An Investigation of Gestalt Principles in Advertising Design

Yiyang Lu

Abstract:

Advertising's fundamental objective is promotion, reliant on its capacity to captivate viewers' attention for success. Designers employ various strategies to amplify the visibility and impact of advertisements, with the Gestalt principle serving as a widely embraced framework in advertising design. This research seeks to explore the potential of Gestalt-based advertisements to enhance attention. To test this hypothesis, two participant groups were exposed to advertisements: one group featured Gestalt-based designs, while the other did not. The participants' gaze patterns were recorded using an eye-tracking device, enabling quantitative analysis via eye-tracking parameters. Subsequent statistical analyses of these parameters were conducted. The study's findings unequivocally demonstrate that, on the whole, advertisements integrating Gestalt principles consistently attract considerably more attention. Heightened fixation counts and prolonged gaze durations substantiate this.

Additionally, the eye-tracking trajectories notably align with the frame of the Gestalt-based products, in line with the Gestalt principle. However, it's important to note that excessive design abstraction may diminish noticeability. This research offers valuable insights into the effective application of Gestalt principles within advertising design. Furthermore, it furnishes recommendations for prospective studies in this domain. Grasping the subtleties of attention-captivating design elements can significantly inform and enhance advertising strategies in the digital age.

Keywords: Gestalt principle; Advertisement design; Eye-tracking; Attention; Visibility

1. Introduction

Advertising is any medium, such as images, short films, songs, etc., intended to persuade individuals to purchase a product or service (Cambridge Dictionary, 2019). A well-crafted advertisement can heighten consumer awareness and comprehension of the advertised product, influencing consumers to choose it over numerous similar offerings (Aziz &Ariffin, 2010). The significance of advertising in the marketing field cannot be overstated, improving advertising effectiveness a subject of extensive research. The ability to capture attention is a crucial factor in the success of advertisement design and its overall effectiveness, especially in today's world, where individuals are exposed to an overwhelming amount of information daily (Kotler et al., 2017). Attracting consumer attention has remained a persistent challenge for marketers (Taylor, 2013), and efforts to enhance the visual appeal of advertisements persist. For example, studies have identified two primary aspects contributing to an advertisement's appeal: image content, encompassing elements such as human figures, faces, or celebrities, and image styles, including aspects like colors, sizes, and background complexity (Li et al., 2012; Lee & Ahn, 2012; Tayebi, 2010; Pieters et al., 2010).

"Gestalt" is a German term meaning "unified whole," Gestalt principles are rooted in human perception, reflecting our innate ability to group similar elements, recognize patterns, and simplify complex images when perceiving objects. Gestalt psychology underscores the human tendency to perceive things holistically (What Are Gestalt Principles?, 2016). These principles are commonly employed in advertising. In contrast to conventional designs, Gestalt-based advertisements employ concise graphics to metaphorically represent products, providing viewers with a fresh perspective. Consequently, Gestalt designs stimulate viewers' creativity and enhance visibility (Zhu, 2016). Prior research on Gestalt advertising primarily focused on designers' perspectives (Liao, 2006; Zhu, 2016; Ma, 2017). This study, however, explores the impact of Gestalt-based advertisements from the audience's perspective. To assess whether Gestalt design can capture people's attention, this study incorporates eye-tracking technology, which records viewers' gaze patterns, offering quantitative and precise data on attention. The findings contribute valuable insights into the realm of advertisement design.

2. Method

2.1 Participants

A total of 20 participants were randomly recruited for this study, with an average age of 30.15 (SD = 15.08). The group comprised 12 females and 8 males, all of Chinese

ethnicity. Following informed consent, participants were randomly assigned to one of two groups: the Gestalt Group and the Control Group. Each participant's task was to view images of advertisements while their eye movements were recorded using eye-tracking technology.

2.2 Stimuli

Each set of stimuli consisted of three advertisement posters, and every subject was exposed to four sets of advertisements. In each set, one advertisement served as the primary stimulus. In the Gestalt Group, these stimulus advertisements adhered to a Gestalt design approach, whereas in the Control Group, non-Gestalt designs were employed. The remaining advertisements were introduced as interference images unrelated to the experimental objectives, a measure to prevent subjects from deducing the study's intent and altering their behavior deliberately or inadvertently. The four chosen advertisements for the experiment were those of Coca-Cola (CC), Doritos (DLDZ), Melbourne Food & Wine Festival (MFWF), and Shigeo Fukuda Art Exhibition (SFAE).

