Chapter 8
Readers with Disabilities

8.1 Readers with Visual Impairment

Nolan (1959) tested 264 children with visual impairment aged between 8 and 20. Half of the children counted as legally blind, but the others did not. Within each group, the children were randomly assigned to different subgroups to read material presented in either 18-point type or 24-point type in either a serif typeface (Antique with Old Style) or a sans serif typeface (Metrolite Medium). The material itself consisted of 72 paragraphs, each of about 90 words; after reading each paragraph, the children had to answer a short comprehension question by choosing one of five alternative words. Nolan measured the number of paragraphs that they had read in 30 min, statistically adjusted for variations in their reading comprehension.

The results showed that the children with better vision read faster than the children with poorer vision, and that the material presented in Antique with Old Style was read more quickly than the material presented in Metrolite Medium There was no significant difference in reading speed between the two type sizes, and there were no significant interactions among the effects of reading ability, type size, and typeface. Nolan commented that Metrolite Medium had needed a greater line length than Antique with Old Style, and she suggested that it was this feature rather than the absence of serifs that explained the slower reading time. In fact, Nolan had standardised the line length at 8.5 in. (21.6 cm) in all four sets of material. Consequently, the material that was presented in Metrolite Medium would have needed more lines, which suggests that it was the number of lines rather than the presence or absence of serifs that had given rise to differences in reading performance between the two typefaces.

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8.2 Shaw's Research

During the 1960s, Alison Shaw was commissioned by the UK Library Association (now the Chartered Institute of Library and Information Professionals) to study the reading capabilities of people designated as *partially sighted*, defined as those who had difficulty reading normal sized book print but whose sight could not be fully corrected by the use of spectacles. The findings of the research were published as a formal report (Shaw, 1969). Shaw also published three short journal articles about the study, but these omit key information about her research methods and data analyses, and so this account is based on her formal report.

Shaw decided to investigate her participants' capacity for reading continuous printed text at a close reading distance (p. 9). She chose to investigate separate samples of adults and children, with a primary focus on the former (p. 17). She identified four aspects of the text which might be important: typeface, type weight, type size, and type spacing. With regard to typeface, she compared Plantin, a serif typeface which had been developed in 1913 by the Monotype Corporation, and Gill Sans, the sans serif typeface developed in 1928 by Eric Gill. She argued that these were representative examples of serif and sans serif typefaces that were relatively similar in terms of their x-height and their width (p. 23). With regard to weight, she compared the medium and bold versions of these two typefaces. With regard to size, she used 12-, 14-, 16-, 18-, 20-, and 24-point sizes. Each participant was tested to determine their visual acuity, and they received material in two successive point sizes that were just below and just above their acuity threshold (e.g., 16-point and 18-point sizes) (p. 24). With regard to spacing, she used four combinations of inter-letter, inter-word, and inter-line spacing (pp. 24–25), which yielded 32 different combinations of typeface, weight, size, and spacing.

Each participant received four of these 32 combinations. The materials consisted of short passages of common words that were combined to yield grammatical but semantically anomalous sentences (e.g., "Hungry bridges describe expensive farmers": p. 32). Each of the passages consisted of six sentences printed in five lines containing 38–41 characters. One passage was assigned to each of the 32 conditions, but a pre-test was carried out using ten readers with normal vision to ensure that the 32 passages were of comparable difficulty (p. 33). The conditions assigned to different participants and the order of their administration were counterbalanced using Graeco-Latin squares (p. 29).

Shaw measured the number of words in each passage that were read aloud correctly and the time taken to read them. She used this information to calculate the average time per correct word and normalised the latter by dividing it by the average time per word taken by the normal readers to read each passage. There was a positive correlation between the mean and the variability of the normalised data, and so the logarithms of these data were used. Finally, the four transformed values for each participant were expressed as deviations about their mean value in order to eliminate differences among the participants (p. 37). Multiple regression analyses

were then used to identify the factors that were responsible for significant variations in performance.

A total of 288 adults with visual impairment were recruited through government agencies and voluntary associations. Shaw compared their characteristics with those of the population according to national statistics, and she concluded that the sample was broadly representative of the national population of adults with partial sight (p. 53). The multiple regression analysis found that an increase in type size from the smaller size to the larger size led to an improvement of reading performance of 16%; an increase in the type weight from medium to bold led to an improvement of 9%; changing the typeface from serif to sans serif led to an improvement of 4%; and variations in spacing did not lead to a significant change in reading performance (p. 50). Shaw noted that her findings contradicted "traditionalist views that a serif face is always more legible than a sans serif" (p. 61), and she concluded that the effect of differences between the two typefaces was of minor importance compared with the effects of size and weight (p. 65).

