are more likely to be relevant than other ads. For this survey, we also used Amazon.com Mechanic Turk to recruit participants. A total of 220 different people participated, yielding 218 usable data sets (Table 2 shows the demographic data). The entire survey design is similar to that for Phase 2 with the exception that participants were asked to respond to either email ads or sponsored link ads, with each received 109 responses.

4 Findings

Findings are organized by addressing the five research questions with collective evidence in two surveys. The first four questions can be answered with descriptive data analysis. For the last questions, we use the structured equation modelling.

4.1 RQ1. To What Extent did Consumers Use Digital Ads in the Past?

Figure 2 shows how many times per day on average consumers have seen digital ads (general branding type, general targeted type, email ads type, and sponsored link ads type). Phase 2 provides answers to branding and targeted ads types, and Phase 3 email and sponsored link ads types. For example, among the 132 participants for branding ads, 27% reported seeing branding ads 1-5 times per day; among the 109 participants for email ads, about 46% reported seeing email ads 1-5 times per day. About 5% or less people in any group reported not seeing ads. Most of these people also reported using some types of ad blockers or filters.

Participants were then asked to report the extent to which they have done the following for email or sponsored link ads (using a scale of 1-7, while 1=never, 7=always): (a) Check out the ad's details; (b) Use the information in the ad to buy; (c) Recommend the ad to others; and (d) Save the ad for future use. Figure 3 depicts the results of such past behaviours. Although both types of ads received very low attention, sponsored link ads received even lower scores than email ads.

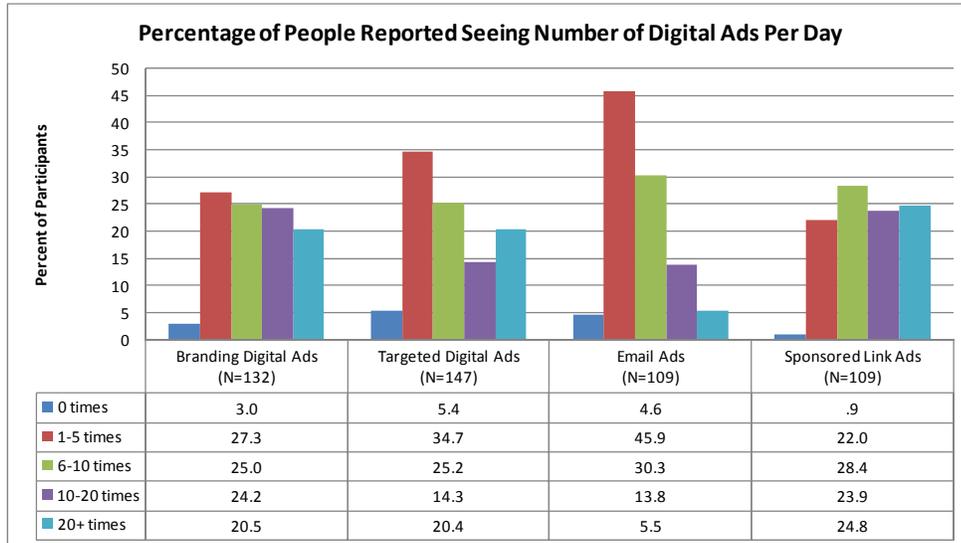


Figure 2. Average Times per Day of Seeing Ads.

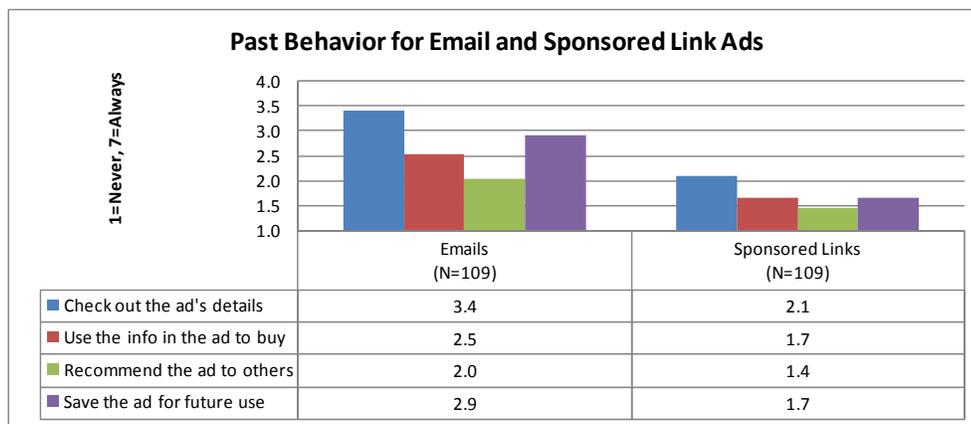


Figure 3. Past Behaviour toward Email and Sponsored Link Ads.