2.3 Design and Procedure

This study adopted a between-subjects design. After providing informed consent, participants were randomly assigned to either the Gestalt or Control Group, each corresponding to specific experimental materials. Participants were seated in front of a screen opposite a laptop, with an eye tracker (Tobii 4C) positioned at the screen's bottom. Prior to the experiment, a nine-point calibration procedure was conducted. Upon successful calibration, participants received on-screen instructions and viewed the advertisements. Each set of images was displayed for 20 seconds. Following the experiment, participants received tokens of appreciation. The area of interest (AOI) for each stimulus advertisement was identified. Eye-tracking parameters, specifically total fixation duration (TFD) and fixation count (FC) were utilized for subsequent analyses.

2.4 Data Analysis

T-test analyses were conducted between Gestalt advertisements and the Control Group to investigate the role of Gestalt design in advertising and compare the gaze attention toward each stimulus. Additionally, to assess the effects of different advertising designs within the Gestalt Group, single-factor ANOVA was performed on the four ads in this group. Eye-tracking parameters, including total fixation duration (TFD) and fixation count (FC), were employed to quantitatively evaluate participants' gaze behavior.

3. Results

3.1 TFD and FC Analyses Between Gestalt Group and Control Groups

All results are summarized in Table 1. The results of the T-test indicated that there was no significant difference ($t = 0.77$, $p > 0.05$) in the total fixation duration between the Gestalt Group (M = 3.72, SD = 1.82) and the Control Group (M = 3.24, SD = 0.79). However, T-test results demonstrated that there were significant differences in the fixation count between participants in the Gestalt Group (M = 14.13, SD = 3.96) and the Control Group (M = 11.53, SD = 2.53) ($t = 0.75$, $p = 0.05$).

3.2 TFD and FC Analyses Between Gestalt Group and Control Groups in Coca-Cola (CC)

In the case of the Coca-Cola (CC) advertisement, the TFD (M = 3.03, SD = 1.51) and FC (M = 10.5, SD = 3.81) in the Gestalt Group were significantly higher ($p < 0.05$, $t = 2.22$; $p < 0.05$, $t = 3.17$) than those in the Control Group (TFD: M = 1.78, SD = 0.95; FC: M = 5.9, SD = 2.56).

3.3 TFD and FC Analyses Between Gestalt Group and Control Groups in Doritos (DLDZ)

For the Doritos (DLDZ) advertisement, there was no significant difference ($p > 0.05$, $t = 3.58$) between the TFD in the Gestalt Group (M = 1.54, SD = 0.98) and that in the Control Group (M = 3.51, SD = 2.21). Similarly, the FC in the Gestalt Group (M = 7.4, SD = 4.35) was not significantly different ($p > 0.05$, $t = 2.19$) from that in the Control Group (M = 11.7, SD = 4.45). However, the TFD of the Control Group was significantly higher than that of the Gestalt Group ($p < 0.05$, $t = 2.58$), and the FC of the Control Group was also significantly higher than that of the Gestalt Group ($p < 0.05$, $t = 2.19$).

3.4 TFD and FC Analyses Between Gestalt Group and Control Groups in the Shigeo Fukuda Art Exhibition (SFAE)

For the Shigeo Fukuda Art Exhibition advertisement, the FC in the Gestalt Group (M = 20.60, SD = 8.24) was significantly higher ($p < 0.05$, $t = 2.08$) than that in the Control Group (M = 13.8, SD = 6.25). However, the TFD in the Gestalt Group (M = 5.23, SD = 3.07) and the Control Group (M = 3.47, SD = 1.48) did not show a significant difference ($p > 0.05$, $t = 1.63$).