Shaw compared various subgroups in the sample of adults with visual impairment. The most common causes of visual impairment (some adults had more than one cause) were:

- **Cataract**. This condition involves progressive cloudiness in the lens of the eye.
- **Glaucoma**. This condition involves damage to the retina or optic nerve.
- **Macular degeneration** (often known as age-related macular degeneration). This causes impaired vision in the centre of the visual field.
- **Myopia** (short-sightedness). In its severe form, this may be due to glaucoma or retinal detachments.

Comparing these subgroups, changing the typeface from serif to sans serif had significantly benefited participants with macular degeneration but not the other three subgroups (p. 50). Independent of this, 72 exhibited a congenital impairment, having been affected since birth or early childhood, whereas 112 exhibited an acquired impairment, having been affected since the age of 50 (p. 43). Changing the typeface from serif to sans serif had benefited the latter but not the former.

Shaw also recruited 48 children with visual impairment who had a reading age of at least 11 from schools for partially sighted children. Once again, Shaw compared their characteristics with those of the national population, and she concluded that they were representative of older, brighter children in schools for partially sighted children (p. 56). The multiple regression analysis found that an increase in type weight from medium to bold led to an improvement of reading performance of 7%, but that variations in type size, typeface, or spacing did not lead to a significant change in reading performance (p. 50). The most common causes of visual impairment were myopia, cataract, and nystagmus (which causes visual impairment by disrupting the normal pattern of eye movements), but these subgroups were too small for any further statistical analysis. After they had read the passages, the children were asked which of the four examples they thought was the clearest. There was no correlation between the children's personal subjective judgement and their objective reading performance (p. 49).

Shaw concluded that the sans serif typeface was slightly more legible than the serif typeface for her adult readers, but that there was no measurable difference for the children (p. 65). This might be taken to suggest that the advantage of the sans serif typeface was due to the adults' increased familiarity and experience in reading such typefaces. However, there are two problems with Shaw's study. First, although she carried out a large number of statistical tests on her data, she did not control for the possibility of Type I errors. As a result, some of the statistically significant differences which she found might have been spurious results due to chance variation.

Second, and more fundamentally, Shaw's focus on readers with visual impairment meant that she ignored the performance of the normal readers in her study. In normalising the performance of her participants on each passage against the performance of normal readers on the same passage, she ignored the possibility that the normal readers themselves might have shown significant differences between the serif and sans serif typefaces. Suppose that the readers with visual impairment produced reading speeds of 50 words/min on a passage printed in Plantin and 60 words/min on a passage printed in Gill Sans, and that the normal readers produced reading speeds of 100 words/min and 120 words/min on these passages. Normalising the former data would have yielded scores of 0.5 for both typefaces. (Taking logarithms and deviations about the mean value would not have changed this situation.) In other words, the normalisation process might well have obscured differences in legibility in *both* normal readers *and* those with visual impairment. Unfortunately, Shaw did not present the descriptive statistics to enable readers to establish whether or not this was a possibility.

8.3 Children in Special Education

Pittman (1976) compared 48 children with learning disabilities and 48 nondisabled children in their reading comprehension. She showed them stories consisting of five paragraphs and then administered ten sentence-completion questions. Each story was presented over four trials. The children in each group received stories in one of four typefaces: one was in a serif typeface (Pica), two were in sans serif typefaces (Gothic and Primary), and one was in a cursive typeface (Script). Not surprisingly, the children's performance increased over the four trials. The nondisabled children obtained higher scores than did the children with learning disabilities. However, there was no significant difference among the children' scores on the four typefaces. Pittman concluded "that the style of type is not an important variable in the reading comprehension of LD [learning-disabled] and normal children" (p. 115). It might be noted that the results obtained by the comparison group of nondisabled children confirm the conclusion of Chap. 7 that there is no difference in the legibility of serif and sans serif typefaces among normal young readers.