4.2 RQ2. What are Consumers Perceived Values of Digital Ads?

In Figure 1, we have identified six underlying factors for perceived values as entertainment, informativeness, irritation, credibility, interactivity, and privacy concerns. Each of these factors has two or more measuring items, which were averaged for displaying the scores over ad types. Figure 4 shows consistent low scores on entertainment, informativeness, credibility, interactivity, and high scores on irritation and privacy. It indicates that: (1) the perceptions for branding and targeted ads are very similar except for entertainment and privacy concerns: targeted ads are higher on both; (2) email ads are perceived to have higher scores on entertainment, informativeness, credibility, and interactivity than sponsored link ads; (3) email ads are perceived to be slightly higher for privacy concerns than sponsored link ads; and (4) email and sponsored link ads are about equally irritating.

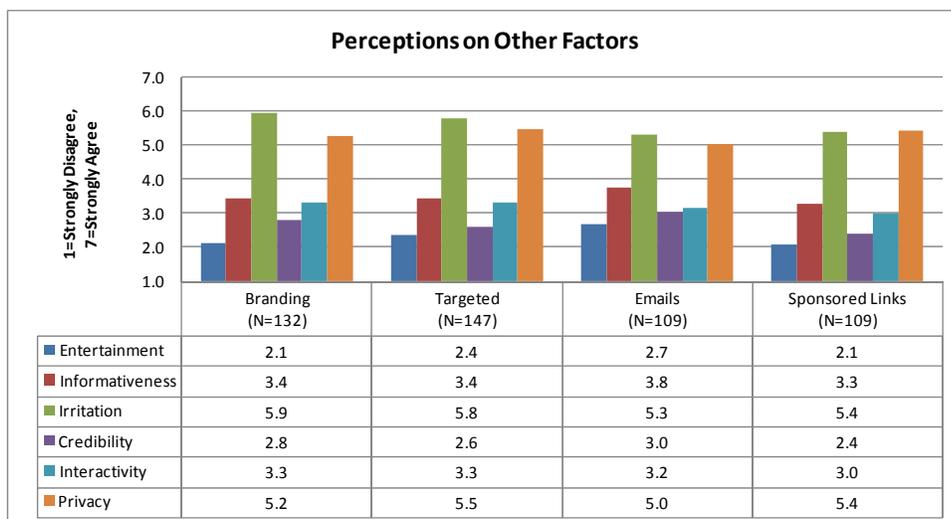


Figure 4. Perceptions on Underlying Factors about Digital Ads.

Values can be measured in a number of ways to indicate a sense of worth and reflects cognitive evaluations. This study used three items: useful, important, and valuable. Figure 5 shows the group means. Email ads hold slightly higher scores on being useful and valuable.

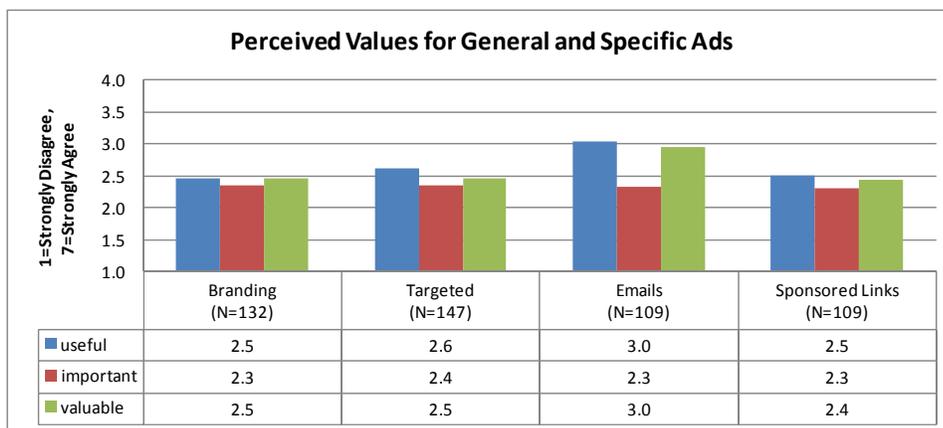


Figure 5. Perceived Values of Digital Ads.

