A Primer on Document Design*

Who needs to learn and apply document design principles?

Everyone who needs to present information that

- is clear and understandable
- looks professional
- earns greater respect and a more positive response
- is well-organized and clearly structured
- is unified, highlighting relationships among items
- is interesting to read

Clear communication requires a document that is organized both intellectually and visually. Document design is a key element in clear communication. Good document design arranges text, space and graphics to *1)* catch the eye, *2)* direct attention, *3)* organize information, *4)* ease comprehension and *5)* avoid distraction.[1] If a document is badly designed and demands too much effort to read, you will annoy or lose your reader.

What are good document design principles?

Definitions vary, but all agree on some basic features. According to Robin Williams (the graphic designer, not the actor),[2] the four basic principles of document design are

- Proximity
- Alignment
- Repetition
- Contrast

The following sections apply these principles quickly and easily to a document that unfortunately resembles too many grant applications.‡

* Disclaimer: This document was prepared by a non-designer, one who has simply explored the basic literature on the topic and who has seen too many examples of weak document design.

‡ Text on the following page is from a CIHR web page, modified in style for demonstration purposes (http://www.cihr-irsc.gc.ca/e/39913.html).

Revised Grants Evaluation Criteria - Interpretation Guidelines

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Guidelines for the interpretation of the individual criteria:

Criterion #1: Research Approach. This criterion concerns the description of the research plan and can encompass whether the writing style facilitates understanding of the plan (clarity of the research question) and whether the proposed research can be successfully concluded as described (feasibility of the research approach and anticipation of difficulties). Clarity of rationale for the research approach and methodology refers to whether the reasoning behind the overall strategy is clearly presented. Appropriateness of the research design refers to whether the best strategy was chosen to yield the desired knowledge and whether alternative approaches to the research question(s) were considered. Appropriateness of the research methods refer to whether the methods chosen were consistent with the research design and the best for achieving the desired research outcomes.

Criterion #2: Originality of the Proposal. For this criterion, original research is defined as research that will yield new knowledge. Typically, this refers to research that has not been carried out previously. However, there are times where replicative studies will yield new knowledge that may be crucial to progress within a field, for example by conclusively verifying or refuting a central or novel hypothesis. In these cases, applicants should not be penalized for a perceived lack of originality. In addition, originality as defined here should not be equated with innovation. While CIHR encourages innovative research, many important research questions can still be addressed with existing technologies and methodologies. It is the originality in how these technologies and methodologies are applied that is important. Note that specific funding opportunities may have innovation as a program objective, in which case additional factors will be included under this criterion in the funding opportunity description to support the evaluation of innovation.

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Criterion #4: Environment for the Research. The research environment should be evaluated in terms of whether the applicant(s) can accomplish the research as proposed, based on their access to needed resources. Care must be taken not to exercise bias against smaller institutions: in today's environment the capacity to communicate, collaborate and access resources is greatly expanded, and as such the research environment often extends well beyond the applicant's research institution. Suitability of the environment (milieu, project and mentors) for the training of personnel (if applicable) is only relevant if the applicant is requesting support for trainees (students and post-doctoral fellows). Typically, this would only be considered as a factor in the evaluation of the budget request for the requested personnel. However, specific funding opportunities may include the training environment as a factor for evaluation of excellence if an element of capacity building is included in the program objectives (for example, an emerging teams grant) and would therefore be considered in the scientific rating of the proposal.

Criterion #5: Impact of the Research. This criterion refers to the ability of successful outcomes of the research to meaningfully impact on the current state of knowledge or the Canadian health care system, especially as related to the CIHR mandate. It also asks the question of whether the proposed research is significant, in terms of the need or gap addressed and the contribution to the body of health research knowledge. To have an impact, research results must be disseminated; thus, an evaluation of the impact must also include an evaluation of the knowledge dissemination plan. Methods for disseminating results can vary greatly according to the field of study. For many fields, an adequate knowledge dissemination plan is simply the publication of the results in high impact peer-reviewed journals. For other fields, dissemination plans with more ambitious goals and comprehensive strategies to reach the relevant knowledge users may be required. Knowledge dissemination does not necessarily imply or require commercialization of the results, unless that is an objective of the funding program, in which case this factor will be elaborated in the evaluation criteria of the funding opportunity.

First steps

Some features of effective document design are most easily applied before the document is written.

Features such as font, line spacing, paragraph spacing, paragraph style, and heading styles are most efficiently set up when a new document is first opened (*appendix 1*).

