Questions

1. Most patient education managers do readability assessments that determine the reading level of text as well as a review of the page layout. Usually they use a reading assessment tool to evaluate text difficulty. Why is it important to be just as specific in the evaluation of the layout?

Layout is often overlooked when evaluating the readability of patient education documents. Greater access to computers and software has made it possible for everyone to do desktop publishing these days, and in fact we take it for granted. We turn on the computer, open up a word processing program and we can create everything from a letter to our own greeting cards. For health educators, it opened opportunities to not only write but also design patient education handouts, brochures and newsletters. Templates and default settings for fonts and margins make it easy. We don’t have to know much about graphic design or the principles of good layout in order to create a document.

In health education, and even more so in the field of education itself, there has been a strong focus on readability over the last 50 years or more, with the emergence of what many experts refer to as modern readability theory with scholars like Dale, Chall, Gunning, and Flesch leading the way. These and others that followed, gave us many of the tools that we know by name (such as Fry, Fog, and SMOG) that are used to evaluate the readability of text. Readability testing can even be done in most word processing programs. But there are very few tools that evaluate layout and design and how they impact the readability of documents.

While health literacy has been a viable field of study for the past 50 years or so, and readability much longer than that, it wasn’t until the National Adult Literacy Survey (NALS) in 1992 and the National Assessment of Adult Literacy (NAAL) in 2003, which included for the first time an assessment of health literacy among American adults, that the concept of readability of health care documents and patient education materials became a major focus of scrutiny. These national studies revealed that as much as 50 percent of the American adult population reads at or below the 6th grade reading level. Several independent studies were designed to evaluate the readability of printed health information, and it was shown that most printed health information is written at the 10th grade level and above, showing a rather large disconnect between the level at which health information is written and the reading skills of the population these materials are intended for.

The National Library of Medicine introduced a definition of health literacy that has been included in Healthy People 2010 and accepted by the Institute of Medicine and included in their 2004 report titled, “Health Literacy: A Prescription to End Confusion.” That definition, the degree to which individuals have the capacity to obtain, process, and understand health information and services needed to make appropriate health decisions, clearly states that the cornerstone to improving health literacy is obtaining, processing and understanding health information. The national literacy surveys and the growing amount of independent research gave us a great starting point. Since 80-90% of patient education is either directly a product
of, or is supported and enhanced by, written documents, it was a natural place to focus our
attention. As the health community became increasingly aware of the need for health
information written at a level most patients can understand, health educators took on the task
of not only learning the guidelines of plain language and the recommendations coming out of
current health literacy research, but also how to evaluate the patient education materials they
were writing and using in their organizations.

Much of the focus, however, is placed on the readability of the text: using simpler words and
shorter sentences, avoiding medical and technical jargon, and using a readability calculator
establish a reading ease or reading grade level score, and hopefully aiming for somewhere
between the 6th to 8th grade.

Even when we do this, we can still end up creating documents that are difficult to read if we
don’t also evaluate the layout and design of the document. If the font is too small, for
example, the document will be difficult to read, even if it is written at an appropriate reading
grade level for our patients. Well chosen fonts, using shorter line lengths, and including
generous margins and white space in a documents make it easier to read. These and other
design elements control the legibility of a document which is part of it’s overall readability.

Documents that are poorly designed defeat all the efforts we put into improving the
readability of the text. In the words of Peter Biľak, graphic designer guru, "Right and wrong
do not exist in graphic design. There is only effective and non-effective communication."

2. I went online to the Wisconsin Literacy Web site but could not find you scorecard. Can you explain
what it includes and how it is used to score a teaching sheet?

I created a toolkit called “Improving Readability by Design” for a presentation at the 2009
Wisconsin Health Literacy Summit. The toolkit includes a PowerPoint presentation that is
designed to be used as a computer-based training tool. In other words, you don’t have to have
the information presented to you. Instead, anyone can review the presentation at their own
speed on their own time, right at their desk. (NOTE: the presentation is available on the

The presentation is modeled after a “design readability scorecard” that I developed. There
already are a number of document design “checklists” and manuals and handbooks that give
recommendations for designing patient education materials, but there isn’t (to my
knowledge) a design evaluation tool that produces a numeric score like readability
calculators do. So that is what I attempted to do.

The design readability scorecard is based on seven design elements are: font, paragraphs, line
length, grouping, graphics, color, and white space. Each design element can have a positive
or a negative effect on readability, depending on how it is used. The scorecard lists the
positive and negative aspects of each design element and provides a way to score the design
and layout of a document. Positive points are added to the score for design elements that
enhance readability. Negative points are subtracted from the score for design elements that
make a document more difficult to read. For example, a document written in times New
Roman (or comparable font) that is at least 12 point in size, would score positive points. If that font was italicized, underlined, or written in all caps, for example, the document would have points subtracted from the total because text that is italicized, underlined, or written in all caps is harder to read.

