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The space between us: how designers and the general population see typographic emphasis

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Abstract: The typographic emphasis of headings in a document clarifies the structure of the content for the reader as well as assisting them with locating information. The visual presentation of these headings is important so that they are effective visual markers. The typographic methods used to emphasise these headings can vary greatly and are potentially perceived different by those consuming the document compared to those who are designing it. The research presented in this paper investigates through a paired comparison study whether designers perceive the typographic emphasis methods used for headings in the same way as the general population. While the effectiveness of heading styles is generally agreed between both groups, the greatest discrepancy occurs regarding the use of spacing. Through the comparative study assessing seven methods of typographic emphasis, it was found that designers consider spacing to be more effective for indicating typographic hierarchy than those in the general population.

Keywords: typography; document design; hierarchy; space

1. Introduction

Headings serve multiple functions for readers including signalling the structure of the document to assist with understanding the content, as well as helping readers to locate information. The majority of the knowledge and recommendations for how headings should be presented in text has been developed by typographers over many years; it is primarily intuitive and concerned with the aesthetic aspects of the printed page and creating visual rhythm; however, little of this is supported by empirical research. Despite typographic research and practice often providing different recommendations, both make a valuable contribution to advancing our understanding of typographic features and their relationships (Lonsdale, 2014).

The study reported here investigates whether people with greater typographic understanding find the same heading emphasis methods easiest to identify as the general population. It

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is hypothesised that education in the field may alter the judgments made in the study. A paired comparison study was conducted with 40 graphic designers to determine whether the ease of identification of headings for graphic designers was the same as for a more general population.

2. Related Work

The design of text is affected by three main factors: the way items are ordered and grouped on the page affects the syntactic structure; restrictions of the media, such as page size, have artefactual effects; and the way the text will be used affects design decisions (Waller, 1982b). Previous studies have shown that readers can more easily discriminate greater differences between typeface stimuli, but have greater difficulty when there are subtle changes (Dyson, 2011; Sanocki, 1987) and that greater consistency improves the efficiency of letter identification when reading (Sanocki & Dyson, 2012).

Readers use headings to identify subject matter and clarify the structure of a text; they can also help draw attention to specific information (Kools et al., 2008). Disruption to the stylistic consistency of body copy text may be useful for the purpose of drawing attention to aspects of the text such as headings, as the change in visual form disrupts the reader because the changes makes the text slightly more difficult to process (Dyson, 2014). As a result, headings are important for readers when searching for information.

Headings provide at least three types of information to assist readers with searching, they can indicate distinct sections within the text, they can indicate the likely content of a section of the text, and they can create hierarchy to provide structural and relationship information (Klusewitz & Lorch, 2000a). As a visual cue headings are used to help readers discern structure, the changes in typographic appearance aid the reader in discriminating target items (Foster, 1979).

The compositional structure of a document is revealed by emphasising headings to creating a hierarchy of information in the document (Wallschlaeger & Busic-Snyder, 1992). Bosler (2012) explains that headings need to be noticeable as readers use these to know where they are in the text. Headings assist readers with understanding the structure of the text and with orientation within the content.

The importance of headings and their place within the heading hierarchy can be indicated using; size, weight, position, spacing and colour (Mitchell & Wightman, 2005; Bosler, 2012). The use of size, placement, colour and other graphic means can make it easier to locate items within a layout, including headings to assist readers by directing them to content (Jennett, 1973).

Black (1990) explains that there is a fine balance in determining typographic appearance of headings. Emphasis is often necessary to differentiate the heading structure and while emphasis should provide clear differentiation, it should also be as modest as possible and provide good clarity and assist with establishing the varying degrees of importance (Bosler,

2012). Fewer formatting dimensions is more useful to readers, as using a greater number of variations is likely to lead to confusion (Williams & Spyridakis, 1992). Consideration needs to be given not just to creating headings which are sufficiently emphasised, it is also important that they do not disrupt the flow of reading. Typographic elements such as headings and subheadings create a break in the rhythm of the text on the page. After the break, the text should return to its rhythm (Bringhurst, 2004).

