Eye Tracking – Mini Experiment

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Eye-Tracking Experiment: Attention Attraction in Ad Layouts Featuring Different Dog Breeds

A short motivation of your test including the stimuli:

This eye-tracking experiment investigates how the presence of different dog breeds in advertisements influences viewer attention, particularly whether certain breeds divert focus away from the product. Two similar ad designs will be compared: one showcasing a smaller, more visually appealing breed (e.g., a pomeranian) and the other featuring a larger, less conventionally "cute" dog (e.g., a bulldog). By isolating the dog breed as the main variable, the study aims to determine how the "cute factor" affects initial gaze fixations and product recall, providing insights into viewer behavior and advertising effectiveness.

The experiment will use eye-tracking software to generate heatmaps and scan paths, capturing where and when viewers focus their attention. Complementary questionnaires will gather subjective feedback on participants' impressions. It is hypothesized that smaller, cuter breeds will draw more initial attention, potentially overshadowing the product. By analyzing attention patterns and viewer perceptions, the study seeks to reveal whether "cute" animals enhance or hinder the communication of the product message, offering valuable guidance for ad design strategies.

A short description of your participants:

Participant 1: Andrea-Nicole Polk was our first participant, and has a background in design and photography. She is currently studying for a Masters in Usability Engineering.

Participant 2: Sarthak Chadha has a technical background in the field of usability particularly working on projects related to olfactory.

Participant 3: Itzel-Guadalupe Vizcaino-Garcia was the third participant in the study, he has a psychology background with a focus on organizational psychology and is doing her Masters in Usability Engineering.

Short Analysis of the heatmap and questionnaire

Andrea-Nicole Polk

Andrea's eye-tracking data revealed that her visual attention primarily centered on the text, with scattered fixations near the dog, especially around the speech bubble. She entirely missed fixating on the product, which was the ad's focal point. Her scanpath showed repetitive movements between the text at the top and bottom of the poster, occasionally straying toward the dog but bypassing the product. While she recognized the text quickly, her focus was on processing its meaning rather than engaging with other elements. Emotional and image processing was evident, as she preferred the first dog for its perceived happiness and health, influencing her overall impression of the poster. Microsaccades averaged at 250 per second, indicating intense cognitive processing, but her task awareness and the oversized subject and text diverted attention from the product and logo.

Sarthak Chadha

Sarthak focused mainly on the tagline and text, with limited and scattered fixations elsewhere on the poster. His scanpath reflected a slow, deliberate movement pattern, emphasizing text processing over image engagement. He noticed the logo in the second poster, reflecting some express fixations for overlearned stimuli but paid little attention to the product. Emotional engagement with the imagery was minimal; his preference for the first dog stemmed from its perceived friendliness, but this did not significantly influence his perception of the product. Instead, the text mattered most in shaping his impression. His microsaccades, averaging 200 per second, suggested deep processing focused on understanding the textual content rather than engaging with visual elements like the dog or product.

Itzel-Guadalupe Vizcaino-Garcia

Disclaimer: For this participant, the calibration of the eye-tracking software was not fully accurate, resulting in a slight displacement of the scanpath and heatmap. To ensure consistency in our analysis, we have assumed that the recorded gaze patterns, which appear offset, correspond to the central area where the poster is displayed. This adjustment was made to align the data with the intended focus of the study.

Itzel's attention was drawn more toward the visual elements, particularly the dog and the product in the second poster, with minimal focus on the text. Her scanpath demonstrated a top-down approach because of the prior knowledge about dogs, with attention gravitating toward the lower half of the poster. Emotional and image processing played a prominent role in her engagement, as she was influenced by her familiarity with the dog breeds. She preferred the second dog despite acknowledging the first as cuter, basing her choice on her perception of the breed's personality. Her fixation pattern showed that the product attracted more attention in the second poster, aided by its position in relation to the dog. Microsaccades reached 400 per second, indicating rapid, albeit less detailed, engagement with textual elements, with most attention directed toward the image-based elements.

Conclusion

The experiment revealed diverse attention patterns among participants, shaped by their preferences, task awareness, and familiarity with visual and textual elements. Andrea and Sarthak, focused predominantly on the text, with minimal attention to the product. Andrea's fixations and scanpath revealed repetitive

movements between textual elements, with scattered attention to the dog, highlighting the role of text dominance in her gaze distribution. Similarly, Sarthak's attention centered on the tagline, with minor focus on the logo in the second poster, while neither dog significantly influenced his decision-making or engagement with the product. Both participants' attention patterns suggest that task-dependent processing and text prominence can detract from other visual elements, including the product.

