

**White Paper**  
**How Document Readability and Legibility**  
**Are Affected By Text Justification**

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Document readability and legibility are topical elements of the typography field and related to human factors science (deals with understanding the properties of human capability), and user interface design. Text justification is a sub-topic of document readability and legibility.

In developing and publishing technical documentation, the Technical Communicator's primary goal is to make the author's technical information readily understandable to the intended readership (audience). Toward that end, information readability and legibility are critical requirements of the document design process.

Technical Communicators, working with authors and subject matter experts handle the readability part of document development from a language standpoint; sentence structure, grammar, style, word length / choice, frequency of uncommon words, and so forth.

Legibility concerns the appearance of electronic or printed text. Most technical material is distributed in hardcopy and electronic forms and must be readable and legible in each form. The readability and legibility of a technical document are key elements affecting the reader's ability to quickly read, comprehend, and more importantly, use the document's subject matter.

Legibility affects how easily text is read. Legibility involves many factors including font type, line spacing / length, word spacing / justification, hyphenation, and other factors.

Left justification (also called *no justification*) uses equal spacing between words and there is no word wrapping with hyphenation at the end of sentences.

Full justification (also called *right justification*) uses unequal spaces between the words and letters so both margins appear even. Additionally, full justification often uses hyphenation to break words at the end of sentences.

Numerous studies and expert opinions conclude that readers read faster and comprehend more with text that is evenly spaced (left justified) rather than randomly spaced (fully justified). The studies found that the human brain had to work harder to follow the unevenly spaced and hyphenated fully justified text. Full justification may also create *rivers* of spaces on a page of text - one of the URLs given below shows an example of this undesirable visual effect. Full justification, with its even margins, is thought by some to give a document a formal look. However, the practice of full justification reduces the legibility of text and hinders, to some degree, effective conveyance of the document's subject matter to the intended readership. The

use of full justification on text that includes numbers, mathematical symbols, formulas and other non-word textual elements further degrades the content's legibility and readability by unevenly spacing the symbols and formulas in the text.

From a workplace disabilities perspective, there are numerous studies supporting the fact that some people with dyslexia (~10% of the population) have a greater difficulty comprehending fully justified text. Dyslexia is also one of the possible side effects of diabetes which affects millions in the workplace worldwide.

There is much publicly-available information about the related topics of readability, legibility, human factors science and user interface. Text justification is a common topic of discussion among typography professionals and others. Since conveyance of technical information is the primary purpose of technical documentation, at Zaetric we recommend making the document legible and easy to read and stay away from giving up text legibility / readability for the visual *appearance* of even margins on the right and left. Most hardcopy and electronic textual information needing quick reading and comprehension is shown in left justified text. Examples are newspaper overview sections, websites, instructional manuals, introductions to technical papers and many others. The following are a few websites which have information on word spacing and justification. Due to the ever-evolving content of the Internet, some of these site links may be superseded or otherwise not active.

[http://www.cooper.com/insights/journal\\_of\\_design/articles/typography\\_and\\_the\\_user\\_interf.html](http://www.cooper.com/insights/journal_of_design/articles/typography_and_the_user_interf.html)

<http://www.webdesignfromscratch.com/readability.cfm>

<http://desktoppub.about.com/od/emailclasses/ig/Rules-of-DTP-Illustrated/index.htm>

<http://www.plainlanguagenetwork.org/type/utbo332.htm>

[http://www.cessnock-ict.net/webdesign/art\\_fonts/webdevmag/page06.html](http://www.cessnock-ict.net/webdesign/art_fonts/webdevmag/page06.html)

<http://www.timetabler.com/reading.html>

<http://webstyleguide.com/type/align.html>

As professional Technical Communicators, we at Zaetric feel technical documentation should be conveyed in a manner and design that is easily read and comprehended. Toward that end, we recommend the use of left justified text in most technical writing as it has been widely proven to be the most legible textual design method for hardcopy and electronic technical documents.