Section 7.4 mentioned a study by Sassoon (1993) in which nondisabled children were shown a short passage in four different typefaces and were asked to choose the typeface that they liked best. Sassoon repeated this study with 50 children who

were in special education and aged between 8 and 13. Apart from describing them as having "learning difficulties" (p. 158), she did not mention what their special needs actually were. In this case, there were clear differences: 44% chose the slanting sans serif typeface, 28% chose the serif Times Italic, 18% chose the sans serif Helvetica, and 10% chose the serif Times Roman. Sassoon attributed the low preference for Times Roman to the fact that its pronounced serifs and short descenders affected the identification of certain letters. However, in Sect. 7.4 it was noted that Sassoon had developed the slanting sans serif typeface herself and had been promoting it for use in material for young readers. It would have been better if Sassoon had employed assistants who were blind as to the specific research hypotheses to avoid the possibility of researcher bias.

Haugen (2010) tested 14 children in special education in Grades 3–6 (aged 8–11). Once again, apart from describing them as having "mild special education needs" (p. 17), she did not discuss what their special needs actually were. She asked them to read aloud four passages of between 260 and 440 words printed in different typefaces: Bookman, a serif typeface; Comic Sans, a sans serif typeface based on comic-book lettering; Helvetica, a more regular sans serif typeface; and Times, another serif typeface. Each passage took about 5–10 min to read. However, Haugen did not time the children exactly but instead monitored their behaviour. Finally, she showed them all four of the passages that they had read and asked them to say which style of letters they had found the easiest to read and which they liked the best (pp. 83–93).

All the children completed all four passages, but they appeared more restless when reading the passages in Comic Sans and Times than when reading the passages in Bookman and Helvetica. Haugen commented that the issue was not the difference between serif and sans serif typefaces but the design of each typeface when compared with that of the others. The number of words read incorrectly was similar across the four typefaces, although Times yielded the fewest while Comic Sans yielded the most. The children were more likely to skip words printed in the two serif typefaces than those printed in the two sans serif typefaces, whereas they were more likely to pause when reading words printed in the two sans serif typefaces than when reading words printed in the two serif typefaces. Finally, they were more likely to run together two successive sentences printed in Comic Sans than those printed in the other typefaces (pp. 121–128).

Nine of the 14 participants thought that one of the serif typefaces was the easiest to read, and five thought that one of the sans serif typefaces was the easiest to read, four of whom chose Comic Sans. However, their choice did not seem to bear any relationship to their actual reading performance. Moreover, 12 of the 14 participants chose a sans serif typeface as the one they liked the best (of whom eight chose Comic Sans), one chose a serif typeface, and one insisted on choosing a serif typeface *and* a sans serif typeface (pp. 129–139). Haugen argued that their preferences had been influenced by their prior experience of sans serif typefaces on game systems, computers, cellular phones, and other electronic devices (pp. 164–165).

8.4 Readers with Congenital Visual Impairment

Uysal and Düger (2012) evaluated the effects of a 3-month training programme in 35 children with visual impairment at a Turkish primary school. Their preferences for different typefaces were assessed before and after the programme by showing them a 20-word sentence in Turkish in five different typefaces (Arial, Comic Sans, Tahoma, Times New Roman, and Verdana) and ten different type sizes. Their reading speed was averaged across all the typefaces and sizes. Before the programme, they preferred the sans serif typefaces such as Verdana (11 children) or Arial (8 children) as opposed to the serif typeface Times New Roman (3 children). The programme initially adopted their preferred typeface but gradually incorporated the other typefaces. It led to a significant increase in both their reading speed and their writing speed, but not in the judged legibility of their handwriting. After the programme, most children indicated that they were comfortable with any of the typefaces except for the sans serif Tahoma.

Skilton et al. (2018) conducted a focus group that involved eight people with deaf-blindness. Such individuals are born with a hearing loss and develop visual impairment during their early childhood. The aim of the focus group was to identify the participants' accessibility needs for their involvement in future research. Their recommendations included the provision of printed materials in a large size (18-point or higher) and in a sans serif typeface such as Arial. However, Skilton et al. acknowledged that these were among the recommendations that were typically provided for improving the accessibility of information of deaf-blind people. Their account left it unclear whether these recommendations were based on their own negative experiences with serif typefaces or whether they were just repeating back conventional attitudes that they had previously acquired from figures in authority.

8.5 Readers with Acquired Visual Impairment

Prince (1967) suggested that the impact of typographical variables might be different in older people with acquired visual disorders. As mentioned in Sect. 8.2, Shaw (1969) had found an advantage for a sans serif typeface over a serif typeface for those with acquired visual impairment but not for those with congenital visual impairment.