In contrast, Itzel demonstrated a more visually driven engagement, focusing on the dog and product in the second poster. Her familiarity with the dog breeds influenced her preference for the second dog, which she perceived as better aligned with its traits, despite acknowledging the cuteness of the first. Her scanpath indicated concentrated fixations on the lower half of the poster, particularly on the product, emphasizing the potential of visual elements to guide attention when appropriately positioned. This divergence highlights how individual context, such as familiarity with visual stimuli, can influence attention patterns.

The findings partially align with the hypothesis. While the smaller, "cuter" dog elicited positive emotional responses from Andrea and Sarthak, this did not consistently direct attention to the product. In Itzel's case, the larger dog captured more attention toward the product, suggesting that breed characteristics alone do not dictate gaze patterns. Instead, visual prominence and placement of key elements significantly affect attention distribution.

Key design recommendations include increasing the size and prominence of the product and logo, as these often went unnoticed due to their placement and scale. A balanced approach to the size and positioning of text and visual subjects is crucial to prevent overwhelming the audience's focus. Additionally, incorporating emotional and visual engagement strategically can enhance viewer interaction with the product, as seen in Itzel's response. The context and background of participants also play a significant role in shaping gaze behavior, underscoring the importance of tailoring ad designs to accommodate diverse audience profiles.

[Appendix:](#)

Questions:

1. **First Impressions**:
   - Did you find your attention focused on a specific element (e.g., text, image) in one poster more than the other?
2. **Recall Questions**:
   - Can you describe the main elements of the posters you saw?
   - Was there any element in either poster that you didn't notice until way later?
3. **Visual Preference**:
   - Which poster did you find more visually appealing? Why?
4. **Attention Distribution**:
   - Did you feel drawn to the product or the subject first in either poster?
5. **Emotional Response**:
   - Did the dog breed or other imagery in the posters influence how you felt about the product or ad?
6. **Ad Impact**:
   - In which poster did the product stand out more?

Additional Figures:

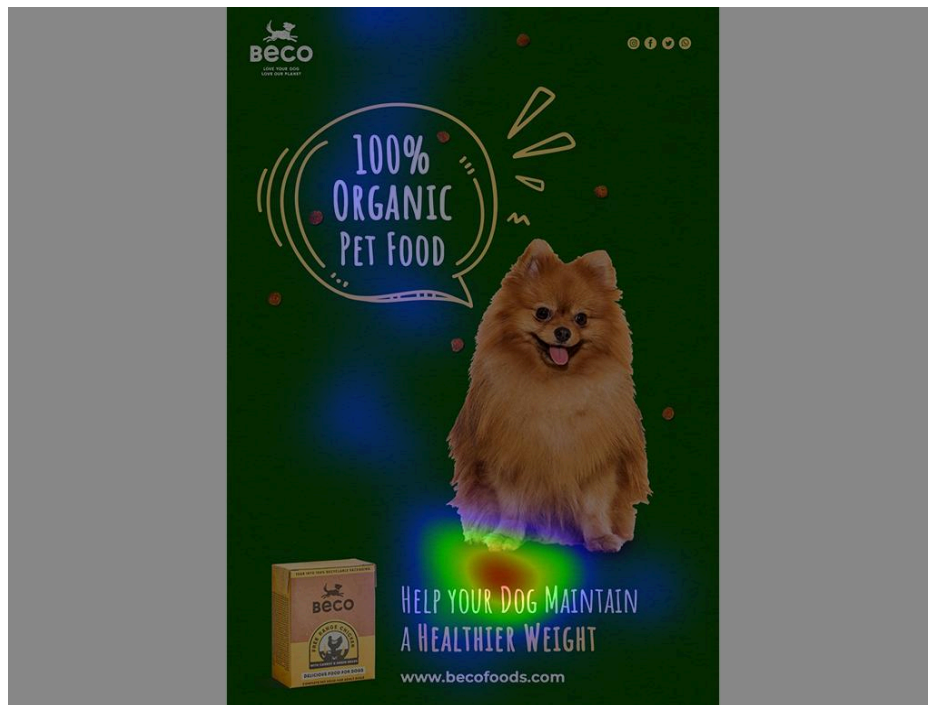**Participant 1 Heatmap and Scanpath:**
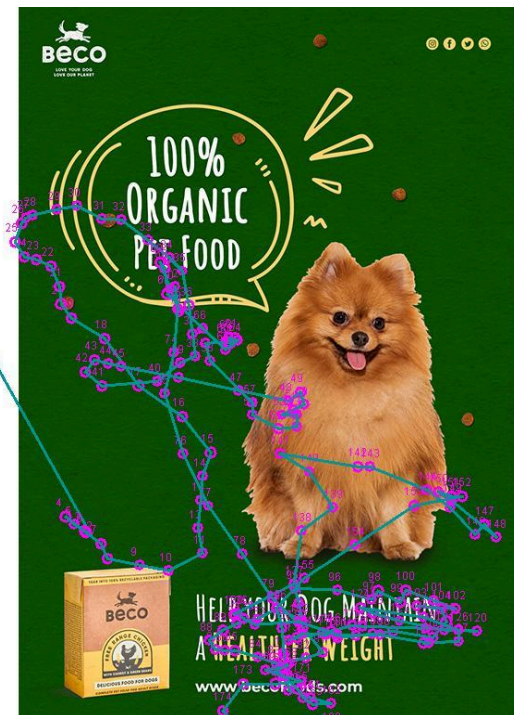
Poster 1:

Poster 2:
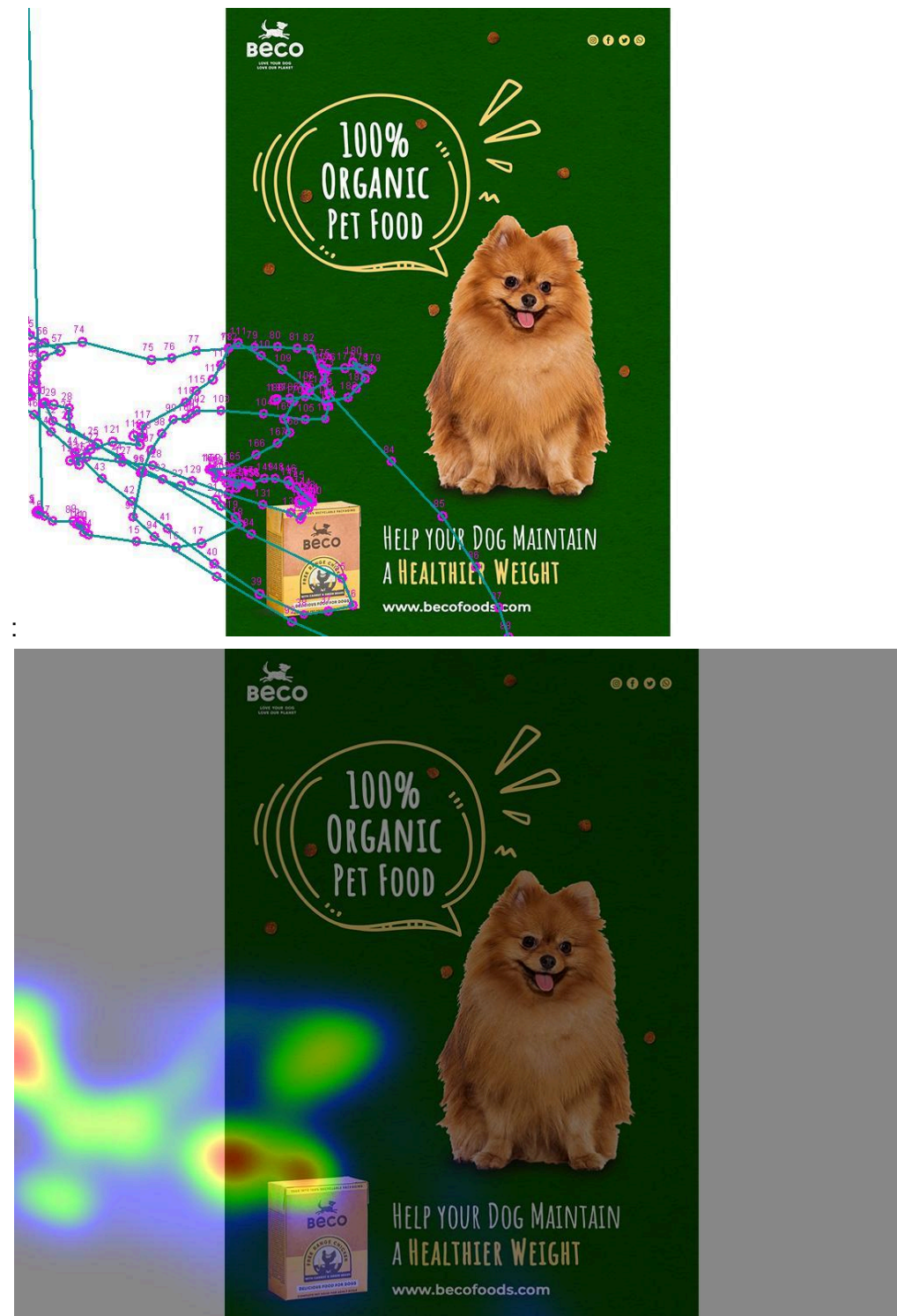
Participant 2 Heatmap and Scanpath:

Poster 1:

Poster 2:

Participant 3 Heatmap and Scanpath:

Poster 1:

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Poster 2: