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The Impacts Of Presentation Modes And Product Involvements On “Line” Short Message Service (SMS) Advertising Effectiveness

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THE IMPACTS OF PRESENTATION MODES AND PRODUCT INVOLVEMENTS ON "LINE" SHORT MESSAGE SERVICE (SMS) ADVERTISING EFFECTIVENESS

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ABSTRACT

In today's ubiquitous commerce (UC) era, short message service (SMS) advertisement has played an important role in the world of marketing. Convenience and economical reasons influence SMS usage frequency along with social involvement to influence attitudes towards SMS advertising. SMS advertising creates numerous opportunities for the marketers in promoting their products effectively. Adopting the competition for attention theory as the theoretical framework, we developed hypotheses to investigate the influences of presentation mode and involvement on SMS advertising performance (recall of advertising information). An experiment was conducted to examine the effects of three types of information presentation modes (text-only, image-text, and emoji-text) in the contexts of two product types (high- versus low-involvement products) in the "LINE" SMS environment. Specifically, in this current study, we allocate participants to six experimental environments (text-only for high-involvement products, text-only for low-involvement products, image-text for high-involvement products, image-text for low-involvement products, emoji-text for high-involvement products and emoji-text for low-involvement products) randomly to collected empirical data to examine the proposed hypotheses. The research findings are expected to provide instrumental guidelines for the practitioners to better achieve the goals of ads in the "LINE" SMS environment. Also, the empirical results may provide insights into the research of advertising interface design of SMS and integrating efforts from cognitive science and vision research to understand users' involvement of SMS advertising processes.

Keywords: Line messenger, short message service (SMS), information presentation mode, competition for attention theory.

INTRODUCTION

Social media continues to grow recently. It is rapidly transforming the way that consumers and marketers communicate [1]. Particularly, Line, a text and voice message service, is emerging as the dominant social tools. Most of the users have integrated Line Messenger into their daily lives. Research has indicated that for teenagers, text-message communication has become the most popular way to communicate with others. It surpasses the way of face-to-face, e-mail, and voice call communication[2].

In the beginning of 2013, Line Messenger only has 100 million users, but in May, the users have exceeded 150 million[3]. The main function of Line Messenger is to provide a platform for people to communicate across geographical barriers. It also provides the function, called Line Official Account, for company to send the ad to users in order to promote their brand, products, and services. Prior studies propose that online ad design can affect the consumer's perception of the ad, such as information format and presentation mode. How to present the information better is a significant issue [4]. Despite the importance of the information format and presentation mode, there is a lack of research on the specific design features and the influences in a Line Messenger context.

The Line Messenger official account is unique medium different from other ad media in its presentation format, such as text size and limited image size. These different characteristics will create different consumers' attention in advertising [5]. The effectiveness of text-only and image-text in other media has been investigated and research has widely supported advertising is image-dominant[6]. That is previous study found that image could generate better consumer's attention and recall. However, because Line Messenger has unique features and research suggested that text-dominant advertising is also significant[7], it is suggested that the comparison of effectiveness of text-only and image-text should be further examined. In addition, although some study has been investigated emoji in the setting of human chats [8], less study focuses on emoji use in ad to understand its impact on ad effectiveness.

Presentation mode refers to how elements (text-only, image and emoji) are combined in the ad form. There are three presentation modes for Line Message, including text-only, image-text and emoji-text. Text-only refers to the advertising only text included, while image-text refers to the advertising including both text and image. Emoji refers to graphic representations, resembling facial expressions [2, 9]. Prior studies have examined the relative effectiveness of image-text versus text-only advertising, while the topic of which mode would be more effective for different product types in a Line Messenger context has not been explored. The product types in ad include high-involvement product ad and low-involvement product ad. In a low-involvement product context, consumers rarely involve with extensive information searches or comprehensive evaluations of the choice alternatives. In a high-involvement product context, consumers usually spend much time to search information of products in order to make the right decisions [10].

