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### **Impact Of Banner Ad Position, Congruence Of Banner Ad Content And Website Content, And Advertising Objective On Banner Ad Fixation, Brand Awareness, And Product Knowledge: An Empirical Study Of A Review Website In Thailand**

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# **IMPACT OF BANNER AD POSITION, CONGRUENCE OF BANNER AD CONTENT AND WEBSITE CONTENT, AND ADVERTISING OBJECTIVE ON BANNER AD FIXATION, BRAND AWARENESS, AND PRODUCT KNOWLEDGE: AN EMPIRICAL STUDY OF A REVIEW WEBSITE IN THAILAND**

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## **ABSTRACT**

The aim of this research is to study impact of banner ad position (top, bottom, left and right) on (1) banner ad fixation, (2) brand awareness, and (3) product knowledge. Two moderator variables, (1) congruence of banner ad content and website content and (2) advertising objectives (to inform and to persuade), are also used in this study. This experimental research is conducted with sixteen webpages (4 banner ad positions x 2 conditions of congruence between banner and web contents x 2 banner objectives). Each webpage has the same content which is a restaurant review but banner ad and banner ad position are varied across the sixteen webpages. An eye-tracking tool, Mirametrix S2 Eye Tracker, was used to collect banner ad fixation data. Brand awareness and product knowledge data were collected with questionnaires. The experimental results indicate that banner ad position does not impact banner ad fixation, brand awareness, and product knowledge. We investigated congruence of banner ad content and website content, and found that banner ad position affected product knowledge but did not have an effect on banner ad fixation and brand awareness regardless of congruent conditions. On the other hand, we investigated advertising objective and found that banner ad position did not have an impact on banner ad fixation, brand awareness, and product knowledge in both information and persuasive objectives.

*Keywords:* Banner Ad Position, Congruence, Advertising Objective, Banner Ad Fixation, Brand Awareness, Product Knowledge.

## **INTRODUCTION**

In recent years, using the Internet has become a mainstream activity in the society. By this reason, businesses greatly concentrate on the Internet associated media in order to reach their expected target groups or their potential customers. According to the Interactive Advertising Bureau (IAB), the 2014 full year Internet advertising revenue was \$49.45 billion, 16% increase from the \$42.78 billion reported in 2013 [6]. Internet advertising has become widespread trend in business circles. Banner ad is one of the broadly used Internet advertising tools in marketing communication. Yet, for an effective use of banner ad in webpage, position of banner ad is considered to be one of the major factors because lower positions of banner ad help Internet users recognize banner ad better than upper positions [4]. Besides, there are other two factors which influence the banner ad recognition: congruence of banner ad content and webpage content [3] [11], and advertising objectives [9]. All of three factors mentioned above persuade users to respond to marketing objectives in two stages: when the users look at the banner ad and when they recognize the banner ad. Therefore, in this study, the banner ad recognition is divided into two parts: (1) brand recognition, and (2) product recognition, which are called (1) brand awareness, and (2) product knowledge, respectively.

There are many researches which study about banner ad position. A research found that banner ad at top and bottom position did not impact the recognition [5]. Another one found that verbal banner ad would be evaluated more positively when positioned on the right rather than on the left of a webpage [12]. From two researches mentioned above, they investigated only two positions of banner ad. Still, there is a research studying four positions of banner ad which indicated that top position was most effective and the right position was least effective in terms of explicit memory [8]. There is another interesting research studying about the eye behavior of users when banner ad located in different positions around the masthead area of online newspapers [2]. As a result, we would like to study how visitors respond to banner ad when banner ad located in different position in a single content webpage like a restaurant review webpage. One real review website in Thailand was used in this research.

In summary, in this study, we investigate impact of banner ad position, congruence of banner ad content and website content, and advertising objectives on banner fixation, brand awareness and product knowledge. To measure about a look at banner ad, an eye tracker collects fixation more precisely and more meticulously than only using questionnaires. Thus, Mirametrix S2 Eye Tracker was used to collect banner ad fixation data, while questionnaires were used to collect brand awareness and product knowledge data.

## **OBJECTIVES**

This study has three objectives as follow:

1. To study impact of banner ad position on banner ad fixation, brand awareness and product knowledge.
2. To study impact of banner ad position on banner ad fixation, brand awareness and product knowledge when banner ad content and website content are congruent or incongruent.
3. To study impact of banner ad position on banner ad fixation, brand awareness and product knowledge when advertising objectives are to inform or to persuade.

