Cybercommunications
Communications, Cyberliteracy & Comprehension

By Craig D. Spiezle

Internet usage is quickly becoming representative of the US population in terms of race, age, income and education achievement. Currently, over 65% of homes in North America are connected to the Internet. At the same time, we see significant usage variances by age and minority group. Recent research indicates usage declines with age. Only 51% of those aged 50 to 64 are online, and just 13% of those 65 - 79 are connected.[1]

As we have witnessed an unparalleled integration of technology into society, we are challenged to leverage the power of the Internet to communicate with these diverse audiences. To accomplish this requires an understanding of online consumers' attitudes and perceptions as well as their general reading level.

This white paper discusses the following subjects:
- Usability & Design – Principles of Effective Cybercommunications
- Relating to Your Target Audience
- Cyberliteracy - Comprehension & Readability
- Connectivity & the User Environment
- Getting Noticed
- Lessons Learned

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[1] September 2001, PEW Internet Life study. http://www.pewinternet.org/reports/toc.asp?Report=40

Usability – Principles of Effective Design
Since its inception, the Web has been a medium constantly surpassing itself. The Internet has become a lifestyle and lifeline for many. We have witnessed the integration of audio, video, and innovative designs that have revolutionized the way we communicate. Personalization is becoming common with the capability of publishing dynamic content based on the user's preferences. With these technological advancements we are still faced with design and usability limitations, as many sites reflect the personality of the designer. Standards in design, tone and readability regarded as acceptable for one age group or culture, may simply not meet the needs of others.[2]

Unlike printed brochures, direct marketing and advertising, cybercommunications add usability as a requirement. An understanding of these human factors will affect your targets audiences' level of comprehension and response rates. Effective cybercommunications take into account navigability, intuitiveness, functionality, literacy level and interactivity from the user's perspective. What might appear as natural and intuitive to the designer may be confusing to the reader.

When a reader is viewing your web site or email newsletter, you have no control over the reader's platform, color, and screen size or resolution. Microsoft IE and Netscape Navigator browsers can interpret pages differently displaying contrasting results. Hard coding typographical controls to provide "design integrity" will only exasperate users from being able to change the font sizes and display settings, limiting the readability of your cybercommunications.

Design, Layout & Style
Designing for a web site or email newsletter is not unlike a newspaper. Many of the same principles apply including layout, article length, and consistency. This is important as users typically skim web sites versus reading the entire page or article. The layout should be based on the needs and reading level of the user versus that of your advertisers or sponsors. The most important information and content should be in the first screen. Novice as well as adults new to the net, tend to scroll less and more slowly by using the bar arrows on the right hand scroll bar, versus dragging the bar up or down.[3] Further slowing their navigation is the use of outdated mice, which typically do not have an integrated scroll wheel and often produce inconsistent results due to dirty and worn out mechanical components. To enhance the usability consider the following;

- **Minimize animation & graphic elements.** Flashing graphics are highly distracting. For users with diminished peripheral vision, or for those who use bifocals, animation can be the difference between viewing a site and not. Splash screens or opening videos are equally troublesome for many. These consume bandwidth, often cannot be exited from gracefully and typically require plug-ins which by their nature can be obtrusive.

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[2] See www.agelight.com/humanfactors/humanfactors.htm for a white paper on web site & interface design.
[3] AgeLight May 2001 usability study of 20 to 60 year old computer users.

- **Opening new and additional brower windows** - Excessive use of pop-up (and pop-under), windows and ad banners distract user's readability and interest. Forcing the browser to open a new browser window on selected links, in effect disables the back arrow, decreasing usability while consuming system resources, risking diminished computer performance.

- **Create a balance of type and open space**. Substantial areas of white space and reasonable amounts of small blocks of text increase readability. The results are your pages are cleaner and easier to navigate. Bear in mind that larger (longer) pages can mean more scrolling for the user. Consider including hyperlinks and bookmarks within long pages so viewers can "jump" from section to section with a single click.

- **Refrain from hard coding to maintain design integrity**. Do not use any coding that will limit a user's ability to adjust or change his or her font size or colors. Be aware of navigation bars, graphics, logos and other crucial elements that typically cannot be resized.

- **Avoid distracting background elements**. Using any background patterns including watermarks or embossed logos generally risks interfering with readability. As an alternative, a light complementary background color can be applied.

- **Insure links are identified**. Insure your links are consistently underlined. Conversely do not underline text or headlines that are not a link. A user should not have to guess or maneuver the mouse to find a link. After a link has been viewed, the link color should change from the traditional blue, to purple or red. Links should be descriptive, but no more than 10-12 words for quick readability.