A little advance planning saves a lot of fiddling after the document is written.

Sacrificing design principles in favour of cramming the maximum amount of text into a limited number of pages is always tempting. Setting document design parameters first reduces that temptation.

Proximity

Use space to define groups of elements.

Related items must be grouped together, because physical closeness implies a relationship. Items not related to each other should not be in close proximity. Thus, the reader receives instant visual clues to the document organization and content.

Positive results of grouping related items are:

- the reader understands the logical connections between items
- crucial visual white space or 'breathing room' is introduced into a document
- the reader understands where to begin reading, where to continue reading and where to finish reading
- reading becomes easier because the eye is not stopping repeatedly or looking around for missed material

Using proximity to demonstrate relationships:

Note in *Example 1* that the spacings between different elements are of different sizes; more closely related elements are closer together. The differences in spacing do not need to be large, just subtly noticeable to the reader.

Use of proximity in this example does improve document readability. Proximity alone is not sufficient, though. The reader needs further visual cues to grasp document organization at a glance.

Example 1

Original:

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Proximity principle incorporated:

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ALIGNMENT

Use alignment to connect related elements that must be physically separated.

Every element on a page should be aligned consciously with other elements. No element should be placed randomly on a page. Alignment provides unity and visual ties among elements.

Positive results of aligning related items are:

- the reader sees visual connections among items on a page
- organization of items is clarified for the reader
- the reader sees a clean, unified look to a page

Specific tips on alignment

- Centred text looks more static and formal.
- Text that is left- or right-aligned looks more sophisticated, active and dramatic.

Using alignment to demonstrate connections:

In *Example 2*, note that the differences in alignment between different text elements are small but noticeable to the reader. Note also that spacing between elements can be smaller when cues about organization are added through alignment. By adding alignment to proximity, the document organization starts to emerge clearly.

In *Example 3*, graphic components are aligned both vertically and horizontally.

Example 2

Proximity principle alone:

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Proximity and alignment principles incorporated:

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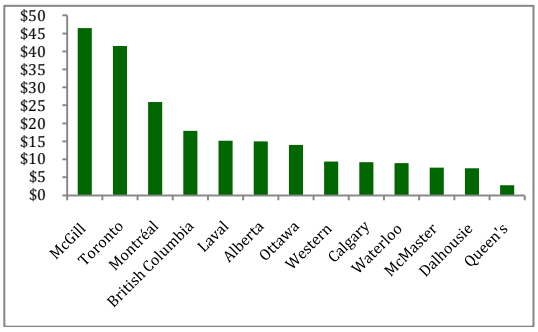
Example 3[†]

Original:

A



B

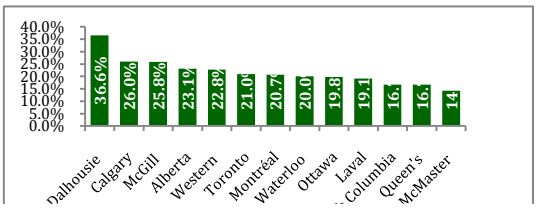
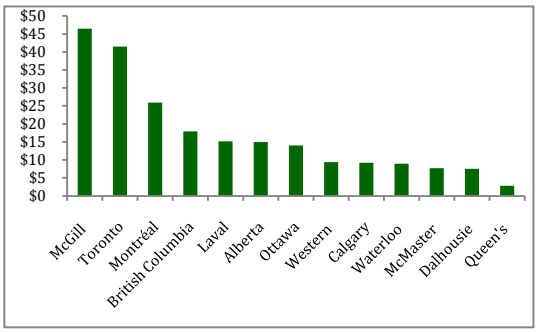


Figure 1. March 2011 CIHR OOGP results. A. Millions of dollars awarded, top 13 institutions. B. Success rate, top 13 institutions.

Alignment principle incorporated:

A



B

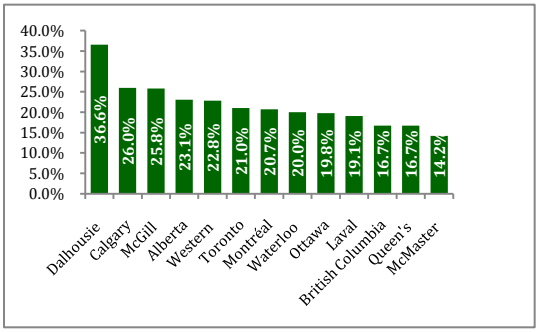


Figure 1. March 2011 CIHR OOGP results. A. Millions of dollars awarded, top 13 institutions. B. Success rate, top 13 institutions.