The perception of headings was also studied by Williams and Spyridakis (1992), where they used a card sorting study to compare four typographic emphasis methods (type size, underlining, case and position) of different combinations. Their study focussed on four typographic emphasis methods (type size, underlining, case and position), that can be used for emphasising a heading and different combinations of these four attributes. For their study, they asked participants to sort index cards which were printed with paragraphs of dummy text and headings into an order which reflected the most important headings through to the least important. They found that when used alone, increasing type size was considered the strongest indicator of hierarchy for headings and that relative, rather than absolute, size difference provided the greatest indicators of hierarchy, with a difference of approximately 20 percent being the most useful. They suggest that to create headings the fewest formatting dimensions possible should be changed to create the necessary number of heading levels.

Paterson and Tinker (1940) found no difference in reading speed between text that is bold and that which is regular lowercase type. Readers in the same study though felt that it was less legible, but because it has greater visibility than regular text Paterson and Tinker recommend using bold for emphasis of text content such as section heading. "Although some designers may have a strong esthetic (sic) objection to boldface for headings, this does not mean that readers react the same way" (Tinker, 1966, p. 136). Research

In his discussion of Bold as an ideal method for emphasising headings, Tinker (1966) suggests that although designers may or may not prefer certain methods of typographic emphasis, these preferences may not always be what is preferred by readers. Research conducted by Bartram (1982) found that design students perceived the semantic associations of typefaces differently to non-design students.

3. Paired Comparison Study

A paired comparison study was undertaken with 40 graphic designers to compare whether their perception of the effectiveness of typographic emphasis methods was the same as those from the general population.

3.1 Method

A balanced paired comparison study with graphic designers was conducted to determine whether graphic designers perceive the emphasis of headings within a text differently to

those who have had no formal visual design education or experience. This study employed a paired comparison method where all of the stimuli were presented to participants in comparison to each of the other stimuli and participants asked to evaluate them in relation to each other Davis (1988).

A paired comparison method, as described by David (1988), was employed as it is an effective method for establishing a ranked order of preference for a number of items when a direct comparison can be made directly between two items. It is especially useful when the judges of the items may perceive little distinct difference between items, meaning that decisions on order in a card sorting activity may become arbitrary. There was potential for participants in this study to feel that the differences between the compared items were subtle and the paired comparison method helps to avoid choices being made on arbitrary factors (David, 1988; Cattelan, 2012).

The material developed for the study consisted of the same passage of text, one page long, with three headings spaced throughout the page formatted according to the typographic emphasis method being assessed. The body copy was consistently presented as 9-point Times New Roman with 13-points of leading. The column of text was 98mm wide and 175mm high, presented on a page 176mm wide and 250mm high.

Figure 1 Examples of each heading style (Top l-r: Control, Bold Sans Serif. Middle l-r: Italic, Size, Capitalisation. Bottom: Spacing.)

The seven typographic emphasis methods compared in the study, as illustrated in Figure 1, were:

- **Control** (no difference between the heading and body text)
- **Bold**
- **Italic**
- Increased **Spacing** between the heading and the body copy
- **Sans Serif** (Helvetica)
- **Capitalisation**
- A **Size** increase 20% larger than the body copy

Each heading style was shown paired with each other heading style, which resulted in each participant being shown 21 pairings to compare. Figure 2 shows the pairing of the Bold style (left) and Control style (right). The 21 pairings were bound into an A3 booklet and shown in one of four random orders. The pairings were also alternated between sides of the page to attempt to eliminate bias.

Figure 2 *Example of text materials (Bold and Control)*

For each pairing they were asked to indicate which passage of text the headings were easiest to identify or whether they felt they were equally easy or difficult. Ease of identification was explained to participants as how easy they felt it was to visually recognise the headings in relation to the body copy surrounding them.