3.5 TFD and FC Analyses Between Gestalt Group and Control Groups in Melbourne Food & Wine Festival (MFWF)

Regarding the Melbourne Food & Wine Festival

advertisement, both the TFD and FC in the Gestalt Group (TFD: M = 5.09, SD = 3.2; FC: M = 18, SD = 5.6) were not significantly different (p > 0.05, t = 0.72; p > 0.05, t = 1.24) from those in the Control Group (TFD: M = 4.2, SD = 2.28; FC: M = 14.7, SD = 6.25). Please refer to Table 1 for Gestalt Group data and Table 2 for Control Group data.

3.6 TFD and FC Analyses Within Gestalt

Group

ANOVA analyses revealed a significant difference in the total fixation duration among the four advertisements. The TFD for the Doritos advertisement (M = 1.54, SD = 0.96) was significantly lower than the other three ads (F = 5.44, p < 0.05). At the same time, no significant differences were observed among Coca-Cola (M = 3.03, SD = 1.51), Shigeo Fukuda Art Exhibition (M = 5.22, SD = 3.07), and Melbourne Food & Wine Festival (M = 5.08, SD = 3.19) (F = 2.06, p > 0.05).

Table 1: TFD and FC results of the four ads in the Gestalt Group and Control group

	TFD (s)				FC			
	CC	DLDZ	MFWF	SFAE	CC	DLDZ	MFWF	SFAE
Gestalt	3.03	1.54	5.23	5.09	10.50	7.40	20.60	18.00
Control	1.78	3.51	3.47	4.20	5.90	11.70	13.80	14.70

4. Discussion

This study aimed to investigate the impact of the Gestalt principle on advertising design. Two groups of participants viewed advertisements based on Gestalt and non-Gestalt designs, with their gaze patterns recorded using an eye tracker. Fixation duration (TFD) and fixation count (FC) were employed to quantify participants' attention. The results of the T-test between the two groups revealed that except for Doritos (DLDZ), the TFD and FC in the Gestalt Group were significantly greater than those in the Control Group, indicating that Gestalt designs attracted subjects' attention. In the modern advertising, visual elements are critical in conveying information to the audience. Designers often simplify and emphasize key elements, aligning with the Gestalt concept of perceiving a visual image as a unified whole. This perceptual organization principle leverages innate functions of simplification, balance, and Gestalt in vision, providing an advantage for advertisements with Gestalt designs. From an information processing perspective, some allusions and metaphors in Gestalt designs require additional processing time, keeping viewers engaged for longer.

Analyzing the hotspots and eye movement trajectories of Coca-Cola, Shigeo Fukuda Art Exhibition, and Melbourne Food & Wine Festival advertisements, participants in the Gestalt Group concentrated on the implied outlines within the advertising images. This suggests that subjects recognized clever hidden Gestalt designs, leading to longer TFD and higher FC in these advertisements compared to the Control Group. While the Melbourne Food & Wine Festival did not exhibit a statistically significant difference, the use of vivid colors in the Control Group, contrasting with the monochromatic Gestalt Group, may

have contributed to the result. Research indicates that fully-colored images are more attention-grabbing than black-and-white ones.

However, the findings for the Doritos advertisement contradict those of other advertisements. The Gestalt-based Doritos advertisement had significantly lower TFD and FC than the non-Gestalt one, suggesting viewers were not drawn to the Gestalt design. This may be attributed to the design being overly abstract, making it difficult for viewers to connect Doritos with the "lemon" portrayed in the advertisement. This aligns with previous research indicating that designers sometimes focus too heavily on aesthetics without considering whether the audience comprehends the ad's meaning.

While this study yielded significant results, there are limitations to consider. The sample size was relatively small, and future research could involve a larger and more diverse participant pool. Demographic factors such as ethnicity, gender, and age could influence responses to Gestalt design, warranting investigation in future studies.

5. Conclusion

In conclusion, this study explored the application of Gestalt principles in advertising. Two groups of participants observed four advertisements employing Gestalt or non-Gestalt design principles. Eye-tracking technology provides quantitative fixation duration, and fixation count data, which reflect people's gaze attention. Compared with a Control Group lacking Gestalt designs, the results indicated that advertisements utilizing the Gestalt principle are generally more effective at capturing attention. However, the design should avoid excessive abstraction, which can negate the benefits of Gestalt

design. Overall, the Gestalt principle proves to be an effective technique in advertising for attracting viewers' attention while maintaining a balance between creativity and clarity.

