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Application of TOPSIS for Solving Optimal Brand Communication Effect on the Portal

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ABSTRACT

Based on the cognitive psychology of selective attention and priming effect, and visual display effect, this research aims to explore how banner advertisements in the portal sites affect brand communication after end user enter the web. This study uses online SSI Web questionnaire and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method. The prime age group selection considers the brand communication effect simultaneously from involvement, advertising attitude, purchase intention and attractiveness of advertisement content. Finally, TOPSIS are presented as an empirical example in brand communication effect on the web portal. The result indicates that the advertising through portal site has optimal brand communication effect on age between 20 to 29 years. The results can help business to make efficient decision. Managerial issues and future work of this paper are discussed.

Keywords: *Advertisement Impression, Advertisement Placement, Banner, Brand Communication Effect, Portal, Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), Type of Advertisement*

INTRODUCTION

Over the past two decades, Internet advertising have become one of the most investigated topics in web portal research. Previous studies on the effects of Internet advertising have preferred conducting single-layer tests for effects, using the hit-rate of end users as a measure for the effect of Internet advertising by observing the number of end users who click or browse the advertisement (Ritu et al., 2003). Although this test method can obtain the number of end users who click on an advertisement, it does not provide relationship between age group and

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the effects of Internet advertising. Thus, this research attempts to reveal that the advertising through portal site has optimal effect on age group.

In 2012, Internet advertising revenue in the United States totaled US$36.6 billion, which was an increase of 15.2% from the same in the previous year (IAB, 2013). In Taiwan, enterprise usage of traditional media reduced significantly in 2012, while digital media showed continual growth. In particular, Internet marketing was still favored by advertisers, with a 3.3% growth and advertising output value of US$1.978 billion. The estimate for 2013 was as high as US$2.178 billion, showing a promising outlook for the business opportunities of digital advertising during the heyday of home economy (DMA, 2012). The portal combines the advantages of traditional media and computer media, producing a favorable Internet advertising attitude. Therefore, Internet advertising has more advantages than does advertising in the traditional medium. The homepage of the portal is segmented into numerous information blocks, including a wide variety of information and advertising displays. A complex page produces a higher degree of advertising clutter more easily, thus increasing the number of viewers who avoid advertising (Ha & McCann 2008). Attracting the attention of web surfers and enhancing the advertising effect of advertisements in a setting with numerous information and advertising displays is a topic that has been frequently studied previously.

The display method and dynamic effects of Internet advertisements affect the end users' attention and memory of Internet advertisements (Kuisma et al., 2010). Internet media has more interference than non-Internet media does, as audiences adjust their cognitive capacity automatically, reducing the amount of attention they pay to irrelevant advertisements, and oversee the displayed advertisements (Ha & McCann, 2008). The consistency of design and writing also affects information processing fluency (Van Rompay et al., 2010). Most of these previous studies have focused on discussing the information processing of Internet advertisement displays. According to the attention-interest-desire-action model of the hierarchy of effect model, the first step of information processing is "perceptual attention." When an end user's cognitive resources are limited, selective attention is required to select information and carry out information processing. Selective attention refers to a end user's attention to specific sources of information while neglecting other information sources. Selective attention can be divided into pre-attention and focal attention (Proctor & Van Zandt, 1994; Ryu et al., 2007). More advertising clutter is on a single page of Internet media than in traditional media (Ha & McCann, 2008), advertisement designs for Internet media require considering pre-attention to reduce the noise on the advertisement page and promptly attract the end user to pay attention to the advertisement automatically, before guiding the end users to focal attention. Pre-attention in information processing is a bottom-up process. Pre-attention affects the information processing procedure and memory of banner advertisements (Pieters et al., 2007; Ryu et al., 2007). Advertisement designs for traditional media emphasize focal attention. Focal attention is more intentional, focused, and mission-related, and involves using top-down information processing (Pieters et al., 2007).