4.3 RQ3. What are Consumers Attitudes toward Digital Ads?

Attitude is an overall or take-away message one forms toward a stimulus and is normally measured by items such as favourable, like and desirable. Figure 6 summarizes the scores. Targeted ads received slighter higher scores than branding ads. Email ads received higher scores than sponsored link ads.

4.4 RQ4. How Likely will Consumers Use Digital Ads in the Future?

Behavioural intention projects the likelihood of future behaviours. Participants responded to two measures of intention, and their scores are reported in Figure 7. All ad types received low scores, while email ads are more likely to be used in the future than sponsored link ads or branding ads.

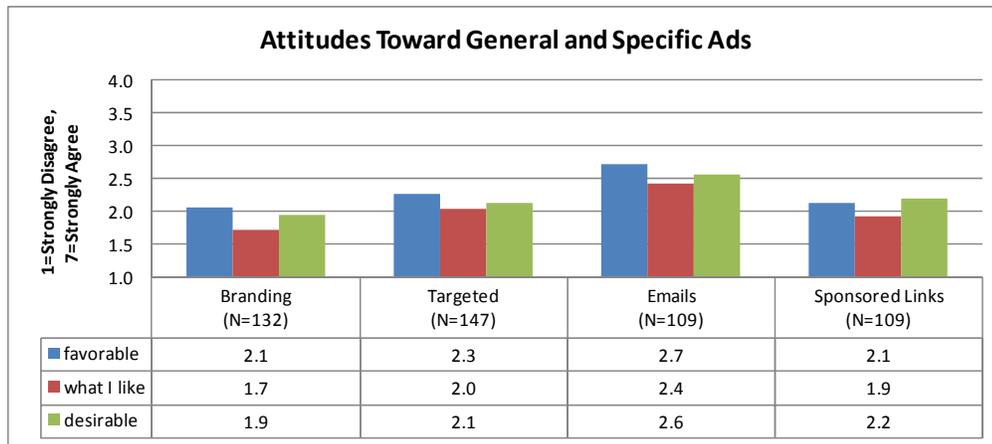


Figure 6. Attitudes toward Digital Ads.

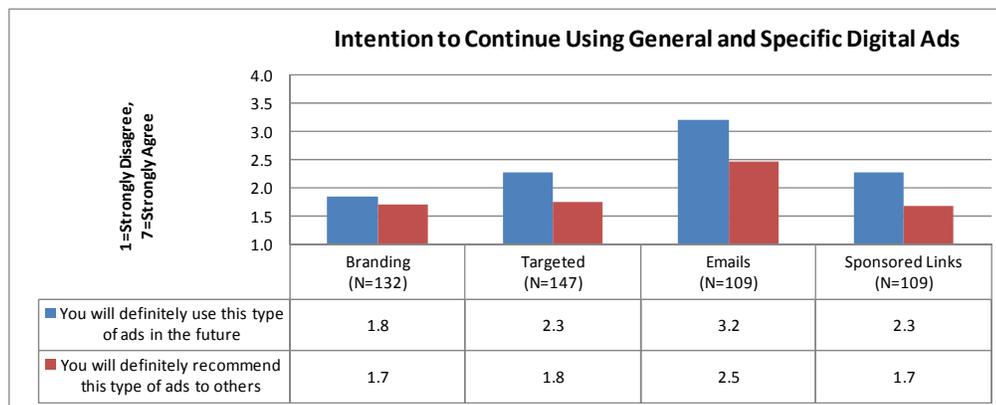


Figure 7. Intention to Use Digital Ads in the Future.

