

Visual Attention

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3 Given that our visual attention has limited resources, we selectively attend to areas that
4 contain salient stimuli (Wolfe & Horowitz, 2004) or that match our internal goals (Hopfinger,
5 Buonocore, & Mangun, 2000). At the same time, other areas in the visual display are often
6 overlooked. Thus, a designer should carefully consider drawing viewers' attention to important
7 information and reducing viewers' attentional load on unimportant information.

8 Web designers recently tend to present all the information on a long page, and the
9 viewers need to scroll down to see different blocks of information. This new trend is probably
10 due to frequent mobile device use in our daily life, and we become more familiar with scrolling.
11 A critical piece of information on this type of webpage is to notify people to scroll down.
12 Otherwise, this design would be a complete failure. To successfully deliver this message,
13 designers can use preattentive features, such as motion, to draw people's attention. For example,
14 on Google Drive's webpage, the down arrow at the bottom of page informs people to scroll
15 down. Although the color makes the down arrow to stand out from the background, the
16 additional movement of the arrow is the key factor that draws people's attention. Thus, dynamic
17 arrows can be useful to draw people's attention to scroll down.

18 If a webpage is filled with dynamic objects, it will create competition between
19 information. To avoid this issue, other methods should be used to draw viewers' attention. Since
20 we also tend to prioritize information that can solve our problem, a website or a mobile app can
21 emphasize its purpose and show it directly to the users. For instance, if designers want to design
22 a map app for tourists in London, they should use the same approach as a paper-based tourist
23 map by adding cartooned pictures of famous attractions on the map rather than using text labels
24 (Figure 1). This type of map will be more convenient than a regular map because the cartooned
25 pictures will draw tourists' attention and help the tourists to quickly select attractions that are
26 interesting. On a regular map, text labels of the attraction will not be differentiable from route
27 names. In addition, processing texts will be much lower than processing pictures, given that we
28 can recognize pictures as briefly as 13 milliseconds (Hagmann & Potter, 2016).

29 Directing viewers' attention to crucial information is important for designers, but
30 decreasing viewers' attentional load on less crucial information is equally important to avoid
31 perceptual competition. One way to achieve this is to repeat some aspect of the design
32 throughout the entire webpage (Williams, 2015). For instance, on a webpage, the designers often
33 enlarge the font size or use a different color for the headings. To reduce viewers' attentional
34 load, the font size or color for headings and sub-headings should be consistent throughout the
35 entire webpage. Another way is to present less crucial information at the peripheral areas of the
36 webpage. On a Facebook page, the newest posts which are the most important information for
37 the viewers are presented at the center of the webpage, but advertisement, game
38 recommendations, or Facebook groups are presented at the peripheral areas (Figure 2). This
39 layout can successfully decrease the attentional load for the viewers.

40 To conclude, the designers should not only consider how to draw viewers' attention, but
41 they should also think about how to reduce viewers' attentional load, given that we have limited
42 attentional resources.