Estey et al. (1990) showed 52 patients with an average age of 69.4 years admitted for cataract surgery a page of text printed in a 12-point sans serif typeface, Univers Medium. Only 65% of the patients said that they could read the text, while 35% found it blurry. Estey et al. then showed the patients two pages of text: One was printed in 14-point Univers Medium, and the other was printed in a 14-point serif typeface, Century Schoolbook. Only 2% of the patients said that they could not read these texts. Of the 52 patients, 65% said that they preferred Univers Medium, 33% said that they preferred Century Schoolbook, while 2% had no preference. Estey et al. argued that material for patients with visual deficits should be printed in 14-point sans serif typefaces.

Campbell et al. (2006) carried out two studies in people with age-related macular degeneration (AMD). Participants were recruited from the members of the Canadian National Institute for the Blind (now the CNIB Foundation). They were asked to compare samples of text printed in six different typefaces using reading aids if necessary. Two were serif typefaces (Times Roman and Lucida), while four were sans serif typefaces (Adsans, Arial, Clearview, and Verdana). Adsans had been devised in 1959 to be used in a small (4.75 point) size in newspaper classified advertisements. It is not available in common computer applications, but it was used as the basis for Verdana. Clearview was devised in the 2000s for use on road signs. In both studies, the participants rated how easy it was to read each typeface on a 7-point scale from "impossible to read" to "very easy to read." In the first study, they also ranked the samples from the easiest to the hardest to read. However, this proved to be rather demanding, and so ranking was not used in the second study.

In the first study, 241 participants aged 50 or older were shown excerpts from Robert Louis Stevenson's novel, *Treasure Island*, all printed in 16-point type. The passage printed in Adsans was given significantly higher ratings than any of the other samples, and it was ranked the easiest to read by more than 50% of the participants. In the second study, 157 participants were shown information leaflets for over-the-counter medicines amended to refer to unfamiliar products and printed in 7-point type. The leaflet that was printed in Adsans was once again given significantly higher ratings than any of the other samples. Campbell et al. remarked that in both studies Times Roman had been given low ratings despite being a relatively familiar typeface, which suggested that the participants were not simply rating the typefaces on the basis of their familiarity. These findings show that people with AMD have a preference for Adsans, but they do not constitute evidence with regard to its objective legibility.

Rubin et al. (2006) asked 43 patients with mild cataract or glaucoma to read texts printed in four different typefaces. One was Tiresias, a sans serif typeface developed for people with impaired vision by the Royal National Institute of Blind People in the United Kingdom. This was compared with the serif typeface, Times New Roman, and two other sans serif typefaces, Foundry Form Sans and Helvetica. Their reading speed was found to be significantly faster with Tiresias than with the other three typefaces. However, although nominally of the same point size, the four typefaces occupied different amounts of horizontal and vertical space. When this factor was statistically controlled, the advantage of Tiresias disappeared. Rubin et al. concluded that variations in typeface had little influence on the reading speed of people with mild to moderate sight problems.

Tarita-Nistor et al. (2013) tested 24 patients with AMD using reading charts printed in Times New Roman, Courier, Arial, and a version of Andale Mono. These required them to read individual sentences presented at progressively smaller sizes. Times New Roman is a serif typeface, and Courier is a slab serif typeface, whereas Arial and Andale Mono are both sans serif typefaces. Times New Roman and Arial are both proportionally spaced, whereas Courier and Andale Mono are both monospaced. Tarita-Nistor et al. measured three aspects of their participants' performance: their reading acuity, which was the smallest print size that could be read without significant errors; the maximum reading speed, which was the highest speed at which text could

be read without regard to print size; and the critical print size, which was the smallest print size that could be read with maximum speed. There was no significant variation among the typefaces in either critical print size or maximum reading speed, but there was significant variation in reading acuity: surprisingly, and—contrary to the results of the study by Smither and Braun (1994) that was mentioned in Sect. 7.6—text printed in Courier yielded significantly better reading acuity than text printed in the other three typefaces, but text printed in Arial yielded significantly worse reading acuity than text printed in the other three typefaces.