This study selected the Internet medium Yahoo! Kimo, the portal used by 96.6% of Internet users in Taiwan in 2012. The communication effectiveness of the internal brand page after the banner on the portal is clicked was investigated to determine whether entering a brand page from the portal advertisement is more communicatively effective than entering a brand page without a portal advertisement. Yet the age group for a decision maker in the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method has never been fully examined. Hence, this study addresses enterprise designing advertising with appropriate age group to focus brand impression and attitude through the TOPSIS method. The TOPSIS method was initially presented by Yoon and Hwang (1981) and Lai et al. (1994). This method is a process of finding the

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best solution among all practical alternatives. General research tests the hypotheses, but not obtain optimal advertisement effect reflection in which the age level. The finding of our research will help enterprises perform their advertising resources and therefore have brand competitive advantages in the target group. In subsequent sections this study reviews relevant literature. In the third section the design of research including research settings, measurement methods and introduces the TOPSIS method. The second after presents an empirical example and results. Finally, the conclusion is drawn from the study and directions for future research.

LITERATURE REVIEW

A web end user generates an impression on the portal, a perceptual priming effect is produced from the content of the brand advertisement after clicking the link, which further produces a more favorable advertising attitude, brand attitude, and purchasing intention. Perceptual priming refers to how a end user's sensory perception from previous experiences affects the end user's sensory perception in later events. However, this influence is difficult for end users to perceive (Yi, 1990; Roediger & McDermott, 1993).

Types of Banner Advertisements

Banner advertisements are graphics that appear on a webpage. Usually, banner advertisements appear vertically or horizontally in any location on the webpage, and contain various contents such as texts, pictures, and product logos to lure end users to click on the advertisement. The advertiser must convince the end user to click on and interact with the advertisement within a limited layout. Banner advertisements can be divided into the following three types, according to their contents (Zeff & Aronson, 1999):

- **Static Advertisements:** The original Internet banner contains still images and texts to deliver messages to end users.
- **Dynamic Advertisements:** The contents for this type of advertisements contain a series of actions. The most common forms are animated gif files or animated files created by the Flash software. The series of actions usually include flickering advertisement transitions or spiral actions, and the delivered messages are more abundant.
- **Interactive Advertisements:** This type of advertisement interacts with the Internet user through actions and activities such as playing games, filling in details, answering questions, and drop-down menus. Interactive advertisements function with end user interaction only, and can be divided into two types: HTML and Rich Media.

Kuisma et al. (2010) and Simola et al. (2011) believed that dynamic images can increase the end user's initial attention and further affect the end user's memory of advertisements. Dynamic gif image files and flash are more likely to create positive advertising effects. The main advantage of flash animation is that it can produce a series of visual and sound effects similar to television media and is also more interactive. Comparatively, traditional websites contain more realistic texts and illustrative images. Jonides and Yantis (1988) suggested that when subjects search for targets among numerous images, only images with dynamic effects can attract the subjects' attention, and these dynamic images distract the subjects' attention from other advertisements. Ritu et al. (2003) indicated that advertisement content and design elements, such as color, interactivity, and animation, affect a website banner's click-through rate. Measurement of the effectiveness of portal advertisements should include measuring the advertisement impression of banners (Lin et al., 2003), in addition to the interaction of the end user clicking the link (Hoffman & Novak, 1996).

Compared to the still image and text format of static banners, dynamic banners can produce continuous dynamic images or plots by switching colors, sizes, and images. Therefore, dynamic banners can attract the selective visual attention of the audience more effectively in a self-paced, audience media setting. From the

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perspective of cognitive psychology, dynamic banners enhance pre-attention and focal attention (Ryu et al., 2007), leaving a stronger psychological impression during the course of visual information processing and attracting willingness to click on the link; therefore, end users have stronger impressions on this type of banner.