4.5 RQ5. Can we Predict Consumers' Reactions toward Digital Ads?

In order to gain more insights on different types of targeted ads, we tested the nomological net in Figure 1 three times with the survey data on targeted ads in general, email ads, and sponsored link ads respectively. The standard 2-stage analysis was used. The first is about the measurement model and is to validate the psychometric property of the instrument. This includes assessing the reliability and construct validity of the variables using confirmatory factor analysis. The second is about the relationships in the model. We used Partial Least Square (PLS-Graph 3.0) for the data analyses.

The measures of the following constructs are from a previous study (Zhang and Wang 2005): entertainment, irritation, interactivity, informativeness, credibility, perceived value, and attitude. Intention is measured with the two items in Figure 7. Based on the definition of perceived privacy in this study, we constructed two measures: “may track my personal information,” and “may use my info without permission.” The measurement model was examined for convergent validity and discriminate validity. Confirmatory factor analysis shows that all items exhibited loadings of more than .70 to their corresponding constructs, indicating adequate reliability of the measuring items. Discriminant validity was established since the cross-loadings showed that all items loaded higher on their correspondent constructs than on other constructs. Result data tables are omitted due to space limit.

The structural models are shown in Figure 8 for general targeted ads (Survey 1), email ads, and sponsored link ads (Survey 2) respectively. The numbers show the strengths of the paths between

variables, and the total amount of variances explained by the models. For example, for general targeted ads (top numbers, in red ink), entertainment directly influences perceived value (at a significant level of $p < .05$) and attitude (at a significant level of $p < .01$); the effects of credibility and privacy on perceived value are non-significant; and the model explained 76% of the variances in attitude, 53% in perceived value, and 77% in behaviour intention. Collectively, the conceptual model is proven to be a powerful model to predict consumers' perceived value, attitude, and intention based on the six underlying factors, as judged by the amount of variances explained for these variables (from 53% to 86%). Yet, the three empirical models show differences on the significance of linkages and the variances explained. These suggest that different factors matter for different types of ads, thus prompt different implications.

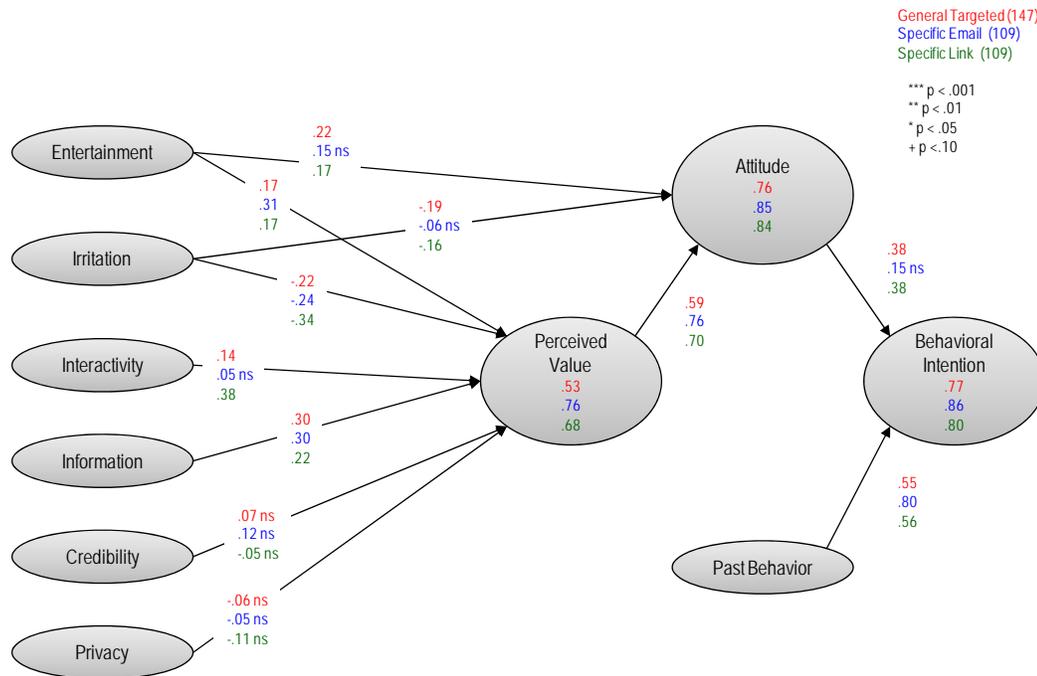


Figure 8. Empirical Models.

