

What is the optimal line length when reading text?

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Certain aspects of usability have been researched for over 120 years. One active area of investigation has been the influence of line length on the speed of reading prose text. Weber (1881) made the first research-based recommendations when he suggested that an ideal line length was 4 inches (100 millimeters). He stated further that the maximum never should exceed 6 inches (150 mm). The same year Javel (1881) reported that line lengths should be no longer than 3.6 inches (90 mm). Two years later, Cohn (1883) confirmed that 3.6 inches (90 mm) was the best length, and that 4 inches (102 mm) was the longest admissible line length.

These recommendations were for book, magazine and newspaper publishers, and assumed the use of 10-point black characters typeset on white paper. There were only about 2,000 typewriters in use in the early 1880s. Almost 50 years later there was another flurry of activity on this topic.

One of the best studies was done by Tinker and Paterson in 1929. Using 10-point black type on white paper, they found that line lengths between 3 inches and 3.5 inches (75 to 90 mm) yielded the fastest reading performance. Paragraphs with line lengths of 7.3 inches (185 mm) were read slowest. The authors proposed that longer line lengths obviously require greater lateral eye movements, which seemed to make it more likely that users would lose their place within the text.

As computer monitors were used more in these studies, longer line lengths seemed to enable faster reading performance. Duchnicky and Kolers (1983) found that a full screen length of 7.4 inches (187 mm) resulted in 28% faster reading times over a 1/3 screen length of 2.4 inches (62 mm). In fact, both full screen and 2/3 screen line lengths were read reliably faster than the 1/3 screen length.

Dyson and Kipping (1998) also found that **reading rates increased as characters per line increased**. In their study using 12-point type, the 4-inch line length produced the slowest reading rate and the 7.3 inch line length produced the fastest. However, users preferred the 4-inch (102 mm) line lengths. **They also reported that even though a single-wide column was read reliably faster than three columns, users preferred the 3-column format.**

Youngman and Scharff (1999) used 12-point type and found that with no margins, **an 8-inch line length elicited the fastest overall reading speed**, when compared with 4 and 6 inch line lengths. Again, **users preferred the 4-inch line length.**

Bernard, Fernandez and Hull (2002) had participants read 12-point prose text with line lengths of 9.6 inches (245 mm), 5.7 inches (145 mm) and 3.3 inches (85 mm). They found no reliable differences in the average reading speed for the differing line lengths. Their adult subjects preferred the two shorter line lengths.

The research also suggests that line lengths (columns) can be too short. Dyson and Kipping (1998) found that a line length of 5.5 inches (140 mm) was read reliably faster than a narrower 1.8 inch (46 mm) line length. A more recent study by Dyson and Haselgrove (2001) reported that a 4-inch line length resulted in faster reading than the shorter line length of 1.7 inches.

What can we conclude when users are reading prose text from monitors? **Users tend to read faster if the line lengths are longer (up to 10 inches). If the line lengths are too short (2.5 inches or less) it may impede rapid reading. Finally, users tend to prefer lines that are moderately long (4 to 5 inches).**

Note: the references for these studies are posted on the HFI Web site at <http://www.humanfactors.com/downloads/nov02.asp>

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