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Measuring appropriateness - perceived relationships between typography and form

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Abstract
We perceive products and elements of products as being 'appropriate' or 'suitable' for a particular context. Because the appropriateness of a design usually sits at the interface of one element of design with another, completed research in this area is sparse. 'Appropriateness' may be defined as the comparison of ascribed character to personal benchmarks. These benchmarks are applied by the designer throughout the design and production stages, by other perceivers during these stages, and by the user/viewer in experiencing the product after completion. Context and situation inform the user's perception of the product. This paper seeks to provide evidence of appropriateness and perceived relationships between design elements in the area of applied graphic design.

Keywords: perception, graphic design, visual character, appropriateness

Appropriateness, in a design language, is a woolly overarching adjective applied to a plethora of instances where something is seen as being suitable or proper for a particular application. For example, the colour red is appropriate for Italian sports cars, whereas wood veneer is appropriate for British executive cars. Likewise, British national directional signage (designed by Kinneir and Calvert) is appropriate from a legibility and functionality perspective just as Times New Roman (designed by Stanley Morrison) is appropriate for newspaper print. However, the concept of appropriateness is usually defined according to personal benchmarks. And it is this collection of personal benchmarks which flavours personal perception. Bartram suggested that the problem for the designer is:

'...one of choosing the most appropriate typeface from a set of legible ones.' (p.38)

Much of the language used by both designers and the public tends to be fairly vague in its description of design. A portfolio of words or short phrases is usually combined to sum up, for example, the 'Ferrariness' of a Ferrari or the 'New Yorkness' of New York. The practice of describing design appropriateness and character is an important element in the communication of both visual material and concepts.

The environment can be a product which hosts a typeface, or the setting a product has in relation to other products, interiors, buildings or landscapes. In printed text it is the context of a typeface in relation to other typefaces, images, the paper stock itself. Lampugnani considers design style is 'linked to the goals of functionality, economy and appropriateness'. It is suggested:

'Clearly, philosophical thought, roots buried in the past, the rules of tradition and the goals of practicality, functionality, economy and appropriateness, will always ultimately lead to a family of forms: to a style, in fact.' (ibid., p.11)

The 'goals' in yielding their own formal style have produced parallels across different design disciplines. Frutiger states:

'......the concept of the rounded arch and its appearance in Romanesque or Norman architecture closely corresponds to the tendency toward rounding in practically all the letters of the contemporaneous uncial alphabet.' (p.166)

The shape of the corporate logotype (logo) for the Ford Ka and the car itself show some common visual characteristics. The italicised
ascender of the K in the logo reflects the abruptness of the angle on the car tailgate. While the two forward thrusting ‘upsweeps’ on ‘K’ and the ‘a’ reflect the ‘forward poise’ of the car - they convey dynamism. The rounded sweep from the bottom of the ‘K’ to the bottom of the ‘a’ is similar to the profile silhouette of the car. The logotype, like the car conveys ‘compactness’, ‘agility’, ‘dynamism’, ‘innovation’, ‘poise’, ‘individuality’ and ‘simplicity’ - they have similar ‘characters’ - they are ‘appropriate’.

The combination of form and typography appropriate to a common communication concept allows a range of diverse product characters to be promoted. This is exemplified in the use of specific visual and typographic cues to create character. The comparison of descriptive words with personal benchmarks applied to each object or situation dictates the appropriateness of the product to the concept which is being communicated.

The interaction between, and juxtaposition of, elements in products can present a mixture of messages to the perceiver. Where a typeface (font) has a ‘high arousal factor’ (Berlyne p.63) in some applications it can be described as ‘appropriate’ (Walker, Smith and Livingston p.29), whereas a low arousal factor is considered ‘inappropriate’. Judgements of appropriateness are made on the basis of context - both holistic and product specific. Holistic, for example, could be that hiking boots are appropriate for mountain walking and dress shoes are appropriate for dinner parties - where the designer creates for function but has no control over the context after manufacture. Product specific, for example, could be the size of eyelets on the footwear, the thickness of laces, the material patina, the sole grip type, the packaging or cost bracket. The concept of appropriateness is further complicated by the application of marketing or advertising strategies to promote products. For instance, it is easily conceivable that an advertising photographer could photograph a pair of fine dress shoes against a very rough rock surface - to illustrate the contrast between the fine, shiny, hand-crafted qualities of the shoes against the rough, dull, natural rock. In this context the concept of contrast is appropriate to the marketing aim of accentuating the fine qualities of the shoes. Crozier’s description of Berlyne’s model showed that the Wundt (inverted-U) curve summarised relationships between people’s ratings of the hedonic (pleasure) value and the measured arousal potential of those objects. It did not consider functional aspects of design and associated levels of appropriateness. Where the hedonic value of a product was described as positive, constituent elements (taken in isolation, or in the context of the whole) had a different (hedonic) value to the overall product. However - this was viewed in relation to the underlying concept or style which was employed by the designer to communicate the product toward specific markets. Bartram noted:

‘...where the designer is trying to create a particular effect with the type (such as the evocation of the atmosphere of a Parisian restaurant) he may be willing to sacrifice some degree of legibility in order to achieve that effect.’ (op.cit., p.38)

In the three examples of ‘Heaven, Eau de Toilette’ (Figures 2, 3, 4) each typeface, or combination of typefaces have different formal
characteristics and consequently conceptual content. Figure 2 illustrates the combination of word meaning (Heaven (sic) = calmness, serenity, pleasure) and visual style. The shared values between meaning and style can be considered ‘appropriate’. In Figure 3 the amalgamation of varying typographic styles, i.e. those in a different classification system, disrupt the harmonious interplay between the two lines of text. The result of the two visually diverse elements coexisting in close proximity is a perceived ‘inappropriate’ combination. In this example the typefaces neither relate to each other nor are they perceived as portraying any logical concept. Where elements that are outside specific visual/conceptual parameters are brought together the feeling of disharmony which results can lead to a rejection of the product concept (Butter p.51). However, Figure 4 illustrates the complexities of the visual and conceptual parameters that the graphic designer works within and around. The visual style of the typefaces chosen to present the concept here could be perceived as ‘hard’, ‘industrial’, ‘anarchic’. However, if this were sympathetically applied to packaging and targeted at wealthy, streetwise, style conscious teenagers - the kind who dress in khaki and wear Doctor Martin boots - it is quite feasible that it may also work. It may not be appropriate to the traditional concept of ‘Heaven’ but it may be appropriate to the concepts and contexts within its given market.

The perceiver judges appropriateness according to prior knowledge and the context within which the product is viewed (Wilson p.12). It is virtually impossible to perceive products in total isolation - their sub-elements being viewed as constituent parts of the whole. The concept that disparate unattached elements can share meaning is referred to by Crozier:

‘The success that a typeface has in, say, providing corporate identity may be due not so much to its formal characteristics but to some shared, if unconscious, meaning, shared between the design and the image of the company or product that is identified.’ (p.158)

The observation by Walker et al (op. cit., p.31) that descriptive words used to reflect the style/nature of typefaces are inferred from the presence of other, more directly perceived qualities with which their presence is correlated in the world of objects infers that visual/formal judgements can be more directly perceived when contextualised as in application. When typefaces are descriptively judged (hard/soft, strong/weak, bright/dull, fast/slow, loud/quiet) ‘in some cases’ they can be more closely aligned to contextual visual elements than communicable concepts.

The idea of design having character appropriate for representing a concept implies that it shares values with the concept it represents (Walker et al, ibid., p.30). Each element within a design in forming a ‘whole’ product shares conceptual, stylistic, material and corporate identity values with all other elements involved in the communication process.

 Appropriateness is not directly linked to the ‘pleasure’ value of the product - it exists not as a thing of beauty but as a constituent of problem solution. Poffenberger’s and Franken’s statement that ‘it is the appropriateness of the presentation that determines whether or not the total effect shall be pleasing’ (p.312) was derived through the testing of typefaces in relation to specific non-visual concepts.

The combination of the visual and the word is used in a number of ways to devise and
conduct design experiments. Various methods employed have allowed results to be mapped across the subject elements in order to show that relationships exist between car forms and fonts.

**Experiment**

Using one of a range of experiments as an example, consensus of opinion is illustrated using mixed-sex first-year visual communication undergraduate students as participants.

A single part experiment required participants to match forms with fonts. The criterion which participants were asked to apply to the matchings was that one should be 'appropriate' to the other. Only one matching was allowed between form and font. This procedure was used until all twelve matchings were completed. Standard studio-based experiment conditions applied. This was their first exposure to this experiment type.

Forms were self-generated independent of fonts. Solid silhouettes were used in order to negate any unnecessary information processing (ie, through colour, tone, perceived associations with existing products). Fonts were chosen at random - independent of forms. Therefore, there was no priming of possible appropriate associations. In order to present a format which enabled forms and fonts to be displayed in a similar manner - a 'non-word' (sibeg), which had been tested with other non-words previously had been used to illustrate the different font styles. The forms and fonts were:

- Helvetica
- Gill Sans
- Bauhaus 93
- Chicago
- Blackletter
- Vintage Typewriter One
- Courier
- Officina
- Times
- Stencil
- Mistral
- Kells
A matrix denoting all completed matchings was constructed:

<table>
<thead>
<tr>
<th>Font</th>
<th>Font 2</th>
<th>Font 3</th>
<th>Font 4</th>
<th>Font 5</th>
<th>Font 6</th>
<th>Font 7</th>
<th>Font 8</th>
<th>Font 9</th>
<th>Font 10</th>
<th>Font 11</th>
<th>Font 12</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
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<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Font 2</td>
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<td>3</td>
<td>4</td>
<td>3</td>
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<td>3</td>
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<td>4</td>
<td>3</td>
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<tr>
<td>Font 3</td>
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<td>Font 5</td>
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<tr>
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<td>Font 9</td>
<td>3</td>
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<td>4</td>
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<td>4</td>
<td>3</td>
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<td>3</td>
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<tr>
<td>Font 10</td>
<td>3</td>
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<td>4</td>
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<tr>
<td>Font 11</td>
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<td>3</td>
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<tr>
<td>Font 12</td>
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<td>4</td>
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</tr>
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Results showed:

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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>25</td>
<td>22</td>
<td>36</td>
<td>26</td>
<td>19</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

* Participants = 29

Chi squared applied to the above statistics was as follows:

Expected value \( (E) = 29 \) divided by 12 matchings = 2.4

Observed value \( (O) = \) number of votes

\[
\text{Chi squared} = \frac{(O - E)^2}{E}
\]

<table>
<thead>
<tr>
<th>O</th>
<th>E</th>
<th>((O - E)^2)</th>
<th>Frequency</th>
<th>Chi x Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2.42</td>
<td>2.42</td>
<td>25</td>
<td>60.5</td>
</tr>
<tr>
<td>1</td>
<td>4.62</td>
<td>0.83</td>
<td>22</td>
<td>18.26</td>
</tr>
<tr>
<td>2</td>
<td>2.42</td>
<td>0.07</td>
<td>36</td>
<td>2.52</td>
</tr>
<tr>
<td>3</td>
<td>2.42</td>
<td>0.14</td>
<td>26</td>
<td>3.64</td>
</tr>
<tr>
<td>4</td>
<td>2.42</td>
<td>1.03</td>
<td>19</td>
<td>19.97</td>
</tr>
<tr>
<td>5</td>
<td>2.42</td>
<td>2.75</td>
<td>6</td>
<td>16.5</td>
</tr>
<tr>
<td>6</td>
<td>2.42</td>
<td>5.29</td>
<td>2</td>
<td>10.58</td>
</tr>
<tr>
<td>7</td>
<td>2.42</td>
<td>8.66</td>
<td>5</td>
<td>43.3</td>
</tr>
<tr>
<td>8</td>
<td>2.42</td>
<td>12.86</td>
<td>2</td>
<td>25.72</td>
</tr>
<tr>
<td>9</td>
<td>2.42</td>
<td>17.89</td>
<td>1</td>
<td>17.87</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>218.46</td>
</tr>
</tbody>
</table>

This figure of 218.46 is well in excess of the 121 degrees of freedom value, at 0.1% probability, of 174.5 - taken from probability tables (Fisher and Yates).

It can be deduced from the statistics that there is a 99.9% chance that a positive hypothesis exists. Large differences between observed and expected frequencies leads to a greater inclination to reject a Null hypothesis. While the experiment was conducted with a relatively low number of participants (29) providing an expected value of 2.42, it is probable that the consensus trend would continue with larger groups.

High-level consensus matchings were observed. Data collected has suggested that strong links exist between visual character and appropriateness. For example, Form 11 was matched highly with Font 3 and Font 10:

```
\text{sibeg} Font 3
\text{SIBEG} Font 10
```

Both font and form could be considered ‘heavy’, rounded, ‘thick-set’, ‘strong’, ‘of substance’. The combination of visual characteristics in the two typefaces can be perceived as being appropriate to the form for different reasons. Font 3 could be perceived as ‘modern’ and ‘rounded’ - having ‘soft lines’ and reflecting the flowing nature of the form. Font 10 is ‘harsh’, ‘hard’ and ‘no-nonsense’, ‘chunky’, ‘serious’ - it is physically larger than the other typefaces - just like the form.

It appears that, due to the nature of perception, different mental criteria may be allocated to similar objects by participant groups. Other examples allocated a high value of consensus were:

```
\text{Font 11 and}
\text{sibeg Form 9}
```

The visual character of the ‘sporting’ Form 9 and the italicised and ‘fast’ Form 9 have perceived similar mental characteristics. While they may not physically look similar it is probable that they have been matched because of a preconception of ‘speed’ by the participant group.

```
\text{SIBEG Form 3 and}
\text{Font 10}
```

```
\text{sibeg Form 5 and}
\text{Font 7}
```

However, the ‘chunkiness’, ‘hard rear edge’ feel of Form 3 shares visual characteristics with Font 10. Form 5, a ‘modern’, ‘low-slung’ sports
car form is matched with a 'light', 'airy', and 'modern' font. In this instance form and font share 'clarity of form', are 'uncluttered' and have 'clean lines'. A perceived matching, both visual and cerebral, of clear, uncluttered design.

Conclusion

We see the world in context. Our teapot is sitting on our worktop, in our kitchen, in our house, on our street of our town - each is contextualised by the other. Only when we see product concept visuals are they presented in isolation - but within the context of the page which is within the context of the table, in the office where they are being presented. This contextualisation leads to the creation of corporate and personal benchmarks and fuels our ability to make value judgements based on the appropriateness of one element to another. The application of typography, on the other hand is usually subsequent to the development of form and therefore 'appropriate' choice must be triggered by the character of the host. However, as the experiment shows, matching according to 'appropriateness' uses a combination of visual and perceptual processes which can be interspersed when classifying, categorising and evaluating an object.

References