Figure 1: A tourist map of London

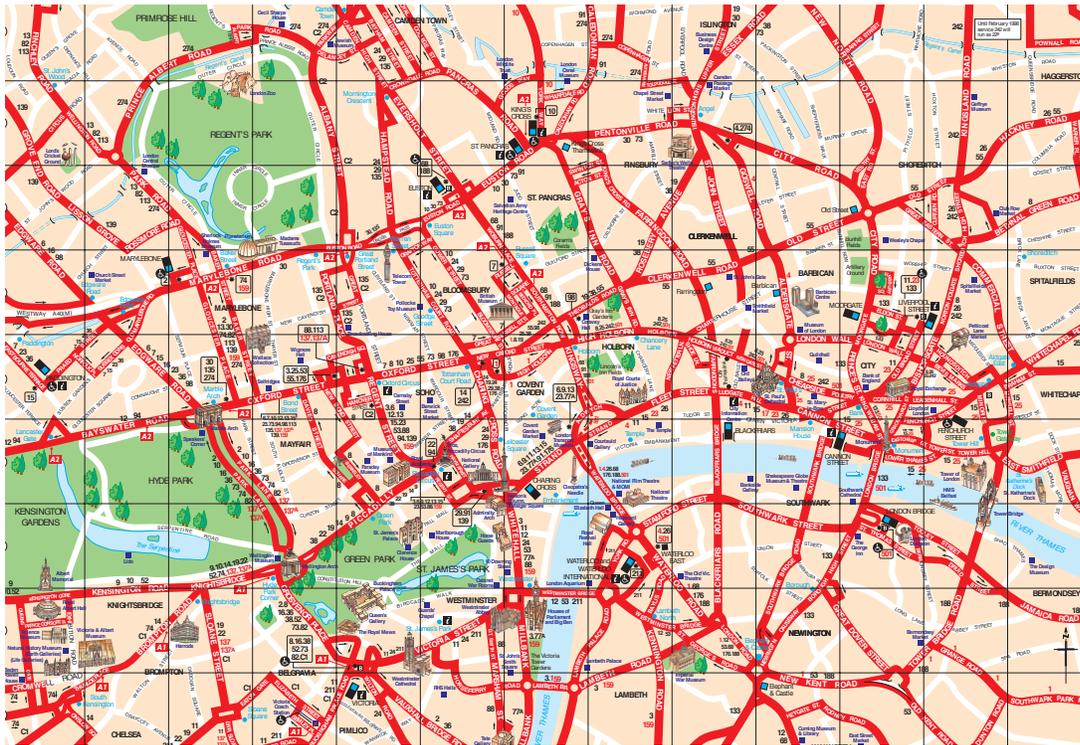
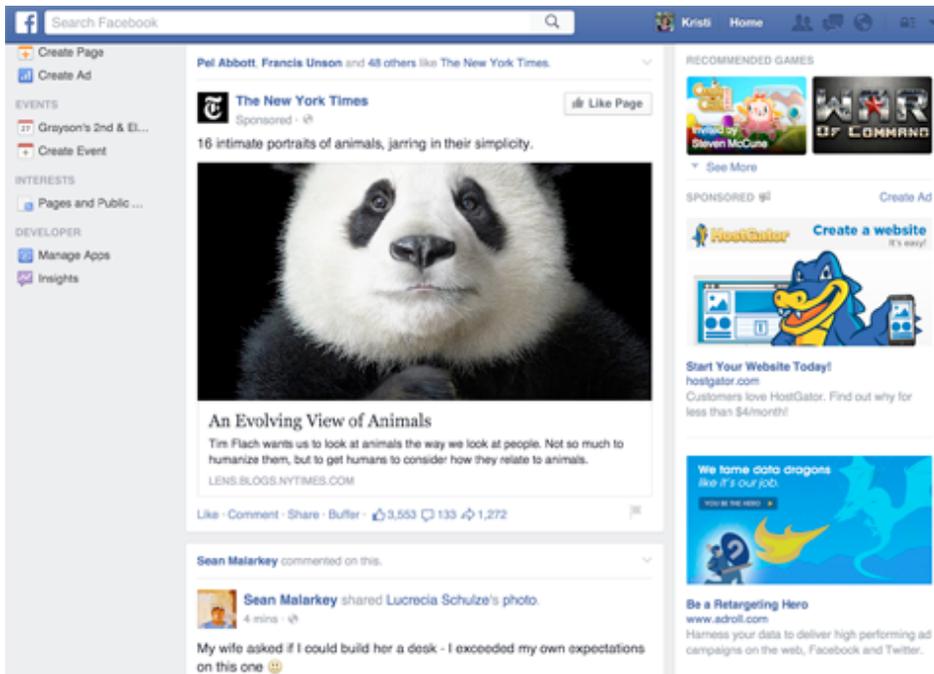


Figure 2: Facebook page



References

- Hagmann, C. E., & Potter, M. C. (2016). Ultrafast scene detection and recognition with limited visual information. *Visual Cognition, 24*, 2-14.
- Hopfinger, J. B., Buonocore, M. H., & Mangun, G. R. (2000). The neural mechanisms of top-down attentional control. *Nature neuroscience, 3*, 284.
- Williams, R. (2015). *The non-designer's design book: Design and typographic principles for the visual novice*. Pearson Education.
- Wolfe, J. M., & Horowitz, T. S. (2004). What attributes guide the deployment of visual attention and how do they do it?. *Nature reviews neuroscience, 5*, 495.