Furthermore, advertising appeal contains rational advertising appeal and emotional advertising appeal. Rational appeal can be conceptualized as thinking ad appeal, while emotional appeal can be conceptualized as feeling ad appeal [11]. Research

suggests that ad appeal can interact with product type and thereby influence ad effectiveness [12]. Thus, in order to prevent advertising appeal affecting our measures, only one type of ad appeal (rational appeal) is chosen in our study. Given that the availability of presentation modes in Line Messenger Official Account has three, an interesting question is created regarding the relative effectiveness of different presentation modes.

Specifically, our research question has two. Firstly, which presentation mode can create better consumers' recall toward the ad in a Line Messenger context? Secondly, which involvement product (high- versus low-involvement) context can create better consumers' recall toward the ad in a Line Messenger context? As a result, in this study, we use competition for attention theory and literature regarding product involvement as the theoretical framework to propose our research hypotheses. It is suggested that competition for attention theory can provide a useful foundation for comparing the effectiveness of text-only mode, image-text mode and emoji-text mode. The issue is particularly significant for Line Official Account advertiser because fail to capture consumers' attention decrease the effectiveness of advertising and an appropriate advertising presentation mode may have positive influence on customer purchase decisions.

LITERATURE REVIEW

2.1 Competition for Attention Theory

The theory of competition for attention provides an important base for us to propose our hypotheses. That is, the theory provides significant information to better understand which presentation mode is more appropriate for Line-based advertising. Competition for attention theory is based on a foundation that the amount of attention and available information processing capabilities for people are limited [13, 14]. In the visual field, people selectively process information by responding to diverse stimuli. They response to one stimuli and hold attention on the stimuli when the stimuli are different from others, moving, or relevant to their task [14].

It is suggested that the salience of objects, such as bigger size or outstanding color, can receive higher level of consumers' attention[15]. The attention is competed. The reason is that when an object is the focus of attention(focal object), the other (non-focal object) will compete for attention with the focal object [14]. According to literature, for traditional media, the format of picture is considered as superior to other formats[16]. Thus, it is suggested that "a picture is worth a thousand words" [16, P.219]. That is, when a format includes both images and texts, images will attack higher level of attentions. Even if audiences watch texts first, images will compete for attention significantly.

