1   Considering Perceptual Mechanisms in Graphic Design
2   The goal of visual design is to communicate information to a viewer in order to support
3   goal-seeking behavior (Mullet & Sano, 1994). The same stands for the closely-related world of
4   graphic design. An issue within graphic communication arises when designs go against basic
5   properties of perception. In order to best communicate, a graphic design piece must play to the
6   mechanisms involved in perceptual processing. These mechanisms can be involved in perceiving
7   the spatial arrangement of design elements, contrast between different elements, or the details of
8   a single element.
9   Perceptual mechanisms should be considered when deciding how to spatially arrange
10   elements in a design. For instance, placing related objects close together in a visual design
11   follows the perceptual tendency to associate elements that are in close proximity. Grouping
12   objects by proximity also reduces the effort spent on neural processing and eye movements
13   (Ware, 2012). Figure 1 shows how using proximity can improve the communication of a services
14   webpage for a web design company. In Figure 1a, the three circular service graphics are far in
15   proximity, implying a very distinct separation between these three concepts that in fact all fall
16   under the same category. The descriptive paragraphs associated with each service are also far in
17   proximity from the circular graphics, suggesting that these graphics have a conceptual
18   independence from the paragraphs, which is the opposite of true. These distances are reduced in
19   Figure 1b, creating a clearer structure of the information.
20   Considering the relative presentation of different objects in a design can also benefit from
21   an understanding of perception. For example, emphasizing important elements of a design using
22   contrast plays to the nature of visual salience. Making more important elements of a design a
23   different colour or spatial frequency leads to a *pop-out* effect, drawing the viewer's attention
24   towards these elements (Wolfe, 2000). Consider the product packaging example in Figure 2. The
25   coffee grounds package design emphasizes the flavour of the grounds by making the font a
26   different colour, a larger size, and a thicker density than the other fonts on the package. Thus,
27   this information contrasts with other information on the package and captures the viewer's
28   attention. Alternatively, the package design could have emphasized the name of the coffee
29   company, making this message the strongest in the design instead. With knowledge of how to
30   create a pop-out effect, designers can manipulate the viewer's gaze and emphasize the most
31   important information in a graphic.
32   We can also consider perceptual mechanisms when designing the details of a single
33   design element. For instance, using features such as motion lines in a graphic allows the viewer
34   to perceive movement in a static image. While the implied motion perception phenomenon
35   seems unrelated to the perception of actual, dynamic motion, evidence suggests that it activates
36   similar brain areas (Pavan, Cuturi, Maniglia, Casco, & Campana, 2011). The motion-line
37   technique is often used in comics, but can also be applied to graphic design areas such as logo
38   design. Consider logos involving an object that the designer wants to be perceived as moving,
39   such as a running person or spinning spiral image. The addition of motion lines leads the viewer
40   to perceive the object in the logo as moving, even though the image is static. Thus, a viewer's
41   ability to perceive motion in a static image with the presence of attributes such as motion lines
42   allows for better graphics, as the additional feature of movement can be introduced where it does
43   not actually exist.
44   There are countless examples of good and bad design. Examining graphic designs by
45   their consideration of perceptual mechanisms allows us to illuminate why these designs succeed

46 or fail. On the whole, an understanding of human perception leads to stronger graphic
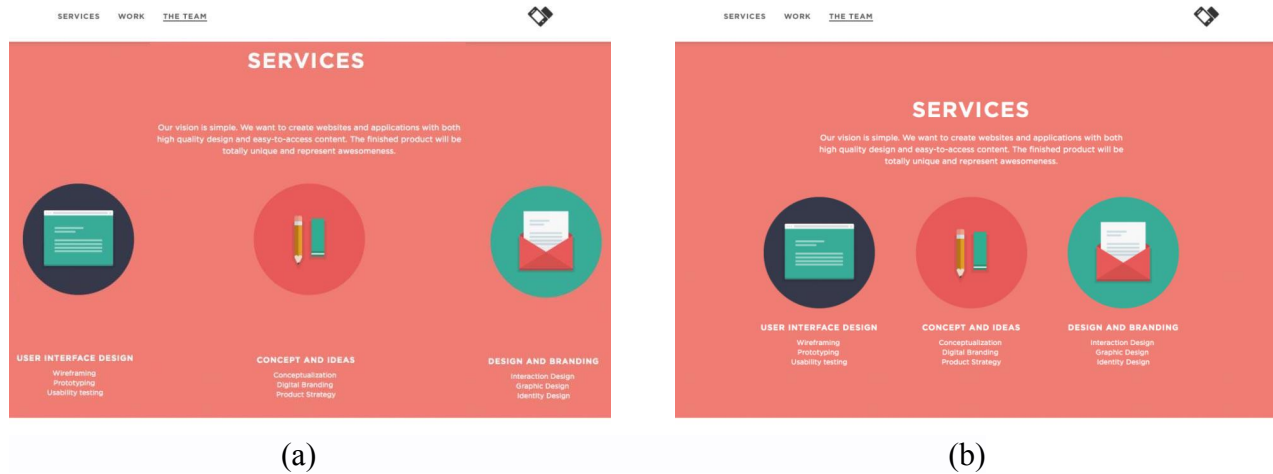47 communication.

(a)   (b)

Figure 1. (a) Poor use of proximity in the design of a webpage. Related elements are far in proximity, leading to an ineffective grouping of the information. (b) Effective use of proximity in the design of a webpage. Related elements are close in proximity, allowing an effective grouping of the information.

Figure 2. An example of contrast used in packaging design to promote visual salience. The flavours of the coffee grounds are emphasized in the design by making the font thicker, larger, and a different colour from the other fonts in the design, thus leading to a pop-out effect.

References

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