After all seven design elements are evaluated and scored, all of the positive and negative points are added together to determine the documents overall design readability score. A document can have a total of 65 positive points. After all of the negative points are subtracted, the documents that score closer to 65 are designed to be easier to read. Documents that score in the 45 to 50 range have some minor design flaws that should be corrected before using the document with patients. Documents that score below 45 should be redesigned before use, or perhaps not even used at all.

3. You mentioned your toolkit looks at seven design elements-why these elements and how did you choose them? What are the seven?

The seven design elements are: font, paragraphs, line length, grouping, graphics, color, and white space.

After researching several manuals and handbooks on document design, I realized that most covered the same elements, although they didn’t always refer to them by the same name or definition. The elements I included could be more accurately described as categories because each one covers more than one concept. For example, for fonts there are two main considerations: the size of the font (commonly measured in points or picas) and what I call the font’s classification, with the two main ones being serif and sans serif. Beyond this you consider the font family. A common family of sans serif fonts is Arial. Within that family of fonts are Arial, Arial Black and Arial Narrow. Each of these can also be bold, italicized or both, which creates a myriad of combinations and variations within each font. [Side note: The art (or is it a science?) of typography is rather complex. To become really familiar with a font you’d evaluate the x-height, counters (or negative space), and the ascenders and descendents (or the parts of letters that rise above or hang below the x-height in letters like h, k, p, q and g). This isn’t something most people have the time or the interest to study.]

I identified one of the design elements as “grouping,” and in that category I included bulleted lists, numbered lists, tables and figures, and other methods used to group information together other than in standard prose paragraphs. I thought it made sense to look at all these as one design element instead of assigning them into separate categories on the score card.

4. I would guess that the direction to use ample white space in the layout or generous margins came because there were no specifics or generalities were not needed-how did you determine otherwise?

Actually, a few manuals and handbooks on designing printed patient education materials provide specific recommendations for margins and white space. However, many only offer vague suggestions. Here a sampling of what I found:

Simply Put: Tips for creating easy-to-read print materials (CDC) - "Leave at least 1/2 to 1 inch of white space between the margins of the page and between columns." [page 19]
I think the reason why so many of the recommendations are vague is that design is very subjective. After all, document layout and design is often referred to as “graphic arts.” The very term “design” implies a subjective, artistic quality. Often this subjectivity is influenced by preference. When we create a document we might choose fonts that we like or think that look good on the page. We seldom think about the preferences of the end users, perhaps mistakenly thinking that we share common preferences.

Because of the subjective nature of design recommendations, and the fact that they are often vague, they don’t usually carry the same weight and validity of other recommendations and ‘rules’ that more concrete and well defined. One of the most common (yet often unwritten)
rules in writing patient education is “shorter is better.” There is some validity to this. However, one of the most common problems in writing patient education documents is too much text. We try to fit it all on one page, because patients are likely read it if it’s one page. When we have too much text, instead of going through the document line by line and cutting what is not needed or editing sections to make them less wordy, it’s easier to shrink the margins or make the font one point smaller to get all of the text to fit on one page. We often do this without thinking. If the recommendation is to simply have “ample white space” there isn’t a way to measure or quantify what is “ample.” So why not change the margins or shrink the text to make it fit?

The toolkit doesn’t resolve the issue of subjectivity. I do not see the value in saying all documents must have a one inch margin, for example. It depends on the type of document you are creating or evaluating. One inch margins make sense for a letter. It would be impractical, however, to have a one inch margin on a brochure. So, recommendations like “use generous margins” are unavoidable if you intend to provide general recommendations that can be applied to many different types of documents.

What I tried to do (which I feel is missing from the available checklists and design manuals) is provide a way to assign an objective, measurable, quantitative score to a document based on subjective, variable concepts of good design.

5. How did you find specific information on what would be considered generous white space etc?

I looked at 15 manuals, handbooks and resources about designing patient education materials and cross referenced them to compile the list of seven design elements included on my score card. I used these 15 resources to form a consensus for what makes up the positive and negative point structure on the score card.

- Beyond the Brochure: Alternative Approaches to Effective Health Communication (AMC Cancer Research Center and Centers for Disease Control and Prevention)
- Clear & Simple: Developing Effective Print Materials for Low-Literate Readers (National Cancer Institute)
- Easy-to-Read NYC: Guidelines for Clear and Effective Communication (City of New York, Mayor's Office of Adult Education)
- Guidelines for Developing Easy-to-Read Health Education Materials (Washington State Department of Health)
- Making Health Communication Programs Work (National Cancer Institute)
- Patient Education Materials: An Author's Guide (University of Utah)
- Patient/Family Education Print Material Guidelines (Capital Health)
- Principles for Clear Health Communication (Pfizer)
- PRISM Readability Toolkit (Group Health Center for Health Studies)
- Simply Put (Centers for Disease control and Prevention)
- The Health Literacy Style Manual (Covering Kids & Families)
- Readability for Clear Health Communication (Health Research for Action)
- Tips for Clear Health Communication (Health Research for Action)
- Writing and Designing Print Materials for Beneficiaries: A Guide for State Medicaid Agencies (Centers for Medicare & Medicaid Services)
6. Can you briefly go over your seven design elements and a few of the positive and negative impacts each design element can have on a printed document?