- **Minimize page length.** Short pages, those containing one or two screens of text, work well for the home page and menu pages when users are scanning for information. Longer pages, although they require more scrolling, may work for destination pages where related content can be printed and read/scanned together. Break topics down into succinct pages for usability and printing. Pages and articles should be small to achieve a download time of 10 seconds using a standard modem, as larger page sizes will increase users abandon rates of the content.

- **Create style sheets.** Style sheets allow you to pre-set formatting options including fonts, colors, spacing and paragraph alignment. Not only does this help to avoid confusion, but it also reinforces your visual identity. The use of style sheets are a significant time saver for updating and editing your site.

- **Consider your color options carefully** - Color is a critical consideration in web and interface design. Two colors that may appear to contrast sharply to someone with normal vision may be indistinguishable to a user with vision impairments. As a basic principle, one should first design in black and white, and add color for emphasis when your design is complete. Start with creating a hierarchy of features that a user "must" be able to interact with, and then consider those features that would be secondary or "nice" to see. These recommendations apply not only to text, but also to graphics including charts and graphs. As an alternative, consider adding a pattern or shading for differentiation of data. This will insure readability online as well as in printed output. This also applies to email and newsletters since all email applications do not offer rich text capabilities or have been configured for HTML content.

Relating to your Audience

The web by its nature is worldwide, attracting people of all ages with a wide range of literacy levels, cultural perspectives and value structures. No mater if you are targeting teens, tweens or active adults, these requirements hold true. One of the biggest challenges in marketing to adult audiences is the belief that the 50+ market is a cohesive and homogenous group. Thinking a group with a 20 to 30-age range is similar fails to understand the diversity and range of life stages, experiences, values and perhaps most importantly self-perspectives.

These studies typically fail to incorporate age band analysis. Second, many combine this data to demonstrate perceived purchasing power and market potential, risking misguiding business analysis. Combining age classifications without overlaying lifestyle and employment has proven to be short-sighted and often ineffective.

The first step to effectively communicating with specific demographic audiences is to understand their respective generational and cultural perspectives. From a content perspective, consider the values of the target audiences and icons they identify with. Life and world events, which connect with their youth, their aspirations and perceptions of themselves, will posture your cybercommunications for success.

Table I, illustrates significant lifestages and milestones, ranging from the time of first learning to drive (age 16), being able to legally drink (age 21), and married with children (age 30). Once you identify the age of your target audiences and their respective age band, you can then incorporate attributes from their formidable years.

Keys to Relating to Customer Segments

- Values
- Individual self-aspirations
- Life Events
- Social & World Events
- Identifiable Icons
- Connections with their youth

Table I						
AgeLight LifeStage - Event Matrix						
Age Today	**Born**	**16**	**21**	**30**	**35**	**40**
30	1972	1988	1993	2002	2007	2012
35	1967	1983	1988	1997	2018	2007
40	1962	1978	1983	1992	2013	2002
45	1957	1973	1978	1987	2008	1997
50	1952	1968	1973	1982	2003	1992
55	1947	1963	1968	1977	1998	1987
60	1942	1958	1963	1972	1993	1982
65	1937	1953	1958	1967	1988	1977
70	1932	1948	1953	1962	1983	1972
75	1927	1943	1948	1957	1978	1967
80	1922	1938	1943	1952	1973	1962

Cyberliteracy - Comprehension & Adult Literacy

Today there is a significant gap in the reading ability of Americans. State and national surveys define adult literacy as those who read at an eighth grade level. According to the 1992 National Adult Literacy Study, 92 million adults in the US, almost 48% of the population have low or very low reading skills.[4] This report found that many adults lack the basic reading, writing and computational tasks necessary to understand health, personal finance, travel and governmental services information.

This study concluded that one out of five adults read at or below fifth grade levels. Among inner city minorities, almost two out of five are illiterate. In addition, two out of five older Americans (65+) read at or below the 5th grade reading level, while the average adult reads between the 8th and 9th grade levels. This illustrates the need to understand your audience and not to assume that because they are online, they have a 12th grade reading level. Table II, illustrates the varying levels of high school and college education by adults, and anticipated increase in education achievement over the next 2 decades. As these adults have embraced the Internet in droves and are one of the largest seekers of heath care information, the need to create content at appropriate reading levels is amplified.

Table II		
Education Levels of Americans[5]		
	50-64	**65+**
1976	10% minority 58% completed High School 12% College Graduates	9% minority 37% completed High School 8% College Graduates
2020	29% minority 87% completed High School 27% College Graduates	22% Minority 86% completed High School 28% Collage Graduates

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[4] JAMA article published May 25, 2001 http://jama.ama-assn.org/issues/v285n20/abs/joc02274.html
[5] Source: US Census Bureau / US Administration on Aging November 2001.