Reference

Abd Aziz, N., & M. Ariffin, A. A. (2010). Exploring Consumers Attitude towards Web Advertising and its Influence on Web Ad Usage in Malaysia. Jurnal Pengurusan, 31, 55–63.https://doi. org/10.17576/pengurusan-2010-31-05

Bakar, M. H. A. , Desa, M. A. M. , & Mustafa, M. (2015) . Attributes for Image Content that Attract Consumers' Attention to Advertisements. Procedia - Social and Behavioral Sciences, 195, 309–314.https://doi. org/10.1016/j. sbspro. 2015.06.349

Beh C. , Badni, K. and Norman, E. W. L. , 2011.Eye-tracking experiment to test key emerging principles of the visual communication of technology. IN: Norman, E. W. L. and Seery, N, (eds). IDATER online conference: graphicacy and modelling 2010.

Cambridge Dictionary. (2019, October 23) . ADVERTISEMENT | meaning in the Cambridge English Dictionary. Cambridge. org. https://dictionary. cambridge. org/dictionary/english/ advertisement

Kim, D. -Y. (2010). The Interactive Effects of Colors on Visual Attention and Working Memory: In Case of Images of Tourist Attractions. International CHRIE Conference-Refereed Track. https://scholarworks. umass. edu/refereed/CHRIE_2010/ Saturday/1

Kotler, P. , Bowen, J. , Makens, J. C. , & Seyhmus Baloglu. (2017). Marketing for Hospitality and Tourism (7th ed.) . Pearson.

Lee, J. , & Ahn, J. -H. (2012) . Attention to Banner Ads and Their Effectiveness: An Eye-Tracking Approach. International Journal of Electronic Commerce, 17 (1), 119–137.https://doi. org/10.2753/jec1086-4415170105

Li, Y. -M. , Lee, Y. -L. , & Lien, N. -J. (2012). Online Social Advertising via Influential Endorsers. International Journal of Electronic Commerce, 16 (3), 119–154.https://doi. org/10.2753/ jec1086-4415160305

Liao Yun. (2006). On the use of Gestalt in modern advertising. Journal of Hubei University for Nationalities: Philosophy and Social Sciences Edition, 24 (4), 3.

Loughborough: Design Education Research Group, Loughborough Design School, pp. 179-208.

Ma Xiaofang. Poster design study based on Gestalt field theory. (Doctoral dissertation, Soochow University) .

Ohme, R. , Matukin, M. , & Pacula-Lesniak, B. (2011) . Biometric Measures for Interactive Advertising Research. Journal of Interactive Advertising, 11 (2), 60–72.https://doi. org/ 10.1080/15252019.2011.10722185

Pieters, R., Wedel, M., & Batra, R. (2010). The Stopping Power of Advertising: Measures and Effects of Visual Complexity. Journal of Marketing, 74 (5), 48–60.https://doi. org/10.1509/ jmkg. 74.5.048

Rasmussen. (1986). Information processing and human–machine interaction. An approach to cognitive engineering.

Tayebi, S. S. (2010) . "The effectiveness of design elements like picture, text and color in aesthetic products advertisement": (Comparing advertisement in two countries of Iran and Sweden).

Taylor, C. R. (2013). Editorial. International Journal of Advertising, 32 (1), 7–12.https://doi. org/10.2501/ija-32-1-007-012

Wang Shuqin. (2012). On the formal beauty and its expression of contemporary Advertising Art. Journal of Suzhou University of Science and Technology (Social Science edition), 29 (1), 92-96.

What are Gestalt Principles? (2016). The Interaction Design Foundation; UX courses. https://www. interaction-design. org/ literature/topics/gestalt-principles

Zhu, D. (2016). Researches on print advertising creative means and its classroom teaching methodology based on the principle of Gestalt psychology. Master Dissertation, Tianjin University of Technology and Education. https://kns. cnki. net/KCMS/detail/ detail. aspx?dbname=CMFD201801&filename=1017711840.nh