Layout and Positioning on Advertisement Impression

Boonghee and Rujirutana (2003) and Simola et al. (2011) have suggested that advertisement positioning in advertisement media has a significant impact on the effectiveness of message delivery. The choice of advertisement position is an essential element in defining the advertisement budget and effectiveness in advertising. The advertiser chooses a more favorable position to enhance the effectiveness of the advertisement and fulfill the purpose of brand communication effect. Doyle et al. (1997) divided the position of ad layout on the webpage into four main areas: the top, one third down the page, the bottom, and the right scroll bar. The majority of advertisements on Yahoo! Kimo are in the page's four main areas: the first third, middle, lower middle, and bottom right. The categorizing is similar to that proposed by Doyle et al. (1997). The top of Yahoo! Kimo contains the search function and Internet news; there are no ad displays in this section of the page.

Outing and Ruel (2004) suggested that in a horizontal layout, web users usually pay attention to the middle left side of the top. The end users' visual point is situated in the top third of the horizontal arrangement, and the headings there most easily attract the end users' attention. If a horizontal layout is designed according to the end users' visual movement on a web page, the main information should be placed at the middle left of the page and in the order of top-to-bottom to ensure the end users' scan path on the page. The right side of the picture is the best position for an ad display, because it passes through the reading diagonally and receives more visual attention. Ritu et al. (2003) discovered that when there is only one advertisement, positioning it at the top of the page results in more advertisement clicks than positioning it at the bottom by an average of 15%-20%. Advertisements on the Internet homepage have higher click-through rates than do advertisement links on normal web pages. An overview of the standard advertisement fee for various portals shows that the publication fees for portal advertisements are higher than those for normal web pages. This is because the click-through rate and viewing time for portal advertisements are higher than the mean (Doyle et al., 1997). In addition, Meeker (1996) suggested that if an advertisement is positioned beneath the browser, end users would be more easily attracted to other information contents and overlook the advertisement on the bottom of the page, because they must scroll down to see the advertisement. Therefore, advertisement clicking on advertisements at the bottom of the portal is relatively poor.

Doyle et al. (1997) has inferred that when the end user opens a browser, the line of sight would focus on the first third of the webpage. Advertisements positioned in the first third of the webpage attract more attention (Ritu et al., 2003; Outing & Ruel, 2004). Consequently, this area is more able to induce the Internet user's contact with advertisements, producing awareness of the advertisement from thinking in the process of dissemination, and subsequently impact the attitude or form the basis of attitude change of the end user (Flowe, 2011). When a end user opens the browser, the end user's line of sight focuses on the first third of the webpage. Using dynamic banners can further attract the end user's attention and create an impression, leading to the willingness to click on the advertisement (Kuisma et al., 2010; Simola et al., 2011). Mandel and Johnson (1999) discovered that end users exhibit distinct product preferences according to the different priming of the background of the browser page. Lai and Li (2010) suggested that variations in establishing advertisement positioning affect the visibility of the advertisements. Therefore, in different

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advertisement positions and layouts, the type of banner advertisements has various effects on the advertising effect. Positioning the ad in the first third of the webpage can intensify the impression effect of dynamic banners more effectively than positioning the advertisement in the middle of the page.

In addition, visual points for Internet users are situated in the upper third of horizontal layout, and this location is more able to attract users' selective attention. The advertisement impression of the target advertisement is more easily interfered with when more competing advertisements appear in this area. The selective attention for the middle position is lower because the visual focus of web users is not in the middle and the layout behind the middle of the page increases the capacity limit of the end users' information processing (Proctor &Van Zandt, 1994). Therefore, the impression of banner advertisements situated in the middle is more unlikely to be affected by the quantity of competing advertisements.

The Number of Competing Advertisements on Advertisement Impression

The interference of competing advertisements refers to interference of the attention and degree of memory on the target advertisement caused by displaying advertisements from competing brands on products with functions similar to those advertised by the target advertisement in the same media (Ha, 1996). When the target advertisement and competing advertisements simultaneously appear on the same media, the end users are unable to distinguish the appeal of the target advertisement because it delivers the same advertising appeal as that of the competing advertisements. This reduces the attention and click effect. Excessive information and advertisement displays on the Internet create a higher degree of advertising clutter, which reduces the audience's attention and memory of the target advertisement (Ha & McCann, 2008).