1. Font

Positive:
- Font is comfortable size (between 12pt and 15pt)
- Main body text is a serif font
- Heading and subheadings use a sans serif font (for contrast)

Negative:
- Document uses more than 3 different fonts
- Document contains script, novelty, or “fancy” fonts
- Document contains italicized text
- Document contains words, sentences or paragraphs in “ALL CAPS”
- Document has awkward line spacing (too much or too little space between lines of text)
- Low contrast between text (words) and background (paper)

2. Paragraphs

Positive:
- Document uses blocked paragraphs: no indenting, left justified text, space between paragraph
- Document uses descriptive headings and subheadings

Negative:
- Paragraphs are indented
- Document uses short headings and subheadings (i.e. “symptoms” or “what to do”)
- Document contains text that is center justified
- Document contains text that is right justified

3. Line Length

Positive:
- Document uses appropriate line length (lines of text about 39 [alphabet and a half] characters wide)

Negative:
- Document contains lines of text that are too long
- Document contains lines of text that are too short

4. Grouping

Positive:
- Document uses lists (bulleted, numbered) appropriately
- Information is “chunked” or grouped into manageable sections
- Tables are used for comparative information

Negative:
- The document lacks a logical flow
Sections are not clearly described or blocked
Navigation markers (i.e. headings) are lacking or inconsistent
Bulleted lists contain more than 5 items
Information presented as “steps” is not a numbered list
Tables do not have clear headings

5. Graphics

Positive:
Document has good graphics that add meaning and help explain the text
Graphics are appropriate for the subject and the audience

Negative:
Graphics disrupt the flow of text
Graphics are not sized correctly (too small or too big)
Graphics are decorative and/or distracting
Photos do not represent a diverse mix of cultures, gender, or ages for the intended audience
Demonstrative photos/graphics do not have captions

6. Color

Positive:
Color is used appropriately in the document

Negative:
More than 3 colors are used in the document
There is not enough contrast between the text and the background
There is not enough contrast between the colors (will not translate to black and white/grayscale)

7. White Space

Positive:
The document has adequate white space

Negative:
The document does not have adequate margins or space between columns
There is not enough white space around graphics (photos, logos, tables, etc.)
Document is “text heavy” and crowded

The score card still contains subjective evaluations. However, I tried to use the positive and negative points in combination to define the design elements that add to the overall reading ease of the document and those that make the document more difficult to read. For example, positive points are given if color is used appropriately in the document. But what does that mean? The negative points help clarify. Negative points are given if the document contains more than 3 colors, for example. Overuse of color adds to both visual and navigational confusion. An example of appropriate and effective use of color would be using colored text for headings and subheadings. They stand out to the eye and help readers scan the document to find the information they want. Another example when color can subtract from the overall readability of a document is if the there isn’t a strong enough contrast between colors. Yellow text on a white background, for example, does not have a strong contrast. If blue text
is used over a blue shaded box, there needs to be enough contrast to make the words stand out clearly from the background. One good test is to print the colored document in grayscale. If the shades of gray are difficult to distinguish from one another, the colors do not have enough contrast.

7. Patient education managers often provide information about writing readable text to "experts" in various fields who might write teaching materials? Why would it be just as important to offer details on design?

8. How does understanding the impact of design on readability influence the development/writing of the text?

One obvious example comes to mind. Knowing that white space is an important design element that adds to the readability of documents, writers of education materials should plan for it. I identified single-page documents that incorporate generous white space into the design. I then removed the white space (space between paragraphs, space between columns, space around headings, graphics and logo, etc.) and cut and pasted the text into a standard word processing document. Without the white space, the text itself filled 2/3 of the page. I also looked at documents that didn’t use much white space. These documents looked crowded and ‘text heavy.’ When I removed the white space, I found the text itself filled more than ¾ of the page. To avoid documents that are too text heavy, and to ensure your documents have enough white space, I recommend to writers that they provide only 2/3 of a page of text for each one page document.

It’s hard to explain in words, so here is a graphic I use in the toolkit to help explain this concept:

To fill a one page patient education handout, only write 2/3 of a page of text. Leave at least 1/3 of the page for white space (margins, space between paragraphs, space around headings and graphics, etc.). Space at the bottom of the document should be available for in formation
like a disclaimer, sources of the information, copyright, date of publication and last review, name of organization, logo, etc.