Hedlich et al. (2018) administered reading charts containing sentences printed in the slab serif typeface Courier New or the sans serif typeface Arial to 16 patients with visual impairment before or after cataract surgery. They found no significant difference between the two typefaces in their reading acuity, in their critical print size, or in their maximum reading speed. One limitation of this study, apart from the small sample size, was that the reading chart printed in Arial was always presented before the reading chart printed in Courier New, so that the researchers had no control over the effects of fatigue or practice. They also asked the participants about their preference between the two typefaces: eight of the participants preferred Arial, four preferred Courier New, and four had no preference.

Nersveen et al. (2018) carried out a postal survey of adults with a wide variety of visual impairments. They identified ten typefaces for consideration. Seven were printed in regular font, including two serif typefaces (Scala and Times Roman) and five sans serif typefaces (Frutiger, Helvetica, Scala Sans, Tiresias, and Verdana). Three were printed in bold font, including one serif typeface (Scala Bold) and two sans serif typefaces (Scala Sans Bold and Tiresias Bold). The participants were a random sample of 5,000 members of the Norwegian Association of the Blind and Partially Sighted. Each typeface was presented in five different body sizes (8, 10, 12, 14, and 16 points, but scaled so that their x-heights matched those of Times Roman), and in ten variations in contrast (from black type on white background to white type on black background), yielding 500 conditions. Each was presented as three or more lines of text, together with a 4-point rating scale in which the response categories were “Easily readable”, “Readable with some difficulty”, “Difficult to read”, and “Unreadable”. This yielded a booklet consisting of 50 printed pages.

The participants were instructed to carry out the task only if they were partially sighted and able to read printed text (with a magnifying glass or with supplementary lights if necessary). Completed booklets were returned by 830 participants. Repeated-measures tests were employed to compare the ratings given to the serif typefaces and the sans serif typefaces. For typefaces at 12 and 14 points, the difference was not statistically significant. For those at 8, 10, and 16 points, sans serif typefaces received significantly higher ratings than did serif typefaces. Nevertheless, the differences were small in magnitude and only achieved significance because of the very large sample size. A similar pattern emerged when comparing the ratings given to the Scala typefaces and the Scala Sans typefaces (J. Nersveen, personal communication, June 22, 2020).

Although Nersveen et al. described their experiment as a study of the legibility of printed text, their data actually consisted of the participants' ratings of the subjective acceptability of the different typefaces rather than any measure of their objective legibility. The apparent preference for sans serif typefaces is thus consistent with the findings of Estey et al. (1990) and Campbell et al. (2006), although the effect was far less pronounced. One problem is the response rate of only 16.6%. This might be partly explained by the fact that the participants did not receive any personal reward for carrying out the task, although two respondents chosen at random were given a "prize" of a Digital Audio Broadcasting radio worth 1,000 Norwegian kroner. As a result, most of the participants may not have been willing to devote time and effort to a rather burdensome task. Whatever the cause, it does suggest that the study suffered from sampling bias, in that the respondents might not have been representative of the target population.

8.6 Readers with Aphasia

The term *aphasia* covers a wide variety of disorders of spoken language, but a majority of people with aphasia also exhibit impairment of reading (Brookshire et al., 2014). Wilson and Read (2016) tested nine participants who had been diagnosed with mild-to-moderate aphasia as the result of cerebrovascular accidents. They were given a standardised test of reading comprehension that consisted of 35 short paragraphs. In each case, the participants had to choose one of four alternative words or phrases to complete the final sentence. For each participant, the paragraphs were randomly assigned to one of seven conditions. One involved the presentation of the original paragraph in a serif typeface (Times New Roman), and the other six involved different manipulations. For two manipulations, the typeface was amended either to a sans serif typeface (Verdana) or to an ornate cursive typeface (Harrington). The participants achieved significantly higher scores with the sans serif typeface than with either of the other two typefaces. Wilson and Read did not speculate as to why patients with aphasia might find serif typefaces less legible. Some researchers have found that people with aphasia prefer material printed in a sans serif typeface (Rose et al., 2011), but other researchers have not (Haw, 2017, p. 129; Herbert et al., 2019).

8.7 Readers with Dyslexia

The term *dyslexia* refers to a specific disorder of reading that may result from a wide variety of causes (and may be either congenital or acquired). For many years, the British Dyslexia Association (2018) has recommended that documents printed for people with dyslexia should use sans serif typefaces, and this has been taken to encompass teaching materials for students (Shaw & Anderson, 2017). However, the Association did not cite any evidence to support this recommendation. In fact,

relevant evidence has been obtained in attempting to evaluate Dyslexie, a typeface that was developed by Christian Boer in 2008 to try to facilitate reading among children and adults with dyslexia (http://www.dyslexiefont.com). It is a sans serif typeface characterised by a relatively large x-height and relatively wide vertical and horizontal spacing between the letters. It is available under licence for both Microsoft Windows and Apple computer systems.