3.2 Sample

Demographic information was collected from participants at the commencement of the study, including gender, age and their background; student, industry professional or design educator. Potential participants were defined as “graphic designers” if they had more than two years of visual design or typographic education at a tertiary level or if they had more than one year of experience working in the visual design industry. A total of 40 graphic design participants took part in the study.

Twenty (50%) of the graphic design participants were design students, 15 (37.5%) were industry-based professionals and 5 (12.5%) were design education professionals.

Figure 3 Gender of participants, graphic designers (n=40) and general population (n=100)

Figure 3 shows the balance of genders in the two sampled populations. In the group of designers with 17 (42.5%) of the participants being male and 23 (57.5%) female. In the sample of participants from the general population a similar gender balance was seen, 38% were male and 62% were female.

Figure 4 Age of participants, graphic designers (n=40) and general population (n=100)

The spread of ages in both populations was also similar, these samples are shown in Figure 4. Participants in the 17-25 age bracket made up 57.5% of the designer participants and 46% of the general population. In the group of designers 25% of the group were 26-35, whereas in the general population 23% fell into the same age bracket. The group of graphic designers was made up of 10% 36-45 year olds compared to 14% of the general population. Participants in the 46-55 age bracket made up 5% of the designers and 8% of the general population. The remaining 2.5% of the designers were over 56 years old and 8% of the general population were above 56 years.

4. Results

The data collected from the paired comparison was analysed using a head-to-head comparison method to create totals to reflect the ranking of the items being compared (David, 1988). The total number of favourable choices for each heading style was tallied for each pairing as well as an overall tally to create a ranking of the seven heading styles being compared. The results in Table 1 show the percentage of choices in favour of the heading style in the column when compared to the heading style in the row. A favourable choice contributed '1' to the total, and a neutral response contributed '0.5' to both of the heading styles being compared.

Table 1 Preference tally for graphic designers compared to the general population as percentage

Graphic Designers (n=40)							General Population (n=100)						
Control	Bold	Italic	Spacing	Sans Serif	Caps	Size	Control	Bold	Italic	Spacing	Sans Serif	Caps	Size
---	95		100	96.25	92.5	97.5	Control	---	99	74.5	90.5	90	91
5	---	17.5		15		12.5	Bold	1	---	11.5	26.5	27	27
	82.5	---	72.5	56.25	65	52.5	Italic	25.5		---	65	68	72
0		27.5	---	37.5	30		Spacing	13.5		35	---	65	63
3.75	85		62.5	---	40	65	Sans Serif	9.5		32	35	---	66.5
7.5		35	70	60	---	50	Caps	10	73	32	37	64.5	---
2.5	87.5	47.5		35	50	---	Size	9	73	28	33.5		---
7.08	84.6	41.3	64.8	50.0	49.0	54.0	Total (%)	11.4		35.5	58.0		62.9

*

0-19%	20-39%	40-59%	60-79%	80-100%
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Shown at the bottom of each column in Table 1 is the total number of choices in favour of each of the heading emphasis methods (out of a possible 240 for the graphic designers and 600 for the general population), as well as a percentage of times each heading emphasis method was chosen across all of its paired comparisons.

Within the population of 40 designers there are some differences to the preferences of the general population for the frequency each of the heading emphasis methods were chosen as being the most easily identifiable in a pairing. As with the general population, Bold was most frequently chosen as the more identifiable heading emphasis method in a pairing, being chosen 84.58% (203) of situations. The second most frequently preferred heading emphasis method amongst designers was Spacing, chosen 64.17% of the time, more frequently than the second ranked heading emphasis method with the general population, Size (62.92%). Size was the third most frequently chosen heading emphasis method being chosen by designers in 53.96% of instances, followed by Sans Serif being chosen overall in 50% of pairings. Capitalisation was chosen by designers in less than half of its paired comparisons, at 48.96%, followed by Italic which was chosen 41.25% of the time. The Control was again the least frequently chosen heading emphasis method with just 7.08% preference choices, scoring 17 out of a potential 240.