Keller (1987) indicated that the larger the quantity of competing advertisements are on a product catalogue, the easier it is for end users to become confused by advertising messages. Subsequently, the end user's degree of memory on the target advertisement brand is reduced, which causes interference with the end user's demand for the target advertisement. Pieters et al. (2007) discovered that the attention of end users is not only affected by the design element of the advertisement itself but also by other advertisements on the same page. The uniqueness and pre-attention of the target advertisement is reduced when numerous competing advertisements are on the same page (Ryu et al., 2007). The end users engage in selective attention regarding competing advertisements and neglect the information presented by the target advertisement, resulting in reduced cognitive response. Therefore, web pages with more competing advertisements produce poorer advertisement impressions than do web pages with fewer competing advertisements. A greater number of competing advertisements can easily create advertising clutter, reduce the degree of memory of the target advertisement, and create opportunities for end users to be attracted to competing advertisements, resulting in poorer banner impression.

Advertisements on the Brand Communication Effect

The advertisement pricing of many websites is based on the number of people who click on the advertisement. Although this method allows the number of people to be obtained based on the number of end user clicks, it does not provide an indication of the effect of end user contact with the brand ad on end user awareness, attitude, and purchasing intention of the linked brand advertisement. According to the hierarchy of effect model, the procedure of advertisement information processing includes perceptual attention. In addition to affecting the banner effect of the portal, perceptual attention also affects the advertising effect of the brand webpage after clicking through the perceptual priming effect (Yi, 1990; Roediger & McDermott, 1993). When end users have an

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impression of a banner, they produce cognitive responses of the perceptual priming effect on the clicked brand advertisement and, subsequently, exhibit advertising attitude, brand attitude, and purchasing intention regarding the brand page (Flowe, 2011). The brand communication effect includes the advertising attitude, brand attitude, and purchasing intention regarding the brand page. Internet advertisement presentation and dynamic effects influence the attention and memory associated with Internet advertisements (Kuisma et al., 2010), as well as the attitude on the second-layer of the linked brand page. Keller (1987) noticed that a stronger advertisement impression results in a more positive awareness and attitude regarding the brand. Wang et al. (2006) concluded that the priming effect of online advertising practices affects advertising. When an end user is attracted by a banner and clicks through to the brand page, it is because that user paid more attention to the portal's banner, an advertisement impression was produced, and there was willingness to click through. The emotions are subsequently transferred, resulting in the enhancement of advertising attitude, brand attitude, and purchasing intention regarding the brand page (Yi, 1990). Singh and Rothschild (1983) suggested that commercial advertisement exposure benefits the end users by learning the involved information. When a user enters a brand page through a portal advertisement, the exposure benefits the consumer by learning the included information. Brand communication effect from the click-through of portal banners is higher than brand communication effect from entering the brand page without the portal.

RESEARCH DESIGN

This study used Yahoo! Kimo as the portal and an online questionnaire designed using SSI Web software to inquire about the end user's attitude and behavioral tendencies after browsing the webpage. The subjects could browse the portal at their own pace, and complete the questionnaire after browsing. Jong et al. (2010) indicated that an end user's product involvement and trust of the website positively affect the amount of time spent on a web page. Young people compose a large proportion of Taiwan's Internet users and Internet shoppers. Therefore, this study chose people with ages close to those of university students as the sample. Among the groups, Yahoo! Kimo receives the highest viewing rate from university students. Yahoo! Kimo is also the portal most frequently used by university students. For this reason, this study selected Yahoo! Kimo for examination the brand communication effects on the portal. Altogether 348 internet questionnaires were distributed, and collected 298 valid questionnaires. The response rate was 85.8%.