The need for understanding cyberliteracy has been increased by the nature of web authoring and content creation. While all sections of a site are assumed to be closely integrated and written in the same tone and reading level, typically they lack consistency. This is a result of the use of third party content, freelancers and the lack of editorial boards and disciplines found in traditional media. By its nature, people forward and print information to others who were not the initial reader. A prime example is health and medical information, provided to parents or grandparents by a family member.

A recent study authored by RAND Health, reported that for English speaking web sites, the average reading level was collegiate, ranging from 10th grade to graduate school level. This same study for Spanish sites, revealed an average 10th grade level, ranging from grades 7 to 13. Of the English-language sites, all required at least a 10th-grade reading level and more than half were written at the college level.

Comprehension refers to the relative difficulty of understanding the meaning of the words in context. It is quite possible to read without comprehending. Developing materials for other demographic audiences, should match their general literacy level. Writing at levels above them, or taking vocabulary for granted will reduce not only comprehension, but fail to have the target audience identify with your message.

Testing Readability
There are multiple methods of determining the level of readability of your communications. Originally designed to help teachers select textbooks, most formulas give a score in terms of a grade level. However, it is not enough just to know how far your readers went in school. Many adults actually read at 3 to 4 grade levels lower than their last year of education. To determine the readability level of your work, it is as simple as taking sample paragraphs, finding the numbers of hard words and calculating the average sentence length. Simply stated, communications with words with more syllables, and longer sentences, will have a higher readability level. That is just one of the factors you need to know to effectively determine the readability of your printed material.

Readability levels can be tested manually, online as well as with tools within popular word processing programs. Microsoft© Word 2002 includes the Flesch-Kincaid system. Using this tool, writers can quickly determine the grade level, reading ease and summary of passive sentences within any document.[6] The limitation of such a tool is that titles, headers and bulleted points can skew the results. To increase accuracy, we suggest you save your document as another file and delete the following before running the test;

- Words that are not complete sentences.
- Bulleted lists, titles and charts.
- Headings, footnotes and tables.
- Acronyms, abbreviations and extraneous periods.

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[6] In MS Word 2000, select "Tools" and "Spelling & Grammar" and select the "Check Grammar" option.

Using the Flesch-Kincaid system for this document indicated a grade level of 12. Once we made the edits suggested above the level changed to 11th grade.

One of the most widely used manual tools is the Fry Readability Graph (FRG), which can be applied to any marketing communication, written in either English or Spanish. In concept, you take three or more samples of 100 words each and then average the results. Within each sample of 100 words, count the number of sentences, estimating the fractional length of the last sentence to the nearest 1/10th. For the same sample, count the number of syllables in each sample. With these results, refer to the FRG chart below. For example if the average number of syllables per 100 words is 150 and the number of sentences is 5, your content would be at the 9th grade level.

EDWARD FRY'S READABILITY GRAPH
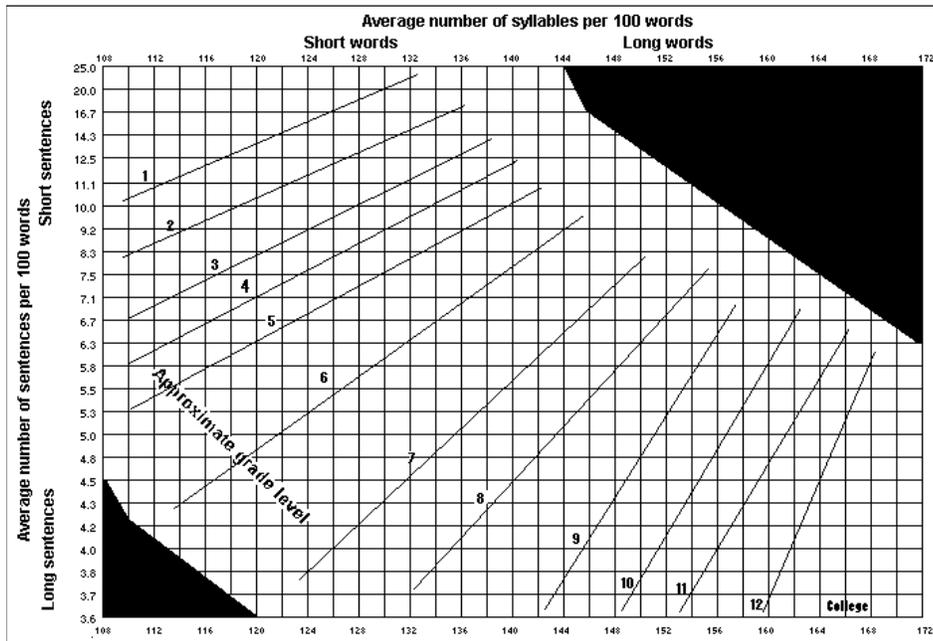
Independent of what tool you use; the FRG, the Flesch-Kincaid or others, you need to understand their limitations. You need to use the same readability tool for all communications including print and online. For this reason, many companies have standardized on the FRG, while Internet focused entities have adapted the Flesch-Kincaid system. In either case remember they provide general guidelines which typically are plus or minus a grade level and the results are not absolute.

