

A MULTIMODAL ANALYSIS OF TWO PUBLICATIONS
INTENDED FOR THE ORAL, HEAD AND NECK CANCER PATIENT

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Chapter One

Introduction

Successful patient care extends beyond direct medical treatment and the clinical venue. This is especially true when the diagnosis indicates chronicity, morbidity, or permanent changes which significantly impact patient lifestyle and quality of life. A wide variety of literature is available to patients through treatment centers and their practitioners, ostensibly to facilitate compliance and alleviate anxiety, thus reducing the patient's risk of co-morbidity. Generally, this literature is created to provide individuals and their families with tangible, reliable, immediate, and consistent information, with the overall purpose of educating them. Rhetorical elements -- that is, the functions that facilitate this educational purpose -- may include the following:¹

- to inform
- to instruct
- to define
- to inspire
- to engage

These elements are intended to help patients and their loved ones by managing expectations, providing emotional support, encouraging autonomy whenever possible, and promoting informed decision-making.

However, there exists a need for determining the extent to which patient reading materials successfully meet their intended purpose. One approach is through document analysis, which serves as an aid in evaluating the efficacy of a publication. Moreover, the

¹ The definition of a rhetorical element, and its identification in a corpus analysis, were documented in the published research of Clerehan, Buchbinder, and Moodie (2004), and further explored in the research for this thesis.

application of document analysis provides a fundamental opportunity to extend knowledge about, and improve upon the analytical process itself.

Using, in large part, the systemic functional linguistics framework model introduced through the work of Clerehan, Buchbinder, and Moodie (2004), and design theory and applications explicated by Kimball and Hawkins (2008), this thesis provides a textual and visual analysis of two medical publications specifically intended for oral, head and neck cancer patients. Such a multimodal approach can help to determine whether an educational purpose has been adequately met, and to explain in detail the reasons behind this determination. The examination of two publications, in contrast to that of a larger corpus, facilitates the establishment of a baseline for future research.

What is oral, head and neck cancer? The National Cancer Institute (NCI) describes head and neck cancer as specifically involving “the nasal cavity, sinuses, lips, mouth, salivary glands, throat, or larynx (voice box).” Oral cancer is defined as “part of a group of cancers... that

can develop in any part of the mouth (oral cavity) or the back of the mouth (oropharynx)” (National Institutes of Health, 2003, p. 4).

Because of the relative infrequency of oral, head and neck cancers

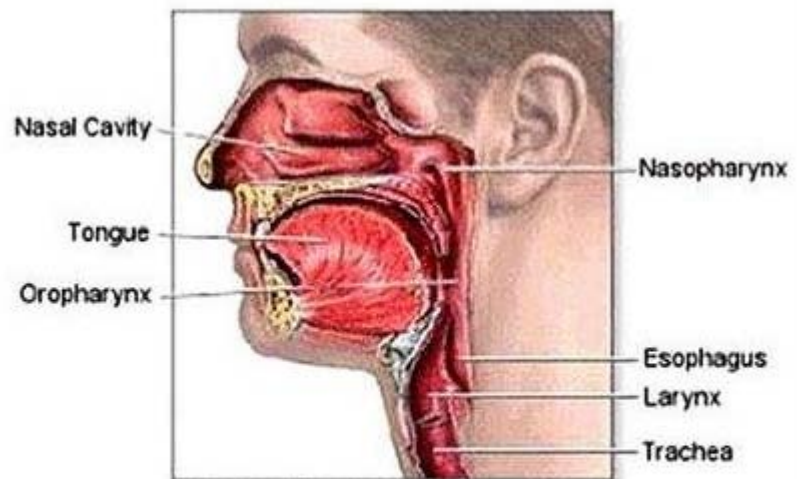


Figure 1. Areas of potential impact in oral, head, and neck cancer. (SPOHNC, 2008).

compared to other forms of cancer, fewer patient publications on the subject exist.²

Regardless of this small number -- and perhaps also because of it -- emphasis must be placed on the importance of shared information that is appropriate, adequate, and accurate.