For general types of targeted ads, four out of the six underlying factors influence perceived value while credibility and privacy are not significant antecedents; two emotion-latent factors and the perceived value directly influence attitude; and both attitude and past behaviour directly influence future intention. Between attitude and past behaviour, the latter is a slightly stronger predictor of future intention.

For email ads, there are only three significant antecedents for perceived value: entertainment, irritation and informativeness. None of the underlying factors are significant antecedents to attitude. Attitude is primarily influenced by perceived value. Although both attitude and past behaviour predict future intention, attitude is only marginally influential. Future intention is primarily based on past behaviour. This is to say that for email ads, changing ads features to yield different evaluations for entertainment, irritation, and informativeness will affect what they think about email ads; that will not affect how they feel about email ads; and little will influence their future intention on using email ads because their intention is determined by their past use of email ads.

For sponsored link ads, five underlying factors influence perceived value, although privacy is only marginally significant. Both entertainment and irritation would significantly influence attitude. Both attitude and past behaviour are strong predictors of future intention, with past behaviour slightly stronger. The implication is that to increase future intention to use sponsored link ads, designers and

managerial teams should find ways to increase consumers' attitude toward such ads, which would include findings ways to increase perceived value, entertainment, interactivity, informativeness, and decrease irritation and privacy concerns.

Generally speaking, four factors, namely entertainment, irritation, interactivity and informativeness, could be altered or "manipulated" by specific ad designs to ultimately make a wanted influence on perceived value and attitude, and eventually future intention to use sponsored link ads. These factors are, however, not of much help for increasing future intention to use email ads. Past behaviour, although little can be done, is such a strong influence on future intention, especially for email ads. Additional investigations are needed to find out what other factors (including changing ad designs or deployment) are possible to influence consumers' future intention to use email ads.

5 Discussions and Conclusion

This study considers only US consumers' reactions to digital ads in the desktop/web platform. The findings may be different if it is conducted in a different cultural context or a different platform.

5.1 Summary of the Findings

This 3-phase empirical study was conducted to answer the five questions raised at the beginning of this paper. Overall, this study reveals the following take-away messages:

- Consumers hold extremely negative scores on perceived values and attitude. Low scores were also found for entertainment, informativeness, credibility, and interactivity, and high scores for irritation and privacy concerns.
- Consumers hardly used ads in the past and do not intent to use targeted ads much in the future.
- Despite the negative reactions, many consumers believed that digital ads are here to stay. Consumers gave some hints that ads can be useful, usable, and overall positive.

5.2 Implications for Designers

Designers for digital ads as well as for websites and web pages where digital ads are deployed can benefit from the findings. By gaining a better understanding of consumers' perceived values, and attitude towards digital ads, designers should know that there are ways to create more effective digital ads, thus maximizing the intention of future use. The ultimate goal for a digital ad designer is to ensure that the ad captures the attention of the consumers and/or lead to intended behaviours. Current findings show that consumers perceive digital ads as a nuisance rather than a utility. The fact that low scores are reported on entertainment, informativeness, credibility, and interactivity portrays that the contents and presentation formats of digital ads are not appealing to the target audience. We can infer that the flexible nature of digital advertising has the potential to unleash designers' creativity to an extent that has decreased the perceived values of and attitude toward digital ads in the eyes of the consumers. The flexible nature can also turn the corner around to make digital ads more appealing and more toward consumers' needs and wants, thus increase perceived value and attitude. Such may increase future intention, at least for some type of ads such as sponsored link ads.

5.3 Implications for Marketers

Marketers have the ultimate goal of driving sales up or building a strong brand image by using digital ads. From a marketer's perspective, understanding how much a consumer values digital ads is an important factor that may affect strategic marketing decisions. With digital advertising revenues increased to US\$ 12.1 billion for the first half of 2010 (PriceWaterhouseCoopers 2010), marketers should wonder whether their investments in digital ads are worthwhile. Marketers may perceive the

success of digital ads based on clicks provided by the online advertising agents. It is a long way to knowing what consumers think or feel about ads, and whether they intent to use ads in the future. From the findings of this study, marketers can gain valuable insights on what consumers really think, feel and do toward digital ads. The results highlight that consumers' opinions on digital ads may contradict online advertising agents' expectations or claims in the effectiveness of digital ads. Judging from the high score for irritation, it seems that digital ads are not working in line with marketers' agenda to have ads perceived positively by consumers. Even worse, digital ads are now perceived to be nuisances and can potentially dilute the brand images. Such discovery is vital for marketers to develop and execute design and intervention strategies, re-evaluate investment goals with digital advertising or to devise alternative marketing strategies in the future.

