Well, the Shneiderman book wasn't quite as bad as I remembered it. Randomly flipping through the pages I noticed some typeface changes from one paragraph to the next that could not be explained by a change in topic or heading level, but I couldn't find the ugly typeface that I remembered all these years. The title of the book is Designing the User Interface, by Ben Shneiderman, and Buley has the first, third, and fourth editions. The quality of the printing and of the typeface are noticeably improved in the 3rd and 4th.

I didn't really think that the readability of fonts was entirely subjective, but I never realized just how much work has been done. I struck it rich with a book that surveys the state of the art in 1963. It's titled Legibility of Print by Miles A. Tinker, Professor Emeritus in the Psychology Department at the University of Minnesota. Prof. Tinker examined the results of experiments that he and others had done to study the effects of illumination, the relationship of type size to line width, the color of the print and background, and combinations of these factors. He used various methods to measure legibility, both of his own design and those of other researchers, including eye movements, blink rate, and speed of reading. One chapter is devoted to the legibility of letters and digits relative to each other. I wonder what he would have to say about the fact that, even after all this research, we still see typefaces designed with a numeral '1' that is indistinguishable from a lowercase 'l' or, occasionally, from an uppercase 'I'.

One chapter is devoted to "Illumination for Reading" that should be required reading for anyone who designs lighting for a library. Although the research at that time was focused on print on paper and not on computer screens, the effects on legibility of glare on the printed page were well studied, and especially relevant to highly reflective CRT screens and, to a lesser extent, on flat panel displays.

A lot of the current literature is concerned with the legibility of fonts on the computer screen, but there is still research on the legibility of print, as in the Charness and Dijkstra article. They found that the level of lighting in homes and public places was generally lower than ideal, and that the work performance of older adults in office environments improved with increased light levels. But too much illumination increases glare and reduces legibility.

On a personal note, this line of research points to the reason that even the best flat panel display is still tiresome to read after a few hours, and especially at night. The computer screen is its own illumination source, and the contrast between it and the ambient light of the room is highest at night. I'm also beginning to understand why patrons don't read some of our more subtle white-on-white signs in one of my libraries.

References