Evaluated Publications. Two publications, which belong to the sub-genre of medical literature specifically for oral, head and neck cancer patients are discussed here. Presently, there exists no documented analysis of this particular sub-genre. Identifying deficiencies and strengths in these booklets can aid in establishing best practices toward the successful development of new resources. Additionally, such analysis can facilitate the medical community's ongoing mission to meet the educational and psychosocial needs of cancer patients and their caregivers. Below is a description of the two publications addressed in this thesis:

We Have Walked in Your Shoes. This 2008 publication is the product of collaborative efforts among three different entities: Support for People with Oral and Head and Neck Cancer (SPOHNC) -- a group comprised of survivors of this disease, and Bristol-Myers Squibb and ImClone Systems Incorporated -- two biopharmaceutical companies. This book is touted as "a guide to living with oral, head and neck cancer." For purposes of simplification, it will heretofore be referred to as "the SPOHNC book."

What You Need to Know About Oral Cancer. This book is published by the U.S. National Institutes of Health (NIH) -- a division of the U.S. Department of Health and

² Published estimates for 2009 indicated that of the 1.5 million newly diagnosed cancer cases, 3.2% (25,240) of the men and 1.4% (10,480) of the women would be diagnosed with cancer of the oral cavity and pharynx; 1.2 % (9,920) of the men and 0.33% (2,370) of the women would be diagnosed with laryngeal cancer. Other forms of oral, head and neck cancer were not mentioned specifically in the table, and may fall under the category of "other & unspecified primary sites" (American Cancer Society, 2009, p. 4).

Human Services which is comprised of twelve institutions. Two institutions are indicated as co-authors here: the National Cancer Institute (NCI), and National Institute of Dental and Craniofacial Research. For purposes of simplification, this booklet will be referred to as “the NIH book” throughout this thesis.³

Literature Review

Overview. When performing a review of the literature which analyzes patient-focused publications, one is likely to encounter a broad spectrum of topics. Clearly, research has been carried out in a number of areas, insofar as a wealth of patient reading materials for a variety of diseases exists, along with innumerable patient needs and health care objectives. Also, we can safely assume that efforts to explore new analytical approaches to medical communication and patient education initiatives will continue, as long as we are willing to maintain a robust and dynamic health care industry.

One approach to document analysis is to measure or assess a collection of publications (called a corpus) for a number of factors, including suitability, reliability, quality, adequacy, and readability. These terms can be somewhat problematic, since they may mean different things to different researchers. Whenever possible, their meanings -- as they relate to specific research literature -- are clarified in this review.

Quite often, a multimodal approach -- that is, the application of more than one research mechanism -- is used as a means of either comparing those mechanisms or obtaining different information about a corpus (or both).

³ Oral, head and neck cancers can involve other sites not included in the NIH book discussed here, and other NIH publications are devoted to those sites. However, the ACS places some of those other sites, which may qualify as oral, head and neck cancer, in different categories within its estimate tables. For example, the larynx is identified as part of the respiratory system, and the esophagus is part of the digestive system (American Cancer Society, 2009, p. 4). It was found that the overall content of the NIH book, including its definition of oral cancer as “a part of a group of cancers called *head and neck cancers*,” substantiated its use as a sufficient and appropriate document from which to draw comparisons with the SPOHNC book for this study (National Institutes of Health, 2003, p. 4).

Literature. Such a multimodal approach was appreciated in an analysis performed by Demir, Ozsaker, and Ozcan (2008). In their study of 59 patient information brochures available at 138 surgical sites, the researchers first documented their use of the DISCERN questionnaire system (developed by Charnock et al., 1999) to measure corpus reliability and quality of information.

The DISCERN mechanism contains a total of 16 questions: eight specifically on reliability and seven on information quality, with a final question on overall quality. Reliability encompasses several criteria: clarity; relevance; timeliness of information; inclusion of reliable information resources; balanced and unbiased content; provision of additional sources for information and support; and references to areas of uncertainty. Quality refers specifically to the information contained in the corpus: comprehensive descriptions of treatment protocols; benefits; risks; description of risks when forgoing treatment; description of treatment choice impact on overall quality of life; clear indication of treatment choice; and expression of support for shared decision-making. The questions solicit specific numeric rating responses: number 1 represents “no,” numbers 2, 3, and 4 represent levels of “partially,” and number 5 represents “yes.”

Based on Demir et al.’s (2008) research, the overall average DISCERN score for the corpus was 42.5, out of a possible 80. This was indicative of a corpus with “serious deficiencies” (p. 263).