[†] Graphs courtesy of the CIHR Special Project, University of Alberta. Data from CIHR.

REPETITION

Use repetition of some design elements to unify different pages of a document and to add visual interest.

Basic repetition includes consistency in elements such as heading styles, bullet style, or paragraph indents and spacing. Repetition as a design principle moves beyond the basics, consciously introducing and strengthening visual keys to unify a document.

Positive results of repeating design elements are:

- the reader is encouraged to read more carefully because a document looks interesting
- the reader can easily identify related elements on different pages
- all parts of a document clearly belong together

Specific tips on repetition

- Use unusual repeated elements for points needing special attention from the reader.
- Start with existing consistent elements such as headings, and make them stronger visually.
- Add visually interesting elements beyond basic text, such a thin border line between a header and main text, or an unusual bullet symbol.
- Repeated elements do not need to be direct repetitions. Similarity in size, weight, shape or position may provide sufficient repetition e.g., the different borders under different levels of headings in *Examples 4 & 5*.
- If a document is part of a comprehensive package, use the repeated design elements in all package components.

Using repetition for unity and consistency:

In *Example 4*, visual elements are added to highlight main headings (double bottom border) and subheadings (single bottom border), and to differentiate the two. A non-standard bullet style (arrow from Wingdings font) draws attention to key points in lists.

Note that the addition of repetitive visual elements reduces the need for organizational cues from proximity or alignment alone, saving some space.

Example 4

Proximity and alignment principles alone:

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Proximity, alignment, and repetition principles:

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CONTRAST

Use contrast to create an organizational hierarchy of elements, and to add visual interest.

Contrast must be significant to be effective, signalling clearly that two elements are different. Contrast may be introduced in font (*appendix 2)*, font size, font type (bold, italic), colour, spacing, etc.

Contrast is frequently combined with repetition to unify an organizational hierarchy throughout a document or package of documents.

Positive results of contrasting different types of elements are:

- the reader can easily discern document organization
- the document looks more interesting and lively to the reader
- the reader sees quickly which items are emphasized and which are most important

Specific tips on contrast

- Make contrast obvious. A small contrast is more likely to inject confusion than clarity.
- Use contrast to focus reader attention on the key elements in the document.

Using contrast to emphasize differences:

Example 5 uses just three simple types of contrast:

- font (Calibri for headings, Times New Roman for normal text)
- font style (bold, italic)
- font size (17 pt main heading, 14 pt subheading, 12 pt normal text)

Note that greater contrast is achieved with **bold** text than with <u>underlined</u> text. Lines under headings in *Examples 4 & 5* are Borders in Word, not underlined text.

In a text-only document, significant statements may be spotlighted with other design elements such as boxes or shading.

Note also that the addition of contrast reduces the need for visual cues from proximity and alignment, again saving some space.

Example 5

Proximity, alignment, and repetition principles alone:

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THE ORIGINAL SAMPLE DOCUMENT, REVISITED

A version of the full-page sample document, with all design principles applied as in the previous pages, is given below.

Note that the document is significantly easier to read, both for skimming to understand the general outline of the material, and for reading to understand details and their relationships. Although the document is now a few lines longer than the original, this is a small sacrifice in making the document 'an easy read'.

Note also that the extra 10 lines of material in this version could be quickly eliminated through pruning of wordiness in the material itself. Readers appreciate such pruning.

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- ➔ Ability of successful outcomes of the research to meaningfully impact on *the current state of knowledge or the Canadian health care system*, especially as related to the CIHR mandate

➔ Whether the proposed research is significant, in terms of *the need or gap addressed and the contribution to the body of health research knowledge*

➔ The knowledge dissemination plan. To have an impact, research results must be disseminated. Methods for disseminating results can vary greatly according to the field of study. For many fields, an adequate knowledge dissemination plan is simply the publication of the results in high impact peer-reviewed journals. For other fields, dissemination plans with more ambitious goals and comprehensive strategies to reach the relevant knowledge users may be required.

Note: Knowledge dissemination does not necessarily imply or require commercialization of the results, unless that is an objective of the funding program, in which case this factor will be elaborated in the evaluation criteria of the funding opportunity.