**METHODOLOGY**

**Tools**

**Banner Ad**

To select a type of banner, we considered that static banner is most suitable to this study. Static banner has less influence on visitors' attention than other types of banner. In this study, eight formats of banners are used, depending on two factors: (1) congruence of banner ad content, and (2) advertising objectives. Two different sizes of banner are Super Leaderboard (960 x 100) (for top and bottom position) and Skyscraper (160 x 600) (for left and right position). The actual dimension of Super Leaderboard is 970 x 90 [7]. However, we changed its size to 960 x 100 because we prefer the Super Leaderboard and the Skyscraper to have equal area in term pixel. The eight formats of banner are shown in Table 1.

Table 1. Banner ad format

| Banner ad | Dimension (W x H)                                      | Congruence               | Advertising objective |
|-----------|--|--------------------------|-----------------------|
| 1         | Super Leaderboard<br>960 x 100<br>(for top and bottom) | Congruent<br>(Brownie)   | To inform             |
| 2         |  | Incongruent<br>(T-shirt) | To persuade           |
| 3         |  |                          | To inform             |
| 4         |  | To persuade              |                       |
| 5         | Skyscraper<br>160 x 600<br>(for left and right)        | Congruent<br>(Brownie)   | To inform             |
| 6         |  | Incongruent<br>(T-shirt) | To persuade           |
| 7         |  |                          | To inform             |
| 8         |  | To persuade              |                       |

A restaurant review website was chosen as the experimental website. To select banner ad content, we studied 166 people about congruence of 10 products that maybe displayed in a restaurant review website. From the survey, 72.29% of samples accepted that "brownie" is congruent with the restaurant review website. On the other hand, 87.35% of samples admitted that "t-shirt" is incongruent with the restaurant review website. As a result, the two products, "brownie" and "t-shirt" were selected to be product advertised in congruent and incongruent banner ad content in the restaurant review website, respectively. For the advertising objectives, persuasive banner ads provide information about promotion, while informational banner ads do not.

**Webpage**

The restaurant review website chosen is composed of two main areas, the review and the banner ad areas. The banner ad is designed to display in four different areas: top, bottom, left and right of the page. With four different banner ad position and eight different formats of banner ads as previously mentioned, there are 16 different webpages used in our experiments. Figure 1 show examples of webpages with different products and banner ad positions.



Figure 1. Example webpages: (a) “T-shirt” banner ad at the top of webpage, (b) “Brownie” banner ad at the bottom of webpage, (c) “T-shirt” banner ad at the left of webpage, (d) “Brownie” banner ad at the right of webpage

### Eye-Tracker

The eye tracking device used in this study is “Mirametrix S2 Eye Tracker” (shown in Figure.2) [10]. It is a hardware part which tracks participants’ eye movements and collects eye-gaze data. This hardware device works with the “Eye tracking viewer software”. The software saves eye-gaze data as a CSV document as shown in Figure 3, which is used to summarize banner ad fixation data used in this study.



Figure 2. Mirametrix S2 Eye Tracker

|    |          |           |          |          |          |          |          |
|----|----------|-----------|----------|----------|----------|----------|----------|
| 1  | CALIB_AV | CALIB_VAI | FILE_FOR | SCREEN_V | SCREEN_H | RECORDIN | RECORDIN |
| 2  | 28.68    | 9         | 1.1      | 1280     | 1024     | 0        | 0        |
| 3  | TIME     | TIME_TIC  | FPOGX    | FPOGY    | FPOGS    | FPOGD    | FPOGID   |
| 4  | 19.2     | 4.77E+10  | 1.54141  | 2.59961  | 17.934   | 0.429    | 64       |
| 5  | 19.23    | 4.77E+10  | 1.54766  | 2.57813  | 17.934   | 0.429    | 64       |
| 6  | 19.242   | 4.77E+10  | 1.31719  | 1.08398  | 17.934   | 0.429    | 64       |
| 7  | 19.28    | 4.77E+10  | 1.35312  | 1.54004  | 17.934   | 0.429    | 64       |
| 8  | 19.285   | 4.77E+10  | 1.25547  | 1.02148  | 17.934   | 0.429    | 64       |
| 9  | 19.322   | 4.77E+10  | 1.25547  | 1.02148  | 17.934   | 0.429    | 64       |
| 10 | 19.404   | 4.77E+10  | 1.25547  | 1.02148  | 17.934   | 0.429    | 64       |