However, the researchers posited that reliability and information quality alone could not determine the overall efficacy of patient brochures. In view of this, they also utilized the Suitability Assessment of Materials (SAM) to measure suitability of the same corpus of patient publications. This 27-question form addresses a number of

categories concerned with culturally appropriate strategies and ease of understanding when delivered to the intended audience (listed here with number of questions for each in parentheses): content (4), literacy demand (5), pictures and graphs (5), layout and typography (8), learning stimulation and motivation (3), and cultural appropriateness or suitability (2). This test offers three possible scoring outcomes: superior, adequate, and not suitable. The corpus of this particular study received low suitability scores, averaging 13.22 out of a possible 27 points. Of particular interest here is the implementation of a multimodal analysis which included visual analysis applications contained in the SAM mechanism.

Carrigan, Raynor, and Knapp (2008) employed a different approach to multimodal analysis in their quantitative research of 50 medication leaflets, measuring the frequency with which adverse effects were mentioned, and examining the format used to explain adverse effects. The research was specifically concerned with the adequacy of a document, as defined by “the extent to which the likelihood of adverse effects was described ...” (Carrigan et al., 2008, p. 1). The leaflets in this particular study were published for consumers of the 50 most widely prescribed drugs in the United Kingdom. Half of the leaflets, chosen at random, were for generic drugs, and the other half for brand name drugs. The motive behind the research was “anecdotal evidence” which suggested the paucity of information regarding adverse effects in medication leaflets (Carrigan et al., 2008, p. 1).

In their findings, the researchers noted a clear distinction in format between the generic and brand name leaflets; for example, bullet points were used more often in the brand name leaflets. Conversely, the generic leaflets made greater use of continuous

prose; this indicated that minimal consideration was placed on document design applications that could facilitate understanding of the content. In their quantitative analysis, the researchers determined that overall the leaflets were inadequate in conveying information about adverse effects (Carrigan et al., 2008, p. 311). The relevance of Carrigan et al.'s work to this thesis is found in its multimodal approach, which includes both a textual and visual assessment. Additionally, as this thesis discusses documents from two different kinds of publishers (government-based and corporate-private sector), it is worth noting the researcher's findings about the distinct design approaches among publishers associated with generic versus brand name products.

An even more comprehensive and compelling approach is Clerehan et al.'s (2004) multimodal assessment of readability and adequacy of information, based on systemic functional linguistics, in an evaluation of 18 patient brochures about the drug methotrexate.⁴ Here, the researchers attempted to answer the question of whether information contained in patient literature was both useful and easily understood, and how patient understanding might be either facilitated or impeded by nine specific considerations. Systemic theory is concerned with "how people use language to make meaning and how language is organized to enable meanings to be made" (Clerehan et al., 2004, p. 334-335). The nine considerations explored in the corpus attempt to address the expansive topic of language comprehensibility:

1. text organization and structure, with regards to the identification of moves
2. rhetorical elements, with regards to the function of moves
3. metadiscourse, which explains the purpose of the text

⁴ Methotrexate is a chemotherapy drug that can also be used as an arthritis medication. Clerehan et al.'s (2004) assessment focused on pamphlets connected with its use in the treatment of rheumatoid arthritis.

4. headings, which serve as signposts
5. factual content, which includes information that is up-to-date, valid, and substantiated
6. technicality of the vocabulary
7. lexical density, indicated by the average number of content words per clause
8. the relationship between the writer and reader, indicated by elements such as interactive design, second-person use, and vernacular
9. format, which includes visual aspects such as layout, font choice, and graphics

The researchers used a variety of approaches to address these. For considerations 1 and 2, they performed a move analysis and identification of rhetorical elements (the functions related to textual segments), arguing that “the comprehensibility of a piece of text will be affected by expectations of which ‘moves’ are likely to be included, as well as how these are organized” (Clerehan et al., 2004, p. 336). The move analysis was performed by breaking sections of text into categories based on their approach to a particular function, then identifying that function, called a rhetorical element. For example, a move identified in this study was “dosage instructions,” and the rhetorical elements connected to this move were identified as *to inform*, and *to instruct* (i.e. in any section of the patient brochure where dosage instructions are located, it was found that the function of that section was to inform and/or instruct the patient) (p. 336, 337).

For considerations 3, 4, 5, 6, and 8, a close reading was performed. Specific areas of text were assessed with regards to each consideration, and compared against the text in other corpus documents to identify trends and relative success in their comprehensibility.

For consideration 7, the researchers performed an LD analysis to assess readability, though they did not specifically explain the formula used. (Further discussion on LD can be found later in this chapter, as well as in Chapters 2 and 3). Consideration 9 was addressed by a visual analysis of textual arrangement (e.g. narrative prose versus bullet points), font size, and text style. Conclusions from this study included the assertion that the corpus, despite its common theme about a medication, lacks a “standard approach,” and reflects little agreement regarding “the purpose or extent of information that should be provided” (Clerehan et al., 2004, p. 341).