The most surprising result seen in the head-to-head comparison is that all 40 of the participants chose Spacing over the Control, this was the only perfect agreement between all participants in any of the pairs across all of the studies conducted. Also of note is that in the pairing of Capitalisation and Size, each was chosen an equal number of times (20).

4.1 Neutral Choices

Neutral choices by participants were recorded when an individual either could not discern the difference between the two heading emphasis methods being shown to them in a paired comparison, or if they felt the two heading emphasis methods were equally easy, or equally difficult, to identify as headings from the surrounding text. Table 2 shows the percentage number of times each pairing was given a neutral response by a graphic design participant or general population participant.

In the general population, 5.42%, approximately 1 in every 18 choices made, were neutral. In the sample of designers who participated in this study, neutral choices were made less frequently than in the general population. Overall, only 2.86% of choices made by the designers were neutral. The greatest number of neutral choices by designers occurred with the Italic heading condition (4.17%), and the greatest number of neutral choices between a single pairing being the comparison of Italic and Sans Serif. With the general population the greatest number of neutral choices was made with Sans Serif headings (8.0%), and the greatest number of neutral choices for a single pairing was between Sans Serif and Size.

Many pairings had no neutral choices made for that pairing of heading emphasis methods including; Bold/Control, Spacing/Control, Sans Serif/Spacing, Capitalisation/Control, Capitalisation/Spacing, Size/Control and Size/Italic with the design group. In the general population there was only one pairing that had no neutral responses, Control/Bold.

The group of designers made just 2 neutral choices with the control (0.83%), one in comparison to Italic and one when compared to Sans Serif.

Table 2 Neutral choices percentages for graphic designers and the general population

Graphic Designers (n=40)								General Population (n=100)							
Control	Bold	Italic	Spacing	Sans Serif	Caps	Size		Control	Bold	Italic	Spacing	Sans	Caps	Size	
---	0	2.5	0	2.5	0	0	Control	---	0	11	11	7	4	6	
0	---	5	2.5	2.5	5	5	Bold	0	---	3	5	9	8	4	
2.5	5	---	5	7.5	5	0	Italic	11	3	---	6	8	8	4	
0	2.5	5	---	0	0	2.5	Spacing	11	5	6	---	4	4	3	
2.5	2.5	7.5	0	---	5	5	Sans Serif	7	9	8	4	---	7	13	
0	5	5	0	5	---	5	Caps	4	8	8	4	7	---	7	
0	5	0	2.5	5	5	---	Size	6	4	4	3	13	7	---	
0.8	3.3	4.2	1.7	3.8	3.3	2.9	Total (%)	6.5	4.8	6.7	5.5	8.0	6.3	6.2	

*	0-0.9%	1-5%	6-10%	11-15%	16-20%
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4.2 Preferences of Student and Professional Graphic Designers

The graphic design participants were asked whether they were students or professionals (industry and educators). The sample were equally divided between the two groups, with 20 participants identifying themselves in each group. A comparison of the relative preferences of each of these two groups within the graphic design population shows both similarities and differences.

As seen in Table 3, showing preferences choices for each heading style for students compared to industry participants, there is little difference between the responses from students compared with professionals. Both groups had a clear preference for Bold, followed by Spacing. The professionals then showed little difference between Sans Serif, Size and Capitalisation, followed by Italic and lastly Control. Whereas, the students had a stronger preference for Size and ranked Sans Serif, Capitalisation and Italics all closely grouped, with the Control by far the least preferred.

Table 3 Preference tally for students compared to industry participants as percentage

Students (n=20)								Industry (n=20)							
Control	Bold	Italic	Spacing	Sans Serif	Caps	Size		Control	Bold	Italic	Spacing	Sans Serif	Caps	Size	
---	92.5	77.5	100	92.5	85	95	Control	---	100	75	100	100	100	100	
10	---	17.5	32.5	7.5	17.5	7.5	Bold	0	---	17.5	20	22.5	15	17.5	
22.5	82.5	---	72.5	52.5	60	50	Italic	25	82.5	---	72.5	60	70	55	
0	67.5	27.5	---	25	25	45	Spacing	0	80	27.5	---	50	35	47.5	
7.5	95	47.7	75	---	40	65	Sans Serif	0	77.5	40	50	---	40	65	
15	82.5	40	75	60	---	57.5	Caps	0	85	30	65	60	---	42.5	
5	92.5	50	55	35	42.5	---	Size	0	82.5	45	52.5	35	57.5	---	
10	85	43.3	68	45	45	53	Total (%)	4.2	85	39.2	60	54.6	52.9	54.6	

*

0-19%	20-39%	40-59%	60-79%	80-100%
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Comparison of the responses of the two subgroups within the designers show that there are only subtle differences in the responses.

4.3 Comments

Pertinent to the comparison with the graphic design population though are those comments from the general population that relate to the reasons for preference (or lack thereof) for Bold, Spacing and Size. The designers seemed less inclined to make comment when participating in the study, with far fewer comments overall being recorded. In print, many general population participants commented that Bold stood out more and created “more distinct” items, rather than indicating “more fluid content”. Another participant also recognized the need for headings to not be so distinct or obtrusive that they interrupt the flow of reading; this positive perspective on Spacing was that it provided better flow than Capitalisation, which interrupted the page and flow of reading too much. Several participants felt that Spacing alone was not enough to indicate a heading as it may be mistaken for a single line paragraph, “When there’s a gap I don’t think of it as a heading”. One participant in the general population commented on their preference for both Bold and Spacing, which was against the trend of the general population, but aligns with the designers’ choices. Other participants liked Spacing in some situations and not others.

The graphic designers’ comments on Spacing reflected practical considerations; analysis by one participant suggested that light conditions might dictate which is better, in low light conditions space might be more effective than methods such as Bold. One participant commented that he liked both Bold and Spacing and felt they were both important and this was brought to his consciousness when seeing the two compared.

5. Discussion

This section discusses the results of the paired comparison study conducted with graphic designers to understand which styles of heading emphasis they find easiest to identify in a passage of text. The results from this study are compared to those of a previous study undertaken with a general population. This study sought to understand if there were differences in the way designers perceive typographic emphasis.

5.1 The General Population Compared to Designers

The relative ease of identification for the graphic designers compared to the general population for each of the heading styles can be seen below in Table 4.

Table 4 Ranking of preference for graphic designers and general population

	Graphic Designers	General Population
1	Bold	Bold
2	Spacing	Size
3	Size	Sans Serif
4	Sans Serif	Capitalisation
5	Capitalisation	Spacing
6	Italics	Italics
7	Control	Control

As was the case amongst the general population, Bold was also considered the most easily identifiable of the seven heading styles. In his discussion of Bold as an ideal method for emphasising headings, Tinker (1966) suggests that although designers may prefer or not prefer certain methods of typographic emphasis, these preferences may not always be what is preferred by readers. In this study, bold was preferred by both designers and non-designers, but their second preference differed.

The only change in rank order between the two groups of participants was the placing of Spacing within the ranking, all other heading styles remained in the same order. Spacing moved from being ranked fifth with the general population, to being ranked second with the graphic design participants. The leap in ranking of Spacing is the only distinct difference between the results of the two groups and there was little difference in the preferences between the student participants and the industry participants. Dyson (2014) explains that the ability to recognise differences between typefaces through categorical perception is easier for those who have had training. The importance of interlinear spacing or leading is known by designers. Sufficient leading improves legibility and increases reading speed for readers (Chung 2004; Paterson & Tinker, 1940).

Size was ranked the second most easily identifiable heading style with the general population. Size as a heading emphasis method in Study 1a had greater visual weight than

most other heading styles that were compared, but was not as easily identifiable as Bold for indicating a heading.

As Dyson (2004) explains, no typographic variable can be viewed in isolation and any change in typographic appearance will influence the perception of all other surrounding text.

Spacing was ranked fifth by the general population, but second overall by the graphic designers. Spacing is considered by designers to be an important consideration in typesetting, allowing for ease of reading and definition of relationships between aspects of the text. In contrast, this typographic feature does not seem to be viewed by the general population with the same level of importance when it comes to ease of identification for headings. Comments made by the general population seem to indicate that when Spacing alone is used to indicate a heading to readers, it can be perceived as a paragraph which is a single line of text – it does not create enough visual distinction to be used alone.

The use of Sans Serif gives a greater visual weight without the use of Size or Bold and also uses a change in style to create further difference to the appearance of a heading. This heading emphasis method gives the greatest visual change between the heading and body copy in this study, but does not have the same visual weight as Bold.

Italics was consistently ranked sixth of the seven heading styles in all environments and across all populations, it does not provide sufficient visual weight compared to the body copy text when used alone. The relative ranking of Capitalisation changed considerably between environments and populations. With the general population, it was ranked fourth, in comparison, it was ranked fifth by the graphic design participants.

Calculations were made to understand how consistent the responses were for the paired comparison study. In a paired comparison study, the choices made by an individual participant may not always be consistent, the degree of consistency within a participant's choices can be calculated as a coefficient of consistence (Kendall, 1970).

The lowest coefficient of consistence score for a designer was 0.5 with all but six (15%) having a coefficient of consistence of 0.7 or higher. Three designers (7.5%) had a coefficient of consistence of 1, meaning that they were completely consistent across all of their choices to create a perfect ranking of the seven heading styles. For the 40 graphic design participants, the average coefficient of consistence was 0.804. The lower number of neutral choices made by the designers in this study is also reflected in the higher coefficient of consistence calculated for this group.

In the general population, 96% of participants had a coefficient of consistence of 0.5 or higher. All of the design participants had a coefficient of consistence of 0.5 or higher. Therefore, with the graphic design participants, as with the general population, the choices made were unlikely to be made at random, despite not exhibiting perfect consistency.

The Coefficient of Agreement, defined by Kendall (1970), is used to help understand the degree of agreement between participants' in a paired comparison, as even if several participants have a coefficient of consistence of 1, they may still not agree on the order of

their choices. The coefficient of agreement for the designers (0.335) was higher than that for the general population (0.294). This means that there was greater agreement between the paired comparison choices of the designers than in the general population. Greater agreement does not necessarily mean a higher level of consistency; there can still be a high level of agreement between inconsistent responses.

5.2 The Importance of Spacing

Spacing was considered by the designers to be the method of typographic emphasis giving the second greatest ease of identification, after bold. A comparison of these two heading styles is shown in Figure 5.

Figure 5 Comparison of 'Bold' and 'Spacing' headings used.

The reason for graphic designers viewing Spacing so differently to the general population is likely due to the use of space as a method for creating emphasis and indicating headings; graphic designers are therefore more attuned to the semantic associations that spacing can indicate. The general consensus among typographers regarding the use of spacing for headings is that there should be more space above a heading than below so that the heading is closer to the text it directly refers to and creates a semantic relationship (Mitchell & Wightman, 2005; Twyman, 1981; Williams & Spyridakis, 1992).

The gestalt principle of proximity is a key idea in regard to visual organisation and grouping of information. The proximity of two objects influences the perceived relationship of those objects and can assist with creating emphasis in combination with other visual organisation or gestalt grouping laws (Wallschlaeger & Busic-Snyder, 1992). To make something that is important stand out from surrounding objects it can be placed away from the content surrounding it (White, 2002). Objects that are placed closer together are viewed as being more closely related to each other and those that are further apart are viewed as less closely related (Wallschlaeger & Busic-Snyder, 1992).

Bringhurst (2004) discusses the importance of spacing in the typographic layout of headings and provides recommendations for the effective use of space when defining a heading style of hierarchy of headings. These recommendations include ensuring that any additional spacing is in multiples of the leading of the text. However, he does not recommend the use of Spacing as the sole indicator for a heading in text.

The use of spacing to create hierarchy adheres to the general principles of sematic association, that an object will have a closer relationship to the items it is placed most closely to (Wallschlaeger & Busic-Snyder, 1992). Bringham (2004) discusses the importance of spacing in the typographic layout of headings and provides recommendations for the effective use of space when defining a heading style of hierarchy of headings. These recommendations include ensuring that any additional spacing is in multiples of the leading of the text. However, he does not recommend the use of Spacing as the sole indicator for a heading in text.

Design education and an assumed better understanding of typography was shown to mean that participants are more certain about their choices regarding identification of headings and choices that are more consistent than the general population. This was reflected in the consistency of choices made by the designers, both within the 21 choices that each individual made, and across the pool of participants. The Coefficient of Consistence scores were on average far higher in the group of graphic design participants, then the general population. Likewise, the Coefficient of Agreement for the graphic design participants was closer to 1, and perfect agreement than the general population.

5.2 Neutral Choices

In this study the graphic design participants made fewer neutral choices than the general population did in the previous study, with the graphic designers making almost half as many neutral choices as the general population when posed with the same decisions. The smaller proportion of neutral choices could be attributed to the designers being more aware of the stylistic changes in typographic appearance and more attuned to subtle design changes based on their education and industry experience.

In the general population, pairings that included the Sans Serif heading style had the highest proportion of neutral choices made regarding them. However, amongst the graphic design participants pairings containing the Italic heading style had more neutral choices for them (10) than pairings with a Sans Serif heading style (9). The Sans Serif/Italic pairing had the greatest number of neutral choices for it (3). With a low number of neutral choices across just 40 participants, it is hard to draw any strong conclusions from those pairings or heading styles that had more neutral choices than others.

There were several pairings where no neutral choices were made, indicating that participants were more certain about the choices they were making about these pairings. No neutral choices were made in four of the six pairings with the Control heading style as well as with Sans Serif/Italic, Spacing/Sans Serif and Spacing/Capitalisation. These were not necessarily the pairings in the general population that had the fewest neutral choices. This also resulted in just two neutral choices being made for pairings with the Control heading style. Combined with the Control only having a total of 17 choices for it in all pairings this indicates that designers were certain about the Control heading style not providing satisfactory typographic emphasis to provide ease of identification for the heading.

5.3 Limitations of the Study

The population of designers surveyed was smaller than that of the previous study with the general population and therefore the smaller sample size may mean that despite the demographic parameters of the two groups being similar, the results are not as easily compared to the general population. The selection of the population of graphic designers for the study could also have been refined to limit the number of students and focusing on only recruiting participants who had a minimum of three years of graphic design education or more than a year of industry experience. This may have produced more distinct differences between the two groups of participants., however, the results from this study showed that the differences in responses between the two groups of designers varied little.

6. Conclusion

This paper reported on the results of the paired comparison study comparing the preferences for heading emphasis methods of a group of graphic designers with a general population. The purpose of this study was to understand if those with knowledge and experience in design find the same heading styles easiest to identify. With this different group of participants, Bold, was found to be the heading style that was most easily identified within a passage of text, as was also the case with the general population. The heading style that was second easiest to identify with this group of participants was Spacing, which differed to the general population. It is anticipated that the medium of reading may have an influence on the perception and identification of the headings within the text. It is intended that future studies will investigate the differences in ease of heading identification between print and screen.

The results of the study into graphic designers' preference for heading emphasis methods, show that designers understand typographic hierarchy differently. Overall, they ranked Bold as the easiest heading emphasis method to identify, but their perception of Spacing, ranked second, compared to fifth in the general population, means that their perception of headings is different to that of the general population. Therefore, designers need to be conscious when typesetting that those they are designing for may not perceive the typographic hierarchy in the same way as they do.

These findings imply that bold is a heading emphasis method that should be given preference when choosing how headings should appear within a text. However, the use of space should be used in such a way that it is not the sole distinguishing factor for discriminating an important typographic feature such as a heading. Designers should consider combining the use of spacing for emphasis of a heading with a second variation in the typographic appearance to help ensure that readers are more likely to identify the heading text easily. The combining of two heading emphasis methods should be considered in future studies.

7. References

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