Figure 3. CSV document generated by “Eye tracking viewer”

### Questionnaires

We created two questionnaires for participants. The first questionnaire is about the review of the restaurant in the webpage. For an accurate result, we simulate a real scenario of a restaurant review website usage. The participants were urged to visit the webpage to find information about the restaurant from the review. After visiting the webpage, the participant was given two questionnaires. The first questionnaire is composed of questions about (1) restaurant name, (2) location, (3) opening hour, (4) menu, (5) reviewer’s name, (6) interest in the restaurant, and (7) interest in general restaurant reviews.

The second questionnaire gathers data which are banner ad details and demographic data. Questions about banner ad details are composed of (1) banner ad visibility (to check if the participant see the banner ad or not), (2) brand awareness (to collect data about the product brand on banner ad), and (3) product knowledge (to evaluate participant’s remembrance about the product on banner ad). Demographic data to be collected are composed of age, gender, education, handedness, visual impairment, Internet usage experience, Internet usage per day and interests in banner ad.

### Measurements

Visibility of banner ad is measured by using “banner ad fixation”. Banner ad fixation is calculated from eye-gaze data collected by the eye-tracking device, using number of coordinates each participant looks in the banner ad area divided by total coordinates in the banner ad area. This proportion is then converted to percentage. Brand awareness and product knowledge are measured by using the correct answers each participant gives in the questionnaires. For brand awareness, there are five questions about logo and product type. For product knowledge, there are eight questions about product details in the advertising message.

### Procedure

The empirical study was conducted in the following steps:

1. Researcher announced about the experiment and sought the volunteers to participate in the experiment. All volunteers chose their preferred date and time to join the experiment.
2. Each participant came to his/her appointment which was organized individually.
3. Researcher explained about data collection to the participant. To simulate a real scenario of a restaurant review website usage, the participant was briefed that he/she was looking at the review webpage to search for the restaurant information.
4. The Mirametrix S2 Eye Tracker was adjusted for each participant and started the calibration process.
5. Researcher started recording each participant’s eye-gazed data. Then the webpage was displayed to the participant.
6. The participant must close the webpage immediately when he/she finished using the webpage. Researcher stopped recording eye-gaze of each participant.
7. Participant was given two questionnaires to be complete.

**Reliability**

1. Some data was discarded especially in the case where participants indicated in the questionnaire that they did not see the banner ad on the webpage, even the data collected from the eye tracker showed that the participants did look at it.
2. This research used the real website, which in average is visited by 200 visitors per day, so that the participant will have real experience during the experiment. The restaurant referred in this research is physically existed. Also, the product advertised in banner ad are real product. As a result, the participant would not feel that he/she received made up information.
3. The static banner was used in this research to examine only the impact of the position because other types of banner, such as animated banner, may draw attention of the participants due to other factors.
4. Each types of banner ad can be divided into 6 parts for two dimensions, as shown in Figure 4:
  - a. The first part is the logo (product brand).
  - b. The second, the fourth and the sixth part is the product information.
  - c. The third and the fifth part is the product pictures.

Elements of banners of both products were arranged in the same patterns, but different in logos, information and product pictures. Other details which include font, color and size (in pixels) of the two banners are identical.