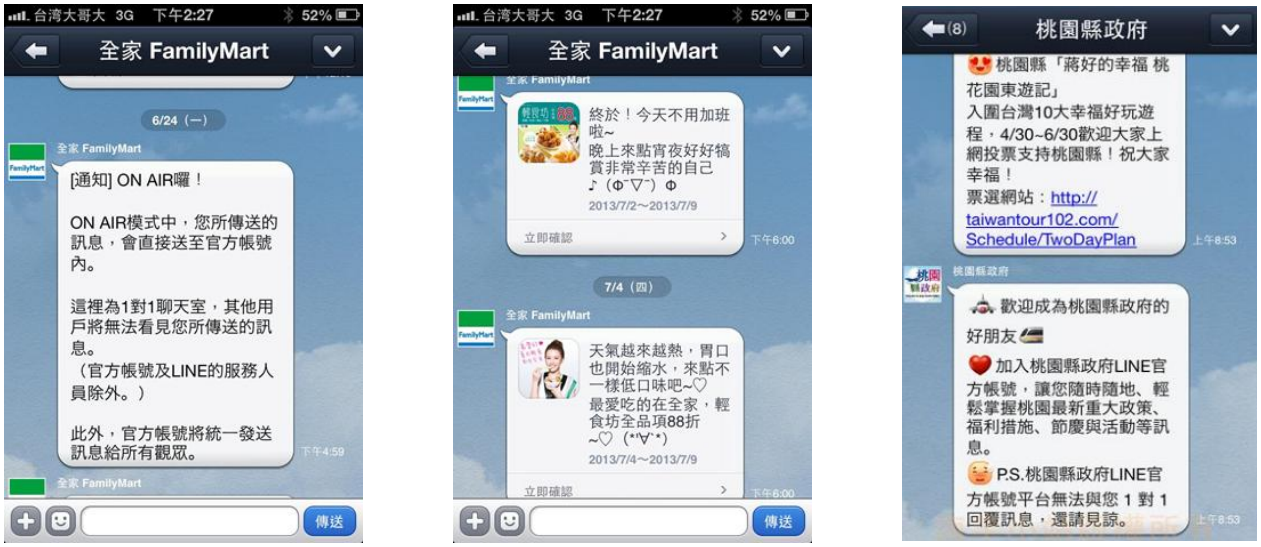
2.2 Consumer's Product Involvement

Consumer's product involvement refers to a causal or motivating construct which influences consumer's purchase and communication behavior[17]. Product involvement is the perception of a consumer about importance of and interest in a product[10]. In a low-involvement product context, consumers rarely involve with extensive information searches or comprehensive evaluations of the choice alternatives. In a high-involvement product context, consumers usually spend much time to search information of products in order to make the right decisions[10]. The term of product involvement is different from that of product evaluation which refers to positive or negative responses to specific products[18].

Involvement with products has been hypothesized to cause better perception of attribute differences, perception of product importance, and commitment to brand choice[19]. Product involvement may be influenced by different kinds of consumers, but product characteristics play an important role affecting product involvement[10]. The typical examples of low-involvement product are consumable products, such as groceries, books, and music CDs. They are low-involvement products because the impact of making the wrong purchase decisions for the products is limited[10]. Typical examples of high-involvement products are durable products of which functionality is complex, price is high, and life is long, such as consumer electronics, appliances, and automobiles[10]. The wrong purchase decisions may cause financial effects and waste consumers' time to deal with poor products[10].

2.3 Presentation Modes on Line Messenger

In general, there are two types of presentation mode on commercial websites. They are text-only and image-text modes [6]. For Line official account, three types of presentation modes are usually used, including text-only, image-text, and emoji-text as shown in Figure 1. For text-only, only texts and punctuations are included in the advertising content. For image-text, texts, images, and punctuation are included. For emoji-text, texts, emojis, and punctuation are included. Different from the format of images in general websites or blog in which images can be arrayed according with wishes, the format of images in Line official account is fixed the upper left. Emojis are extensively used in electronic text-based conversations, such as instant message, Facebook, and Line.



Mode 1: Text-only Mode 2: Image-text Mode 3: Emoji-text

Figure 1. Three types of presentation modes in a line official account

2.4 Hypothesis Development

Image-text presentation mode refers to the content of advertising including image and text, while emoji-text refers to the content of advertising including emoji and text. Research shows that image plays an important role that attracts audiences' attention[16] . In addition, because emoji could communicate writers' emotions effectively[20] and it is picture-based[21], we suggest that emoji also plays an important role attracting audiences' attention. According to Competition for Attention Theory, in the image-text and emoji-text presentation modes image and emoji will compete for attention significantly and influence the audiences' attention on reading text[15]. It will affect audiences' recall regarding the content of texts that provides major advertising information. Thus, we propose the following hypotheses:

H1a. Recall of advertising information will be higher in the text-only presentation mode than in the emoji-text presentation mode.
H1b. Recall of advertising information will be higher in the text-only presentation mode than in the image-text presentation mode.
H1c. Recall of advertising information will be higher in the emoji-text presentation mode than in the image-text presentation mode.

It is suggested that the level of consumers' involvement would be higher when they perceive that there are higher level of financial risk [10]. This is because under the situation the consumers perceive better perception of product importance toward the objects [19] and spend more effort in order to decrease possible financial losses. It is reasonable to believe that the more important consumers perceive the product, the more concentrated consumers are toward the advertising. Since concentration is relevant to recall, we propose the following hypothesis:

H2. Recall of advertising information will be higher in the high-involvement product context than in the low-involvement product context.