The "Yahoo! Kimo involvement" is based on the involvement scale of Zaichkowsky (1994), and measures the degree of end user involvement in Yahoo! Kimo. The 10 measure items included what was perceived as important, interesting, relevant, exciting, meaningful, attractive, special, valuable, and concerning on Yahoo! Kimo. The measurement of "advertising attitude" includes the eight items from MacKENZIE et al. (1986): likable, good, supportive, believable, clear, attractive, interesting, and simple. Items for measuring "brand attitude" were chosen with reference to that of MacKENZIE et al. (1986), and include 5 items: likable, valuable, quality, reliable, and positive. Four items for measuring "purchase intention" were also chosen with reference to MacKENZIE et al. (1986): propensity to buy, trial intention, purchasing intension, and purchasing behavior. "Attractiveness of advertisement content" involves using two items from Dai (2006), the attractiveness of the advertisement and interest evoked. Each item underwent appropriate modification for use with Internet media. The questionnaire measurement design was a seven-point Likert-type scale, with 1 "totally disagree" and 7 "totally agree". See Table 7 in the Appendix for the measurement items.

TOPSIS Method

This study uses the TOPSIS method. A positive ideal solution maximizes the benefit criteria

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or attributes and minimizes the cost criteria or attributes, whereas a negative ideal solution maximizes the cost criteria or attributes and minimizes the benefit criteria or attributes. The TOPSIS method is expressed in a succession of six steps as follows:

Step 1: Calculate the normalized decision matrix. The normalized value r_{ij} is calculated as follows:

$r_{ij} = x_{ij}\sqrt{\sum_{i-1}^{m} x_{ij}^2}$, i =1, 2, ..., m and j = 1, 2, ..., n.

Step 2: Calculate the weighted normalized decision matrix. The weighted normalized value v_{ij} is calculated as follows:

$v_{ij} = r_{ij} \times w_j$, i =1, 2, ..., m and j = 1, 2, ..., n. (1)

where w_j is the weight of the j^{th} criterion or attribute and $\sum_{j=1}^{n} w_j = 1$. These weights can be introduced by a decision maker.

Step 3: Determine the positive ideal (A^+) and negative ideal (A^-) solutions as follows:

$$A^+ = \{(\max_i v_{ij} \mid j \in C_b), (\min_i v_{ij} \mid j \in C_c)\} = \{v_j^+ \mid j = 1,2,...,m\} \quad (2)$$

$$A^- = \{(\min_i v_{ij} \mid j \in C_b), (\max_i v_{ij} \mid j \in C_c)\} = \{v_j^- \mid j = 1,2,...,m\} \quad (3)$$

Step 4: Calculate the separation measures using the m-dimensional Euclidean distance. The separation measures of each alternative from the positive ideal solution and the negative ideal solution as follows:

$$S_i^+ = \sqrt{\sum_{j=1}^{m} (v_{ij} - v_j^+)^2}, j = 1,2,...,m \quad (4)$$

$$S_i^- = \sqrt{\sum_{j=1}^{m} (v_{ij} - v_j^-)^2}, j = 1,2,...,m \quad (5)$$

Step 5: Calculate the relative closeness to the ideal solution. The relative closeness of the alternative A_i with respect to A^+ is defined as follows:

$$RC_i^* = \frac{S_i^-}{S_i^+ + S_i^-}, i = 1,2,...,m \quad (6)$$

Step 6: Rank the preference order. For ranking alternatives using this index, we can rank them in decreasing order.