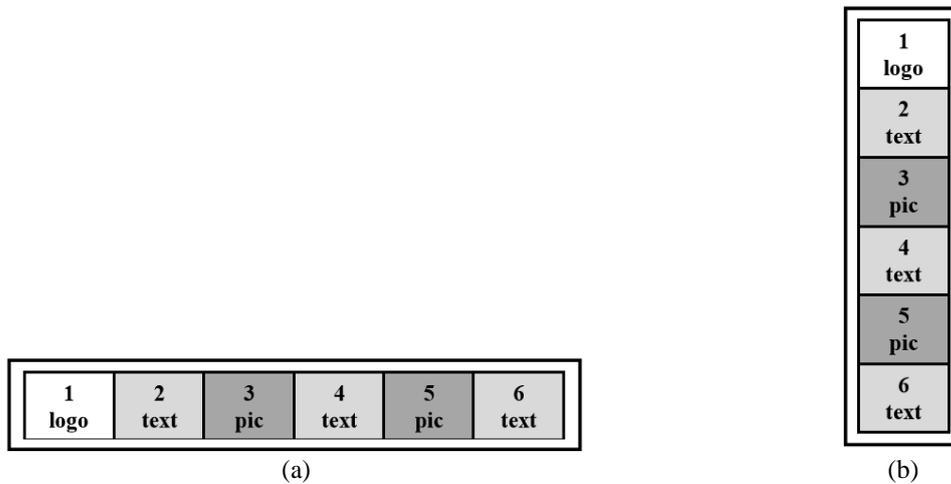


Figure 4. Banner ad layouts: (a) layout for Super Leaderboard, and (b) layout for Skyscraper

**Participants**

160 undergraduate and graduate students from Chulalongkorn Business School, Chulalongkorn University, Thailand participated in the experiments. A summary of demographic information of the participants is shown in Table 2.

Table 2. Respondents' demographic information

| Demographics              | Distribution  |
|---------------------------|---|
| Gender                    | 36.25% male<br>63.75% female  |
| Age                       | 95.00% 18-25 years old<br>5.00% 26-30 years old   |
| Education                 | 94.38% undergraduate<br>5.63% graduate  |
| Handedness                | 5.63% left<br>93.13% right<br>1.25% both  |
| Eyesight                  | 31.88% normal<br>65.00% near-sighted<br>2.50% far-sighted<br>23.75% astigmatism             |
| Internet usage experience | 1.88% Less than 3 years<br>2.50% 3-5 years<br>30.00% 5-7 years<br>65.63% More than 7 years  |
| Internet usage per day    | 41.25% Less than 3 hours<br>40.63% 3-5 hours<br>13.13% 5-7 hours<br>5.00% More than 7 hours |

| Demographics          | Distribution                             |
|-----------------------|--|
| Interest in banner ad | 63.13% Interested<br>36.88% Uninterested |

The participants were 63.75% female. 95.00% were 18 to 25 years old. 94.38% were undergraduate students. 94.13% were right-handed. 31.88% have normal eyesight and 65.00% have near-sighted eyesight. 65.63% have more than 7 years of Internet usage experience. 41.25% use the Internet less than 3 hours per day (not including e-mail and mobile application usage). 63.132% are interested in banner ad.

## RESULTS

The results of this experiment are presented in three sections, each section for each research objective. The results of each section are shown in table format with mean values and standard deviation (SD) in one table, and the results of the Kruskal-Wallis test for differences of banner ad fixation, brand awareness, and product knowledge are shown in a separated table.

### Result 1: Impact of banner ad position on banner ad fixation, brand awareness and product knowledge

From Table 3, we found that the mean value of banner ad fixation at the right position is the highest and the one at the left position is the lowest. The mean value of brand awareness at the bottom and the left position is the highest and the one at the top position is the lowest. However, the differences of mean values of brand awareness are not much for four banner ad positions. In aspect of product knowledge, the mean value of product knowledge at the right position is higher than the others.

Table 3. Mean and SD of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different

| Position           |      | Top    | Bottom | Left   | Right  |
|--------------------|------|--------|--------|--------|--------|
| Banner Ad Fixation | Mean | 0.1304 | 0.1266 | 0.1169 | 0.1516 |
|                    | SD   | 0.1730 | 0.1408 | 0.1379 | 0.2245 |
| Brand Awareness    | Mean | 1.80   | 2.05   | 2.05   | 1.92   |
|                    | SD   | 1.09   | 1.11   | 1.04   | 1.19   |
| Product Knowledge  | Mean | 3.18   | 3.38   | 3.35   | 3.75   |
|                    | SD   | 1.32   | 1.76   | 1.61   | 1.50   |

Kruskal-Wallis test results, at 95% confidence interval, shown in Table 4 indicate that there is no significant difference of banner ad fixation, brand awareness, and product knowledge for four banner ad positions.