RESEARCH DESIGN

3.1 Experiment Procedure

Each type of products includes six advertising tasks. That is, there are six high-involvement product advertisements as well as six low-involvement product advertisements. There are 6 questions for high-involvement product and 6 questions for low-involvement product. For high- or low-involvement product, there are 41 option-items for each of the 6 questions. Among the 41 option-items, the subject would actually browse the 22 items and 19 items are not seen in the contents of advertisements. Each subject was asked to give the answers regarding the advertising contents on the questionnaires. If they choose one correct option-item, they will get one point. This highest score for each of the questionnaire is 22. For example, if the subject can point out 15 correct option-items, he or she will get 15 points.

3.2 Subjects and Incentives

We employed a 2×3 between-subject full-factorial design. The two independent variables are product involvement (high versus low) and presentation modes (text-only versus image-text versus emoji-text). Participation in this study was voluntary. The subjects were randomly assigned to each of the three experimental conditions with different types of presentation modes

(text-only versus image-text versus emoji-text). There were 192 questionnaires received after the experiment procedures. Two questionnaires were disregarded, since the two subjects didn't fill in their demographic information. This results a 190 valid dataset. Table 1 shows the valid questionnaires received from the experiment of this study.

Table 1. The valid questionnaires received from subject assignment

Involvement	Text-only	Image-text	Emoji-text
High-involvement	32	32	32
Low-involvement	32	30	32

There were two types of participation reward for participation in the experiment sessions. For the session of high-involvement product, we offered NTD$ 200 participation reward to the subjects who gave the correct answers rate from 71%-100%, NTD$ 100 for 35%-70%, and no reward for the subjects below 34% to increase their attentions in the experiment. The objective is to encourage the participants to seriously browse the contents of the advertising tasks, thereby to simulate the high involvement context. One the other hand, for the session of low-involvement product, we provide NTD$ 100 to all participants if they have finish the experiment sessions.

DATA ANALYSIS

To summarize the experiment results and validate the proposed hypotheses of our study, we performed descriptive statistics analysis, two-way MANOVA analysis and t-tests, respectively. As for the results of the descriptive statistics analysis, Table 2 summarizes the values of mean and standard deviation for three types of presentation modes. Further, we also tested the proposed plausible hypotheses of this study.

Table 2. Mean and standard deviation for three types of presentation modes

Presentation mode	N	Mean	S.D.
Text-only	64	15.84	2.81
Image-text	62	15.63	2.89
Emoji-text	64	16.06	2.93

Prior to the two-way MANOVA analysis, a Levene-test (F = 0.611, Sig. = 0.691) showed that the observed covariance matrices for the dependent variables were equal across groups. This test result suggested that further MANOVA test was worth pursuing. The two-way MANOVA analysis indicated that there was no interaction between the presentation modes and types of product involvement for the recall of advertising information (F = 0.087, Sig. = 0.917). The two-way MANOVA result shown in Table 3 indicated that the recall performance of advertising information was significantly different among the types of product involvement (F = 10.46, Sig. = 0.001), but not significantly different for various presentation modes (F = 0.407, Sig. = 0.666).

Table 3.Two-way MANOVA for the involvement type and presentation mode

Effect	Sum of Mean Square	F statistics	Sig.
Presentation Mode	3.232	.407	.666
Involvement Type	83.082	10.456	.001**
Involvement Type* Presentation Mode	.690	.087	.917

**p<0.01

Although the analysis result of two-way MANOVA didn't signify significant differences among the three presentation modes (i.e. text-only, image-text, and emoji-text), we still decided to perform the t-tests to rigorously validate the proposed three major hypotheses regarding the effects of presentation modes on the recall of advertising information. As hypothesized in H1a, the recall of advertising information will be higher in the text-only presentation mode than in the emoji-text presentation mode. The descriptive analysis shown in Table 2, the recall of advertising information was higher in the emoji-text (mean = 16.06) presentation mode than in the text-only (mean = 15.84) presentation mode. Besides, out of our previous expectation, there is not significant difference between the two modes of text-only and emoji-text presentation for Line SMS advertising information. Thus, the results did not support the proposed hypothesis, H1a.

Table 4. t-test for comparing text-only and emoji-text

Variable	t-value	Sig.
Recall	0.43	0.667n.s.

n.s.: non-significant, *p<0.05, **p<0.01, ***p<0.001

H1b hypothesized that recall of advertising information will be higher in the text-only presentation mode than in the image-text presentation mode. As expected, recall of advertising information was higher in the text-only (mean = 15.84) presentation mode than in the image-text (mean = 15.63) presentation mode (see Table 2). However, the result of the t-test shown in Table 5, the difference between text-only and image-text presentation modes of Line SMS advertising information was not significant. Thus, the results did not support the proposed hypothesis, H1b.

Table 5. t-test for comparing text-only and image-text

Variable	t-value	Sig.
Recall	0.42	0.673n.s.

n.s.: non-significant, *p<0.05, **p<0.01, ***p<0.001

H1c hypothesized that recall of advertising information will be higher in the emoji-text presentation mode than in the image-text presentation mode. As expected, recall of advertising information was higher in the emoji-text (mean = 16.06) presentation mode than in the image-text (mean = 15.63) presentation mode (see Table 2). However, the t-test result shown in Table 6, there is no significant difference found between emoji-text and image-text presentation modes of Line SMS advertising information.

Table 6. t-test for comparing emoji-text and image-text

Variable	t-value	Sig.
Recall	0.84	0.404n.s.

n.s.: non-significant, *p<0.05, **p<0.01, ***p<0.001

Further, in order to substantiate the hypothesis, H2, we performed a t-test to check if the recall of advertising information will be higher in the high-involvement product context than in the low-involvement product context. Given that consumers may perceive better perception of product importance toward the objects and spend more effort in order to decrease possible financial losses; and so, the more consumers involve in the processes to procure the products, the more concentrations and attentions they may place on the advertising information regarding the ones they want. As the descriptive analysis results shown in Table 7, the values of mean and standard deviation for two types of product involvement show the initial evidence to support that the recall of advertising information will be higher in the high-involvement product context than in the low-involvement product context.

Table 7. Mean and standard deviation for two types of product involvement

Involvement	N	Mean	S.D.
High-involvement	96	16.50	2.73
Low-involvement	94	15.18	2.87

As expected, the recall of advertising information was higher in high-involvement product context (mean = 16.50) than in low-involvement product context (mean = 15.18). As described in Table 8, the difference was significant (p = 0.001**). Thus, the result was support the hypothesis. This seems to indicate that consumers may spend more effort in order to decrease possible financial losses in purchasing high-involvement products than low-involvement products.

Table 8. t-test for comparing high-involvement and low-involvement products

Variable	t-value	Sig.
Recall	3.25	0.001**

n.s.: non-significant, *p<0.05, **p<0.01, ***p<0.001

CONCLUSION

This study was motivated by the relatively little information known regarding the Line-based advertising. The result indicates that recall of advertising information was higher in the emoji-text presentation mode than in the text-only presentation mode, but the difference was not significant. In addition, recall of advertising information was higher in the text-only presentation mode than in the image-text presentation mode, but the difference was not significant. Furthermore, the recall of advertising information was higher in the emoji-text presentation mode than in the image-text presentation mode, but the difference was also not significant. Finally, recall of advertising information was higher in the high-involvement product context than in the low-involvement product context and the difference was significant. Accordingly, involvement is significant for the effectiveness of Line SMS advertising. Thus, in order for advertisers to design valid ad, it is important to create an involvement environment. Our research findings can provide instrumental guidelines for the practitioners to better achieve the goals of

ads in the "LINE" SMS environment. Moreover, the empirical results may provide insights into the research of advertising interface design of SMS and integrating efforts from cognitive science and vision research to understand users' involvement of SMS advertising processes.