FINDINGS

This study tests the brand communication effect from advertisement on the portal in Taiwan. We use the collected data adopted from scale for illustration in which the criteria. The major group of age are under 20 years old, 20-29 years old, 30-39 years old, 40-49 years old and above 50 years old. Five criteria were established through numerous discussions: involvement, advertising attitude, brand attitude, purchase intention and attractiveness of advertisement content in Table 1. Then the procedure of TOPSIS for interval number can be expressed in the following steps. We normalized the collected data in Table 2. All the above criteria have the same importance. Because all the criteria have the same importance, it is not necessary to use difference the weights. In other words, all the

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Table 1. The collected data of age group

Age group	involvement	advertising attitude	brand attitude	purchase intention	attractiveness of ad content
1. under 20 years old	5.026	4.122	3.023	6.030	3.055
2. 20-29 years old	6.380	5.864	6.220	5.040	2.326
3. 30-39 years old	4.623	4.071	5.780	3.270	2.233
4. 40-49 years old	5.233	3.122	6.146	3.880	2.158
5. above 50 years old	4.078	3.524	4.270	4.620	2.021

weights of criteria are equal. In this study, we adopt the suggestion of Jahanshahloo et al. (2009) and all criteria are given a weighting of 0.25 for normalization (Tsaur, 2011). We used Equation (1) to find the weighted normalized decision matrix shown in Table 3.

The positive ideal (A*) and negative ideal (A^-) solutions are determined using Equations (2) and (3). The results are shown in Table 4. The separation of each alternative solution is calculated using Equations (4) and (5). The final results are shown in Table 5. The result of the ranking of approaches is derived using Equation (6) (Table 6). The second alternative is considered as the best maximization of expected benefits for the enterprise to concentrate the business resources and strengthen advertising strategy.

CONCLUSION

The portal's banner advertisement type, advertisement layout and positioning, quantity of competing advertisements, and the attractiveness of the advertisement all affected banner advertisement impression (Jonides & Yantis, 1988; Doyle et al., 1997; Pieters et al., 2007). Advertisements positioned near the top of a webpage are more able to attract end users' attention and willingness to click, because when users open a browser, their line of sight focuses on the first third of the webpage. Advertisements positioned in this area can attract end users' attention and generate stronger advertisement impressions. When an advertisement is placed in the middle of the page, it receives less selective attention from end users because it is not in the visual focus. Therefore, the advertising effect of advertisements positioned on the lower half of the webpage is poorer. Because the middle and lower half of the portal are mainly advertising areas, it is also possible for users to produce psychological rejection upon realizing that commercial advertisements are placed in the middle of the page.

Dynamic advertisements, with their continuous sequences, image changes, and visual and sound effects, are more able to attract end

Table 2. The normalized matrix with age group and evaluation criteria

Age group	involvement	advertising attitude	brand attitude	purchase intention	attractiveness of ad content
1. under 20 years old	0.198345	0.199102	0.118833	0.264011	0.259052
2. 20-29 years old	0.251799	0.283244	0.244506	0.220665	0.197236
3. 30-39 years old	0.182441	0.196638	0.227210	0.143170	0.189350
4. 40-49 years old	0.206514	0.150799	0.241598	0.169877	0.182990
5. above 50 years old	0.160921	0.170217	0.167853	0.202277	0.171373

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Table 3. Criteria weighting

Age group	involvement	advertising attitude	brand attitude	purchase intention	attractiveness of ad content
1. under 20 years old	0.039669	0.039820	0.023767	0.052802	0.051810
2. 20-29 years old	0.050356	0.056649	0.048901	0.044133	0.039447
3. 30-39 years old	0.036488	0.039328	0.045442	0.028634	0.037870
4. 40-49 years old	0.041303	0.030160	0.048320	0.033975	0.036598
5. above 50 years old	0.032184	0.034043	0.033571	0.040455	0.034275

Table 4. Positive ideal and negative idea solutions

Solution	involvement	advertising attitude	brand attitude	purchase intention	attractiveness of ad content
Positive ideal	0.050356	0.056649	0.048901	0.052802	0.034275
Negative ideal	0.032184	0.030160	0.023767	0.028634	0.051810