Table 4. Kruskal-Wallis test of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different

|             | Banner Ad Fixation | Brand Awareness | Product Knowledge |
|-------------|--------------------|-----------------|-------------------|
| Chi-Square  | 1.323              | 1.409           | 3.474             |
| df          | 3                  | 3               | 3                 |
| Asymp. Sig. | .724               | .704            | .324              |

### Result 2: Impact of banner ad position on banner ad fixation, brand awareness and product knowledge when banner ad content and website content are congruent and incongruent

We investigated congruence of the banner ad content and the website content. From Table 5, when the banner ad content is congruent with the webpage content, we found that the mean value of banner ad fixation at the right position is highest. The mean value of brand awareness at the bottom position is highest. On the other hand, the mean value of product knowledge at the left position is highest and the one at the top position is lowest.

Table 5. Mean and SD of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different in congruent condition

| Position           |      | Top    | Bottom | Left   | Right  |
|--------------------|------|--------|--------|--------|--------|
| Banner Ad Fixation | Mean | 0.1078 | 0.1040 | 0.1446 | 0.1887 |
|                    | SD   | 0.1189 | 0.0825 | 0.1755 | 0.3029 |
| Brand Awareness    | Mean | 1.70   | 2.10   | 1.65   | 1.75   |
|                    | SD   | 0.92   | 1.07   | 0.81   | 1.16   |
| Product Knowledge  | Mean | 2.85   | 3.60   | 4.40   | 3.90   |
|                    | SD   | 1.31   | 1.85   | 1.64   | 1.89   |

Kruskal-Wallis test results, at 95% confidence interval, shown in Table 6 indicate that there is no significant difference of banner ad fixation and brand awareness for four banner ad positions. On the other hand, there is a significant difference of product

knowledge for four banner ad positions, the difference is observed when comparing the banner ad at the top to the left position.

Table 6. Kruskal-Wallis test of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different in congruent condition

|             | Banner Ad Fixation | Brand Awareness | Product Knowledge |
|-------------|--------------------|-----------------|-------------------|
| Chi-Square  | 1.576              | 2.012           | 8.015             |
| df          | 3                  | 3               | 3                 |
| Asymp. Sig. | .665               | .570            | .046              |

From Table 7, when the banner ad content is incongruent with the webpage content, we found that the mean values of banner ad fixation at the top and bottom position are higher than the others. The mean value of brand awareness at the left position is highest. On the other hand, the mean value of product knowledge at the left position is lowest.

Table 7. Mean and SD of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different in incongruent condition

| Position           |      | Top    | Bottom | Left   | Right  |
|--------------------|------|--------|--------|--------|--------|
| Banner Ad Fixation | Mean | 0.1529 | 0.1493 | 0.0892 | 0.1145 |
|                    | SD   | 0.2149 | 0.1810 | 0.0814 | 0.0938 |
| Brand Awareness    | Mean | 1.90   | 2.00   | 2.45   | 2.10   |
|                    | SD   | 1.25   | 1.17   | 1.10   | 1.21   |
| Product Knowledge  | Mean | 3.50   | 3.15   | 2.30   | 3.60   |
|                    | SD   | 1.28   | 1.69   | 0.57   | 1.00   |

Kruskal-Wallis test results, at 95% confidence interval, shown in Table 8 indicate that there is no significant difference of banner ad fixation and brand awareness for four banner ad positions. On the other hand, there is significant difference of product knowledge for four banner ad positions. The difference is found when comparing the banner ad at the left to the rest of the positions.

Table 8. Kruskal-Wallis test of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different in incongruent condition

|             | Banner Ad Fixation | Brand Awareness | Product Knowledge |
|-------------|--------------------|-----------------|-------------------|
| Chi-Square  | .968               | 3.397           | 17.088            |
| df          | 3                  | 3               | 3                 |
| Asymp. Sig. | .809               | .334            | .001              |

### Result 3: Impact of banner ad position on banner ad fixation, brand awareness and product knowledge when advertising objectives are to inform or to persuade.

From Table 9, when advertising objective is to inform, we found that the mean value of banner ad fixation at the bottom and the right positions are higher than the top and the left positions. The mean value of brand awareness at the top position is lowest, the mean value of product knowledge at the right position is highest.