REFERENCE

[1] Wang X, Yu C, Wei Y. (2012), Social Media Peer Communication and Impacts on Purchase Intentions: A Consumer Socialization Framework. Journal of Interactive Marketing.26:198-208.

[2] Tossell CC, Kortum P, Shepard C, Bar-Walkow LH, Rahmati A. (2012), A longitudinal study of emoji use in text messaging from smartphones. Computers in Human Behavior 28:659-663.

[3] Smith M. LINE messenger has more than 150 million users, because we all love stickers.: Engadget, May 1st, http://www.engadget.com/2013/05/01/line-messenger-has-more-than-150-million-users-because-we-all-l/, retrieved 2013-07-15; 2013.

[4] Bettman JR, Zins MA. (1979), Information Format and Choice Task Effects in Decision Making. Journal of Consumer Research.6:141-153.

[5] Pieters R, Wedel M. (2004), Attention Capture and Transfer in Advertising- Brand, Pictorial, and Text-Size Effects. Journal of Marketing.68:36-50.

[6] Hong W, Thong JYL, Tam KY. (2004), Designing product listing pages on e-commerce websites: an examination of presentation mode and information format. International Journal of Human-Computer Studies.61:481-506.

[7] Lewis M, Whitler KA, Hoegg J. (2013), Customer Relationship Stage and the Use of Picture-Dominant versus Text-Dominant Advertising: A Field Study. Journal of Retailing.89:263-280.

[8] Derks D, Bos AER, Grumbkow J. (2008), Emojis in Computer-Mediated Communication: Social Motives and Social Context. CyberPsychology & Behavior.11:99-101.

[9] Walther JB, D'Addario KP. (2001), The Impacts of Emojis on Message Interpretation in Computer–Mediated Communication. Social Science Computer Review.19:324-347.

[10] Gu B, Park J, Konana P. (2012), The Impact of External Word-of-Mouth Sources on Retailer Sales of High-Involvement Products. Information Systems Research.23:182-96.

[11] Xie FT, Donthu N, Lohtia R, Osmonbekov T. (2004), Emotional Appeal and Incentive Offering in Banner Advertisements. Journal of Interactive Advertising.4:30-37.

[12] Stafford MR, Day E. (1995), Retail Services Advertising: The Effects of Appeal, Medium, and Service. Journal of Advertising.24:57-71.

[13] Lang A. (2006), Using the limited capacity model of motivated mediated message processing to design effective cancer communication messages. Journal of Communication, .56:57-80.

[14] Lee Y, Chen ANK, Ilie V. (2012), Can Online Wait Be Managed? The Effect Of Filler Interfaces And Presentation Modes On Perceived Waiting Time Online. MIS Quarterly.36:365-94.

[15] Hong W, Thong JYL, Tam KY. (2004), The Effects of Information Format and Shopping Task on Comsumers' Online Shopping Behavior : A Cognitive Fit Perspective. Journal of Management Information Systems.21:149-84.

[16] Vessey I. (1991), Cognitive Fit: A Theory-Based Analysis of the Graphs Versus Tables Literature. Decision Sciences.22:219-40.

[17] Laurent G, Kapferer J. (1985), Measuring Consumer Involvement Profiles. Journal of Marketing Research.22:41-53.

[18] Suh J, Yi Y. (2006), When Brand Attitudes Affect the Customer Satisfaction-Loyalty Relation: The Moderating Role of Product Involvement. Journal of Consumer Psychology.16:145-55.

[19] Zaichkowsky JL. (1985), Measuring the Involvement Construct. Journal of Consumer Research.12:341-52.

[20] Aoki S, Uchida O, (2011), A method for automatically generating the emotional vectors of emojis using weblog articles, Proceedings of the 10th WSEAS international conference on Applied computer and applied computational science, Wisconsin, USA.

[21] Fang RJ, Tsai HL, Lee CJ, Tsai TS, (2006), An Analytical Study of Handheld Mobile Net Devices and its Application in Education, Proceedings of Society for Information Technology & Teacher Education International Conference, Orlando, Florida, USA.