APPENDIX 1. PRELIMINARY DOCUMENT SET-UP

Word processing programs (and even different versions of Word) differ in procedures to adjust settings for parameters such as font, font size, line spacing, etc. In Word, using Styles to set parameters for each type of document element is generally most efficient, as the same style may be applied automatically to the same type of element throughout the document. The general procedure is:

- choose styles to be applied: normal (regular paragraph text), Heading 2 (subheadings), list (numbered or bulleted lists), etc.
- for the first style to be applied, select Modify Style
- set the available parameters for that style to the values desired in the new document e.g., Heading 2 could be set to font=Arial bold italic, font size=12 pt, alignment=left, bottom border, paragraph spacing=6 pt after
- whenever a Heading 2 is needed in the document, select the heading text and apply the style to it
- Modify Style as necessary for all other styles to be applied in the document

Use at least single line spacing.

Single line spacing is slightly larger than the nominal font size e.g., single line spacing for 12 pt font is just over 14 pts. Use single line spacing (or more) in all styles to be set up.

E.g., using a line spacing that is the same size as the font makes lines look crammed together, and often cuts off tops and tails of letters. Note the extra visual 'breathing room' in *Example 6* on the next page.

Consider whether to use justified text in paragraphs.

In longer paragraphs, justified text (aligned left and right) can give a more formal look than text that is only aligned left. Justified text may be less easy to read, however, especially if justification results in large and uneven gaps between words.

Example 6

Original, 12 pt font and 12 pt line spacing, aligned left:

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Same text, 12 pt font, single line spacing, justified:

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Appendix 2.

Type characteristics & font comparisons

Type in a document is effective when it is *1)* easy to read, *2)* unobtrusive, *3)* appropriate to the message, *4)* used consistently and *5)* good-looking.[1]

Readability [2]

Readability is enhanced in longer segments of text through the use of a serif font. Serifs are the small projections off the main lines of a letter e.g., T (serif) versus T (sans serif).

Readability may be reduced in longer segments of text when font options such as ALL CAPS, SMALL CAPS, *italics*, **bold**, or underlining are used. These font options are most effectively used in short segments of text such as headings or brief highlights within paragraphs.

Some useful fonts, their features and drawbacks

Choice of font is a personal matter, but should be done with attention to key features of a specific document. Font examples below are all 12 pt text.

Times New Roman. A popular serif font, easy to read. *Italic is clean and easy to read.* **Bold provides good contrast with regular text.** Subscripts and superscripts are well-sized and readable. This is an efficient font for documents with limited page space.

Cambria. The default serif font in some word-processing programs. *Italic is clean and easy to read.* **Bold provides strong contrast with regular text.** Subscripts and superscripts are well-sized and reasonably readable. This is a less efficient font for documents with limited page space.

Garamond. Another popular serif font that is very efficient for documents with limited page space. *Italic is cramped and difficult to read, however.* **Bold provides good contrast with regular text.** Subscripts and superscripts are somewhat small and difficult to read in their default size.

Goudy Old Style. A clean and open serif font. *Italic is easy to read.* **Bold provides some contrast with regular text, but is not dominant.** Subscripts and superscripts are somewhat small and difficult to read in their default size. This is a very efficient font for documents with limited page space.

Calibri. A popular sans serif font for headings. *Italic is clean and easy to read.* **Bold provides good contrast with regular text.** Subscripts and superscripts are well-sized and readable.

Arial. A popular sans serif font for headings. *Italic is clean and easy to read.* **Bold provides strong contrast with regular text.** Subscripts and superscripts are well-sized and readable. This is a large and inefficient font for documents with limited page space.

BIBLIOGRAPHY

1) 'The Elements of Visual Style; The Basics of Print Design for Every PC and MAC® User', Robert W. Harris, Houghton Mifflin (2007).
2) 'The Non-designer's Design & Type Books', Robin Williams, Peachpit Press (2008).
   This is an excellent quick read that includes extensive illustrations of design principles in action. Numerous examples take poorly-designed documents and improve them step by step through application of relevant principles. The second section of the book contains an amusing and informative discussion of typefaces (fonts) and readability.
3) 'The Elements of Graphic Design; Space, Unity, Page Architecture, and Type', Alex W. White, Allworth Press (2002).
   This is a more detailed look at page design, with many illustrations and examples. This book would likely be more useful for design of figures than design of all-text pages.

Please take the time to fill out this short survey regarding resources found on this webpage. This survey will take approximately 1 minute to fill out. To fill out the survey, please go to the following link:

University-wide CIHR Special Project Questionnaire about Resources