Table 9. Mean and SD of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different for informational objective

| Position           |      | Top    | Bottom | Left   | Right  |
|--------------------|------|--------|--------|--------|--------|
| Banner Ad Fixation | Mean | 0.0838 | 0.1333 | 0.0883 | 0.1356 |
|                    | SD   | 0.0980 | 0.1410 | 0.1105 | 0.2002 |
| Brand Awareness    | Mean | 1.75   | 2.05   | 2.15   | 2.05   |
|                    | SD   | 1.12   | 1.15   | 1.04   | 1.15   |
| Product Knowledge  | Mean | 3.20   | 3.00   | 3.10   | 3.75   |
|                    | SD   | 1.06   | 1.38   | 1.55   | 1.65   |

Kruskal-Wallis test results, at 95% confidence interval, shown in Table 10 indicate that there is no significant difference of banner ad fixation, brand awareness, and product knowledge for four banner ad positions when the advertising objective is to inform.

Table 10. Kruskal-Wallis test of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different for informational objective

|             | Banner Ad Fixation | Brand Awareness | Product Knowledge |
|-------------|--------------------|-----------------|-------------------|
| Chi-Square  | 4.621              | 1.724           | 2.023             |
| df          | 3                  | 3               | 3                 |
| Asymp. Sig. | .202               | .632            | .568              |

From Table 11, when advertising objective is to persuade, we found that the mean values of banner ad fixation at the top and the right positions are higher than the bottom and the left positions. The differences of mean values of brand awareness are not much for four banner ad positions. On the other hand, the mean value of product knowledge at the top position is lowest.

Table 11. Mean and SD of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different for persuasive objective

| Position           |      | Top    | Bottom | Left   | Right  |
|--------------------|------|--------|--------|--------|--------|
| Banner Ad Fixation | Mean | 0.1770 | 0.1199 | 0.1454 | 0.1677 |
|                    | SD   | 0.2173 | 0.1439 | 0.1585 | 0.2506 |
| Brand Awareness    | Mean | 1.85   | 2.05   | 1.95   | 1.80   |
|                    | SD   | 1.09   | 1.10   | 1.05   | 1.24   |
| Product Knowledge  | Mean | 3.15   | 3.75   | 3.60   | 3.75   |
|                    | SD   | 1.57   | 2.05   | 1.67   | 1.37   |

Kruskal-Wallis test results, at 95% confidence interval, shown in Table 12 indicate that there is no significant difference of banner ad fixation, brand awareness, and product knowledge for four banner ad position when advertising objective is to persuade.

Table 12. Kruskal-Wallis test of banner ad fixation, brand awareness, and product knowledge when banner ad positions are different for persuasive objective

|             | Banner Ad Fixation | Brand Awareness | Product Knowledge |
|-------------|--------------------|-----------------|-------------------|
| Chi-Square  | 1.225              | .437            | 2.247             |
| df          | 3                  | 3               | 3                 |
| Asymp. Sig. | .747               | .933            | .523              |

## DISCUSSION

**Result 1** indicates that banner ad position does not impact banner ad fixation, brand awareness and product knowledge. This experiment results confirm the results of previous research that position does not impact fixation and recognition [1] [2] [5] [8]. On the other hand, the results are not consistent to the result of [4]. The finding shows that lower visual field attracts more attention (fixation, click and recognition). One possible clarification is a difference in experiment settings. Webpage used in this study is a single content webpage (the restaurant review). This type of webpage distracts visitors' attention less than other types. As a result, eye movements of participants would seem like reading. A multiple content webpage, for example a homepage, bring about random eye movements. Therefore, if the banner ad position is close to a more interesting content, it is likely to attract eye movements. The difference between a single content webpage and a multiple content webpage may lead to a different result.

Additionally, this study investigated congruence of banner ad content and webpage content.

**Result 2** exposes that when banner ad content and webpage content are in both congruent and incongruent conditions, the banner ad position does not have an impact on banner ad fixation and brand awareness. However, we observe that the mean value of product knowledge is lowest in the congruent condition and it is statistically different from other positions, while its mean value is highest in the congruent condition and statistically different from the top position. One possible explanation is that when the visitors started reading the restaurant review on the left of the webpage, if banner ad content is congruent with webpage content, the visitors may understand that the banner ad is a part of the review and read it. On the other hand, if the banner ad content is incongruent with the webpage content, the visitors may be able to differentiate the banner ad from the review and define the area that they should gaze through read the content of the review.