Connectivity, the Environment & Testing
Unlike printed medium, cybercommunications introduce an unknown factor to the designer including the display, viewing environment and connectivity.

Once you have segmented your audience, you need to ask yourself several questions including how they will use your product or web site. What devices will they use? How will they be connected (dial up or broadband)? In what environment will they be accessing the Internet (schools, libraries community centers, work, home and / or travel)?

While we have focused on screen and electronic media, there continues to be a significant demand for printed output. This is due to user's preference to leisure reading and references off-line, as well the desire to provide information to others. The implication requires content to be optimized for both hardcopy output as well as online viewing. Other requirements include, insuring all embedded links are listed for future reference, pagination and printability of graphics. To alleviate these issues, many sites provide a printed format option as well as offer documents in Adobe Acrobat PDF format. PDF files offer consistent readability, printability and compatibility with Windows and Macintosh computer platforms. Secondarily, they protect the design integrity and intellectual property of the author.

Test your pages as much as possible. Often colors may look great on screen, but become ineffective when printed in black and white or when viewed with a lower resolution printer. Realize the over sixty percent of users have modems rated at 56 kbps or less, with actual connections averaging 34 kbps. When testing first delete any graphic files in temp directories on your computer to insure your test is representative of what a first time visitor to your web site will experience.

Getting Noticed
Having the best-designed communication, with compelling content and written at the right level is not enough to be found on the net. With nearly 1,000 search engines, being listed is not enough. Data suggests that 85% of all users will not go past the first two pages of search results. The implication is if you are not included in the top 30 results, then effectively you do not exist.

To increase your chance of being found in searches, you need to insure your pages include metatags. Metatags provide information to search engines about: who you are, what you do and how they should categorize or index you. They are comprised of the following: title, description and keywords. Keywords are the essence to searches and can include upwards of 30 words. Anything beyond 150 characters will not be read by most search engines. When evaluating keywords ask your self the following questions. How do you want your content to be found? What are the most relevant keywords? Most importantly what does the consumer think in their terms and what words do they use? Do your terms match their cultural and generational perspectives?

Summary

The Internet has the promise of creating a digital democracy, making information immediately available for people of all ages and cultures. This information available 7 x 24, allows users to make informed decisions regarding their lifestyle, personal finances, careers and healthcare. Yet, until the web is more "readable", the promise of becoming a "leveler" across socioeconomic backgrounds will be limited. Searches need to be more efficient, information needs to be edited for accuracy, cultural and the generational perspectives of the reader. Usability and design need to incorporate human factors and most importantly, it has to be written at the right level for the intended target audience. Without meeting these requirements your work may be read, but not comprehended.

About the Author Craig Spiezle is the CEO of AgeLight LLC, a strategic marketing consultancy focused on life stage marketing, technologies and emerging demographics.

Mr. Spiezle is an advisory board member of the International Federation on Aging, ChefShop.com and has served in advisory roles with the American Society of Aging, Corporation for National Service, Family Care Giver Alliance and the US Administration on Aging. Recent clients include; American Association of Community Colleges, Compaq Computer Corporation, Del Webb, Microsoft, MSN, Pfizer and Secure Horizons.

Previously, as Microsoft Senior Director of Market & Business Development, Mr. Spiezle pioneered the Microsoft Senior Initiative along with numerous initiatives spanning international business development, relationship marketing, branding and public affairs. During his eight-year tenure at Microsoft, Spiezle led several marketing, while creating channel strategies focusing on the consumer and small business markets. Prior to Microsoft, Mr. Spiezle held marketing and managerial positions with Eastman Kodak, and Chiat Day-Livingston advertising.

Since 1999, Mr. Spiezle has received numerous awards and recognition for his work from the White House Commission on Aging, United Nations, US Administration on Aging, the US Senate Special Committee on Aging as well as SeniorNet and GreenThumb.

Spiezle is a graduate of the Rochester Institute of Technology with a Bachelor of Science in Photographic Sciences and holds a MBA in finance from Seattle University. Married with two sons, he resides in a suburb of Seattle.

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