Table 5. Measures of separation of each alternative solution

S_{i1}^{+}	0.026347	S_{i1}^{-}	0.025296
S_{i2}^{+}	0.019211	S_{i2}^{-}	0.020285
S_{i3}^{+}	0.019436	S_{i3}^{-}	0.018165
S_{i4}^{+}	0.024404	S_{i4}^{-}	0.017671
S_{i5}^{+}	0.017779	S_{i5}^{-}	0.016046

Table 6. Results of closeness coefficient and rank

Age group	RC_i^*	Rank
under 20 years old	0.489829	2
20-29 years old	0.513595	1
30-39 years old	0.483102	3
40-49 years old	0.419997	5
above 50 years old	0.474390	4

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users' attention and interest, as well as leave memorable impressions. Comparatively, dynamic advertisements possess greater advertisement communicative effect. The stronger the user's impression on a banner advertisement is, the stronger the advertising attitude, brand attitude, and purchasing intention upon entering the brand page. When a consumer clicks through from a banner, user is affected by the priming effect. This effect is transferred to the brand page on the second level, produces positive and strengthened exposure (Singh & Rothschild, 1983), and further evokes a more favorable advertising attitude, brand attitude, and purchasing intention towards the brand webpage.

In addition, after comparing the portal advertisements with non-portal advertisements, this study recommends that advertisers compete for their advertisements to be published on the homepage to the extent that their budgets allow. Although the publication fee for the homepage is higher, placing the advertisement on the homepage can attract more click-through, and produce a perceptual priming effect and match-up effect more easily. If the main users of the products and the portal's demographics have a match-up effect, the portal advertisements would produce better brand communication effect (Till & Michael, 2000). The portal advertisements belong to self-paced audience media, they are more humanized and can produce favorable communication effect. The research result indicates considerable decision makings with different age. The ranking result by TOPSIS points out that the second alternative is strategically optimums for the corporation. The best options for involvement, advertising attitude, brand attitude, purchase intention and attractiveness of advertisement content appears with group of 20–29 years old. At the end, the TOPSIS method for ranking brand communication effect was applied to find the best alternative. Therefore, the enterprises should design an attractive advertising for the target groups to achieve advertising effectiveness. This study used commonly seen banner advertisements as research subjects. Future studies could incorporate other forms of advertisements, such as pop-up windows and interactive advertisements, to examine the differences between types of advertisements.

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APPENDIX

Table 7. The measures

Construct	Sample Items
Yahoo! Kimo involvement (10 items)	(anchors: Strongly agree/Strongly disagree) 1. Yahoo! Kimo offers me valuable information. 2. I am interested in Yahoo! Kimo. 3. Yahoo! Kimo is relevant to me. 4. Yahoo! Kimo excites to me. 5. Yahoo! Kimo is meaningful to me. 6. Yahoo! Kimo is special to me. 7. Yahoo! Kimo is attractive to me. 8. Yahoo! Kimo is valuable to me. 9. Yahoo! Kimo is worthy attention to me. 10. I need Yahoo! Kimo.
Advertising attitude (8 items)	(anchors: Strongly agree/Strongly disagree) 1. I like advertisement of product. 2. I feel that advertisement of product is good. 3. I supported advertisement of product. 4. I feel that advertisement of product is convincing. 5. I feel that advertisement of product is clear. 6. I feel that advertisement of product is attractive. 7. I feel that advertisement of product is interesting. 8. I feel that advertisement of product is succinct.
Brand attitude (5 items)	(anchors: Strongly agree/Strongly disagree) 1. I like brand. 2. I feel that brand is valuable. 3. I feel that brand of product is quality. 4. I feel that brand of product is reliable. 5. I hold positive evaluation towards brand.
Purchase intention (4 items)	(anchors: Strongly agree/Strongly disagree) 1. I am willing to spend more time searching for product information. 2. I am willing to try on product. 3. I think product is a worthy purchase. 4. I am willing to purchase product.
Attractiveness of advertisement content (2 items)	(anchors: Strongly agree/Strongly disagree) 1. I feel that advertisement of product attracts my attention. 2. I feel that advertisement of product evokes my interest.

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