**Result 3**, we examined the advertising objective and found that the banner ad position does not impact banner ad fixation, brand awareness and product knowledge. This result does not confirm that position and objective affect the effectiveness of advertising [9]. An apparent difference between our study and previous finding [9] is types of banner ad used. Animated ad was used in [9], while static ad was used in our study.

## CONCLUSION

From this study, there are three main results as follow:

1. Banner ad position does not impact banner ad fixation, brand awareness and product knowledge.
2. Banner ad position does not impact banner ad fixation and brand awareness when banner ad content and website content are congruent or incongruent. However, banner ad position impacts product knowledge in different ways when banner ad content and website content are congruent and incongruent.
3. Banner ad position does not impact banner ad fixation, brand awareness and product knowledge when advertising objectives are to inform or to persuade.

Three conclusions as mentioned above suggest that banner ad fixation and brand awareness do not depend on banner ad position. On the other hand, product knowledge depend on the banner ad position when banner ad content and webpage content are in congruent and incongruent conditions. As a result, selecting banner ad area in a single content webpage may be based on the congruent condition. If a product to be advertised is congruent with webpage content, business owner might select the left position before the others and might avoid placing the banner ad at the top position. If a product to be advertised is incongruent with the webpage content, business owner should avoid placing the banner ad at the left position. For other positions, business owner might select the positions according to price or concern about a number of visitors, target group or popularity of website. On the contrary, if business owner has banner ad area at the top position, the owner should select a product that incongruent with webpage content. If business owner has banner ad area at the left position, the owner should select a product that congruent with webpage content.

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## REFERENCES

- [1] Calisir, F. & Karaali, D. (2007) 'The impacts of banner location, banner content and navigation style on banner recognition', *Computers in Human Behavior*, Vol. 24, No. 2, pp 535-543.
- [2] Cantoni, V., Porta, M., Ricotti, S. & Zanin, F. (2013) 'Banner positioning in the masthead area of online newspapers: an eye tracking study', *Proceedings of the 14th International Conference on Computer Systems and Technologies*, ACM, pp 145-152.
- [3] Goldfarb, A. & Tucker, C. (2011) 'Online display advertising: Targeting and obtrusiveness', *Marketing Science*, Vol. 30, pp 413-415.
- [4] Goodrich, K. (2010) 'What's up? Exploring upper and lower visual field advertising effects', *Journal of Advertising Research*, Vol. 50, No. 1, pp 91-106.
- [5] Heinz, S. & Mekler, E. D. (2012) 'The influence of banner placement and navigation style on the recognition of advertisement banners', *Proceedings of the 7th Nordic Conference on Human-Computer Interaction: Making Sense Through Design*, pp. 803-804.
- [6] Interactive Advertising Bureau (2015) 'IAB internet advertising revenue report 2014 full year results', *Interactive Advertising Bureau (IAB)*, available at <http://www.iab.net> (accessed 11 June 2015).
- [7] Interactive Advertising Bureau (2015) 'Interactive advertising bureau – display & mobile advertising creative format guidelines', *Interactive Advertising Bureau (IAB)*, available at <http://www.iab.net> (accessed 11 June 2015).
- [8] John, D. A. & Sathiyaseelan, A. (2014) 'The effect of the positioning of webpage banner advertisements on implicit and explicit memory', Vol. 3, No. 2, pp 120-124.
- [9] Lin, Y. L., & Chen, Y. W. (2009) 'Effects of ad types, positions, animation lengths, and exposure times on the click-through rate of animated online advertisings', *Computers & Industrial Engineering*, Vol. 57, No.2, pp 580-591.
- [10] Mirametrix (2014) 'S2 eye tracker', *Mirametrix*, available at <http://www.mirametrix.com> (accessed 30 January 2015).
- [11] Moore, R. S., Stammerjohan, C. A. & Coulter, R. A. (2005) 'Banner advertiser-web site context congruity and color effects on attention and attitude', *Journal of Advertising*, Vol. 34, No. 2, pp. 71-84.
- [12] Ryu, G., Lim, E. A. C., Tan, L. T. L. & Han, Y. J. (2007) 'Preattentive processing of banner advertisements: The role of modality, location, and interference', *Electronic Commerce Research and Applications*, Vol. 6, No. 1, pp. 6-18.