Of particular relevance to the research for this thesis is how the authors’ multimodal research fosters a critical and comprehensive approach to document analysis. Drawing from this work, while acknowledging some of its limitations (discussed below), six of the considerations were determined to be particularly relevant in a textual analysis of patient print materials: overall organization and structure; rhetorical elements; lexical density; factual content; technicality of vocabulary; and roles and relationships expressed in the text.

Despite the overall appeal of systemic functional linguistics as a basis for addressing multimodal document analysis, limitations in Clerehan et al.’s work are noted. For example, very little emphasis was placed on visual analysis, despite the researchers’ acknowledgement of its importance: “Together with critical assessment of factual and visual aspects, consideration of key linguistic features should improve the quality of

informational texts for our patients” (Clerehan et al., 2004, p. 334). Further, the way in which the authors addressed visual analysis appeared inconsistent and fragmented: the methods section introduced visual aspects as a category which included “format, layout and graphical aspects”; however, the table summarizing the framework indicated “format” as a category which included “visual aspects such as layout, font size, style, use of visual material, etc” (Clerehan et al., 2004, p. 337-338).⁵

A second problem is based on the wording used in the analysis. For example, in addressing the overall structure of the text, the researchers identified nine “essential” moves (i.e. identifiable sections of text). A question they presented here was, “Are all essential moves included?” (Clerehan et al., 2004, p. 337) The meaning behind “all essential” is somewhat problematic. This may be less of a problem for larger corpora where trends become apparent. However, it is uncertain whether a corpus of 18 documents is sufficient in facilitating a comprehensive understanding of what comprises “all essential” moves for that particular genre; it can appear somewhat presumptuous to make a determination that “all essential” moves have been identified when their identification arises from the corpus itself. At best, one can discuss whether or not identical moves are found among the literature, and to what extent. To their credit, the authors do this by addressing the scope of variability associated with moves among the pamphlets: “There was a large degree of variability between leaflets with respect to incidence and sequence of moves” (Clerehan et al., 2004, p. 338).

This article contained an additional caveat in the section addressing lexical density (LD) measurements. Though the researchers determined that high LD could be

⁵ Though the visual analytical considerations are worthy of acknowledgement in the study performed by Clerehan et al. (2004), these limitations necessitated the use of other, more reliable resources (mentioned later in this review) to facilitate the visual analysis for this thesis.

identified by the use of four or more content words in an average clause, they failed to define the length of an average clause. Additionally, the examples used to substantiate their findings called into question the reliability of this work: the average number of all the words contained in three high-LD clauses (as determined by the researchers) was 17.66, (average LD = 9.33). For three low-density clauses discussed, the average number of words was 8.3 (average LD = 3). The problem with this approach is twofold: not only is “average clause length” unspecified, but the LD of the clauses discussed appeared to be directly proportionate to their respective clause lengths. While readability may be achieved through the use of shorter sentences as well as fewer content words, this was not specifically addressed in the article.

In response to this limitation, another resource was identified to understand LD calculations: text extracted from Margaret Williamson’s *Life at the ICI* was found on the Website, <http://www.speech-therapy-information-and-resources.com/lexical-density.html> (Williamson 2009). In her published examples, the researcher chose two passages of text -- a paragraph of technical writing, and a transcription of spoken dialogue -- to demonstrate differences in LD between written and spoken language. The clauses themselves varied considerably in length, particularly since spoken language typically contains shorter clauses. To accurately approach this analysis, the researcher looked at a transcribed, spoken passage containing enough clauses to comprise a total word count comparable to that of the written text. The passage of spoken clauses contained 104 words; the written passage contained 102 words. Findings from this work revealed 60 content words in the written passage (LD = 58.8%) and 48 content words in the spoken

dialogue (LD = 46.2%). This article serves as a viable resource in assessing LD as part of the multimodal analysis addressed in this thesis.