5.4 Implications for Policy Makers

The prevalence of digital ads, especially targeted ads, has led to rather significant concerns among the consumers. Instead of considering digital ads as utilities or be helpful, the majority considered them to be nuisances that affect their daily work and life environment. As digital ads remain as a cheaper option compared to traditional ads, more fortune seekers are using digital ads to scam consumers, and do so frequently. The findings in this study indicate an ultimate need for policy makers to put appropriate policies in place to respect and protect consumers from malicious digital ads. Proper enforcement has to be put in place to ensure consumers will not fall into the trap of disguised ads.

5.5 Conclusion

Digital ads are one kind of information artefacts that affect most if not all online consumers on a daily basis. Our understanding of consumers' interaction with such information artefacts are still limited, and as a result, these information artefacts may not be designed to fulfil their greatest potentials to both serve the consumers and generate business values. This study uses multiple methods to gather understanding and insights, with the hope of guiding better future designs, smarter investment, and a less annoying and stressful environment for consumers with adequate policing by certain online policies.

Acknowledgments

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References

- Ajzen, I. (1991) "The Theory of Planned Behavior", *Organizational Behavior & Human Decision Processes*, (50)2, pp. 179-211
- Brackett, L. K. and B. N. Carr (2001) "Cyberspace Advertising Vs. Other Media: Consumer Vs. Mature Student Attitude", *Journal of Advertising Research*, (41)5, pp. 23-33
- Ducoffe, R. H. (1995) "How Consumers Assess the Value of Advertising", *Journal of Current Issues and Research in Advertising*, (17)pp. 1-18
- Ducoffe, R. H. (1996) "Advertising Value and Advertising on the Web", *Journal of Advertising Research*, (36)5, pp. 21-35
- Fernandez, K. V. and D. L. Rosen (2000) "The Effectiveness of Information and Color in Yellow Pages Advertising", *Journal of Advertising Research*, (29)2, pp. 61-73
- Fishbein, M. and I. Ajzen (1975) *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Reading, MA.: Addison-Wesley

- Hossain, M. M. and V. R. Prybutok (2008) "Consumer Acceptance of Rfid Technology: An Exploratory Study", IEEE Transactions on Engineering Management, (55)2, pp. 316-328
- Kim, D. J. (2008) "Self- Perception-Based Versus Transference-Based Trust Determinants in Computer-Mediated Transactions: A Cross-Cultural Comparison Study ", Journal of Management Information Systems, (24)4, pp. 13-45
- Petty, R. E., D. T. Wegener and L. R. Fabrigar (1997) "Attitudes and Attitude Change", Annual Review of Psychology, (48)pp. 609-647
- Rosenberg, J. M. (1995) Dictionary of Marketing and Advertising: John Wiley & Sons, Inc.
- Wang, C., P. Zhang, R. Choi and M. D'Eredita "Understanding Consumers Attitude toward Advertising", in Proceedings of Americas Conference on Information Systems (AMCIS), Dallas, TX, August, 2002, 2002
- Zhang, P., S. N. Aikman and H. Sun (2008) "Two Types of Attitudes in ICT Acceptance and Use", International Journal of Human-Computer Interaction, (24)7, pp. 628-648
- Zhang, P. and H. Sun (2009) "The Complexity of Different Types of Attitude in Initial and Continued ICT Use", Journal of American Society for Information Science and Technology, (60)10, pp. 2048-2060
- Zhang, P. and C. Wang "An Empirical Study on Consumers Perceived Value and Attitudes toward Advertising", in Proceedings of The 6th Global Information Technology and Management (GITM) World Conference, Anchorage, Alaska, June 5-7, 2005, 2005