Marinus et al. (2016) recruited 39 children who were undergoing remediation for low progress in reading. They were asked to read aloud four passages, each of 200 words. One passage was presented in a 14-point Dyslexie typeface. A second was presented in 16-point Arial, a sans serif typeface which matched the x-height of the letters in the first passage. A third passage was presented in 16-point Arial with an overall increase in spacing. The fourth passage was presented in 16-point Arial with increased spacing both between words and between letters within words to match the spacing used in the first passage. The order of the conditions and the assignment of the passages to the conditions was counterbalanced across different participants. The children were scored on the number of words that they had read correctly per minute in each of the four conditions. Marinus et al. found that their reading speed in the first condition was significantly faster than in either the second or third, but that it was not significantly different in the fourth condition.

Kuster et al. (2018) carried out two experiments to evaluate the Dyslexie typeface. In the first experiment, 170 children with dyslexia were asked to read aloud two passages at separate sessions. One passage was presented in 12-point Dyslexie; the other was presented in 13-point Arial, adjusted to match the vertical spacing of Dyslexie. The order of the two conditions was counterbalanced across the participants. The children read significantly more quickly and made fewer errors on the second passage than on the first. However, there was no significant difference in either reading time or the number of errors between the typefaces.

In their second experiment, Kuster et al. tested 102 children with dyslexia and 45 children without dyslexia. They were each asked to read aloud three lists of words of varying complexity at three separate sessions. At each session, one list was presented in Dyslexie, whereas the other two lists were presented in the serif typeface Times New Roman and the sans serif typeface Arial, in both cases adjusted to match the x-height and the vertical spacing of Dyslexie. The order of the three conditions and the assignment of word lists to conditions was counterbalanced, and the children were scored on the number of words that they read correctly in one minute. Not surprisingly, the children without dyslexia obtained higher scores than the children with dyslexia, and performance varied inversely with the complexity of the words. However, there was no significant difference in the performance of either the children with dyslexia or the children without dyslexia across the three typefaces.

Finally, Powell and Trice (2020) recruited 36 children with dyslexia. They were each asked to read aloud three stories; each story contained 200 words and was followed by three factual questions to test the children's comprehension. One story was presented in 12-point Dyslexie; the others were presented in 14-point Arial and 14-point Times New Roman, both adjusted to match the horizontal and vertical spacing of Dyslexie. The order of the three stories and the assignment of the stories

to the three typefaces was counterbalanced across different children. There was no significant variation across the three typefaces in terms of the mean time that the children took to read the stories, no significant variation in terms of the number of errors that they made, and no significant variation in their comprehension scores.

All three of these studies indicated that the effectiveness of the Dyslexie typeface is due to its increased spacing and not to its different letter shapes. If other typefaces are adjusted to match the spacing used for the Dyslexie typeface, the reading performance of children with dyslexia does not differ across the different typefaces. However, both Kuster et al.'s (2018) second experiment and Powell and Trice's (2020) study show in addition that the reading performance of children with dyslexia does not differ between serif and sans serif typefaces if they are matched in terms of their spacing. This contradicts the recommendation made by the British Dyslexia Association (2018) that documents printed for people with dyslexia should use sans serif typefaces.

8.8 Conclusions

Any differences in the legibility of serif and sans serif typefaces might become more apparent in readers whose visual systems are challenged as the result of disablement. In fact, the modal finding is that there are no differences in the reading capability of readers with a variety of disabilities when they are presented with material printed in serif and sans serif typefaces. It might be thought that children with congenital visual impairment would be more sensitive to typographical factors, but in fact such children rapidly adapt to reading both serif and sans serif typefaces. It has been suggested that the effects of acquired visual impairment might be different from the effects of congenital visual impairment, but both groups appear to be equally proficient in reading serif and sans serif typefaces. A majority of people with aphasia exhibit impairment of reading. In this field, it is often taken for granted that people with aphasia will find sans serif typefaces more legible, but there is only one study with a very small sample of participants that supports this position. Certainly, there is now good evidence that the reading performance of children with dyslexia does not differ between serif and sans serif typefaces when they are matched in terms of their spacing.