While some research has touched on the importance of visual analysis (Demir et al., 2008, Clerehan et al., 2004, and Carrigan et al., 2008) the majority of multimodal research found in the literature remains specific to textual analysis. For example, Sand-Jecklin (2007) used the Fry and SMOG (Simplified Measure of Gobbledygook, McLaughlin 1969) formulas for assessing readability in five medical brochures. Readability is defined as the extent to which a document is able to be read by its intended audience, based on word density. A “readable” document is written for a 5th-6th grade level reader (Sand-Jecklin, 2007, p. 121). The Fry Readability Formula, developed by Edward Fry, requires the evaluator to choose three samples of 100 words each from a document under investigation. The evaluator then counts the number of sentences and syllables contained in each cluster. The average of these values contributes to a calculation that yields a number applicable to the grade level associated with that document.

The SMOG methodology requires the evaluator to choose ten sentences from the beginning, middle, and end of a document, and count the number of words which contain three or more syllables. This number is said to determine the approximate grade level of the document. For example, a document containing one to six polysyllabic words is most likely to be at a fifth grade reading level.

In her research, Sand-Jecklin (2007) determined that the corpus as a whole was written well above the reading level indicated for ensuring patient comprehension. Of note, the number of complex medical terms extracted from the brochures ranged (on

average) from 11.8-42.5. (The number of syllables for those terms averaged 3.2-4.3.)

The author conceded that while the provision of patient literature, even if written well, could not guarantee compliance, potential benefits nevertheless exist when this literature is combined with direct communication involving the health care practitioner. This underscores the importance of a critical approach to patient care that combines direct oral and written communication. For purposes of this thesis, this study further makes the case for multimodal analysis to support one's findings.

In another multimodal study (Ko, Simons, & Mandell, 2007), SMOG was again used along with yet another research method in an assessment of information handouts. Here, the researchers demonstrated the value of readability test applications performed prior to distribution. In addition to SMOG, the Flesch-Kincaid test was applied to a new information card for post-surgery patients and their caregivers in a pediatric otolaryngology clinic. The primary focus of this published work was determining patient impact and caregiver response after receiving the new document. Thus, readability studies served as a foundation to this participant-focused research. Readability, as defined in this study, was again determined by the grade level attached to the target audience. The formula for determining readability per the Flesch-Kincaid is $(.39 \times \text{ASL}) + (11.8 \times \text{ASW}) - 15.59$, where ASL = average sentence length and ASW = average number of syllables per word. Flesch-Kincaid readability results reflected a 4.2-4.6 grade level, and the SMOG results reflected a 6.9-8.3 grade level readability. This article demonstrates a potential limitation of multimodal studies, insofar as the research methods may not fully corroborate one another.

A concern related to the purpose of this thesis is the social significance of document analysis, as we learn how written work can impact patient care. Salient to this is a textual analysis performed by Shieh and Hosei (2008), who combined two previously mentioned approaches to prenatal brochures; using the SMOG and SAM methodologies, they assessed patient literature for readability (as determined by grade level of written material) and suitability. This research addressed documents with an intended audience consisting of low-income women. It was determined that the overall readability of the corpus was inadequate (average reading level of 10th grade). Ratings for overall suitability (defined as the extent of cultural appropriateness and ease of understanding by the intended audience) averaged 66 percent. Outcomes like these substantiate the social significance of close analysis of patient literature prior to mass publication and distribution. This could prevent the placement of inadequate literature in the hands of our most vulnerable populations.

Through brief discussions included in the topic of close analysis, researchers have acknowledged the importance of visual elements and document design in multimodal studies. However, there is published research which provides a more comprehensive approach to this topic. For example, in their work involving a cohort of college students, Whittingham, Ruiters, Castermans, Huiberts, and Kok (2008) found that a brochure which underwent design modifications resonated more for the readers, insofar as they were able to recall more information. These modifications were on the macro- and micro-levels, with the addition of relevant illustrations and graphics. (“Macro” refers to layout components, such as headings; “micro” refers to textual components, such as links and

transitions.) This work supports the importance of visual analysis as a means of determining how document design serves an intended purpose.

Visual communication encompasses a number of areas, including medium -- that is, the mode of communication. Colledge, Car, Donnelly, and Majeed (2008) addressed this topic in their argument for improvement in providing both sufficient and appropriate information to all patients. Here, the emphasis was on approaches to improving health literacy as a means of promoting overall health. These approaches include: 1) improved overall access to information; 2) patient-practitioner dialogue with specific agendas (e.g. the teach back method); 3) alternative format resources, such as the internet. The researchers addressed the ongoing problems associated with a dynamic field where the literature requires constant or periodic updating. While much can be said for the internet in terms of its universality and overall accessibility, its reliability is still questioned (as determined by a number of factors, including the Web writer's knowledgebase and credentials, and the timeliness of the Website). Further, this article called attention to the advantages and limitations associated with patient brochures. One benefit of the print brochure over other resources is that, ideally, it remains a tangible artifact of a patient-practitioner discussion.

Responding to the importance of document design in health education materials, Ko et al. (2007) demonstrated that medical literature was well received by the readers when it incorporated visual elements to augment caregiver instructions. However, due to inadequacies found in data collection procedures, the researchers' objective for this study could not be met: conclusive evidence was not available to ascertain whether the medical literature enhanced autonomy among caregivers (as determined by the number of post-

surgery phone calls to health practitioners.) In another study on document design, Schapira and VanRuiswyk (2000) found that when a cohort of male readers was given illustrated pamphlets on prostate cancer screening, they were found to be better informed. However, these individuals did not take further action to undergo screening, despite the recommendations in the pamphlets.

The efficacy of a document is also heavily dependent on the creative process. This takes into consideration a number of factors, including the individuals involved in its development, the challenges associated with the project, and the reasons behind creative decisions. Ko et al.'s (2007) work highlighted the importance of performing readability tests during the developmental phase, and prior to public dissemination.

In their research, Gal and Prigat (2005) also demonstrated how the creative process directly impacts the document itself. In particular, the design process, the management of document quality, and the overall project are at risk of being compromised with the emergence of distractions related to goal conflicts, organizational pressures, misconceptions about user skills, and inadequate pilot testing. Through their research, the authors encouraged document designers to take into account the negative impact of “too many cooks.”

In addition to the confusion that may occur in the design process, problems related to novice developers have also been addressed. In their account of a negative assessment of nine prostate cancer information booklets routinely given to patients at the time of their diagnosis, Yap, Armitage, Emberton, and van der Meulen (2006) argued that “the expertise required to produce high-quality information materials are [sic] diverse and often beyond the scope of professional bodies or charities” (p. 251). Several deficiencies

in the patient booklets were noted in this short article, including a lack of crucial information about certain treatment options, as well as missing glossaries and/or sources of content information. These deficiencies were attributed to the low expertise of those who created the documents. This article underscores the importance of understanding what is involved in developing appropriate, accurate, and adequate printed information as a means of addressing both the practical and emotional needs of patients.

As problems are addressed by many researchers, others offer guidance for health care providers in the authoring of patient education materials. For example, Ivnik and Jett (2008) encouraged consideration of key factors when creating a document: 1) Who should be involved in the process of authoring the document?; 2) What specifically is the document for? 3) How will the document look?

Likewise, in their book, *Document Design: A Guide for Technical Communicators*, Kimball and Hawkins (2008) provided ample detail to aid in the design process by identifying important theoretical concepts associated with human perception. A recurring theme throughout the book is the application of three perspectives as a means of understanding design theory: visual perception, visual culture, and visual rhetoric. These perspectives not only help designers to take into consideration their specific audience; they also help explain what makes certain designs more effective than others in getting their message across.

The first perspective, visual perception, addresses both “the biology and psychology” involved in human vision (Kimball & Hawkins, 2008, p. 39). Designers acknowledge this perception in their considerations made about what attracts people. The authors’ discussion on Gestalt theory addressed several significant visual

considerations: figure-ground discrimination; laws of grouping; and good figure (Kimball & Hawkins, 2008, p. 42-43). These considerations speak to the effectiveness of a document's design in conveying a message and promoting clarity.

The second perspective, visual culture, takes into consideration the reader's experiences and culturally-based beliefs (Kimball & Hawkins, 2008, p. 39). Designers leverage the cultural experiences of the intended reader to facilitate understanding, with the knowledge that a particular design element is to be interpreted or understood in a particular way.

The final perspective is visual rhetoric, which combines perception and culture to specifically address what is required to give impact to a document, and how a document acknowledges cultural values. Here, the authors quoted Kenneth Burke, who stated that "the use of language is a symbolic means of inducing cooperation" (Kimball & Hawkins, 2008, p. 62). The importance of document design is appreciated in its ability to help get a message across instead of distracting the reader from the message, thereby furthering the intentions of the document to induce cooperation. Visual rhetoric takes into consideration persuasion, recalling the elements of pathos, logos, and ethos: pathos addresses audience feelings in response to the product; ethos addresses the character of the product or producer; and logos addresses the informative or common-sense (logical) aspect (Kimball & Hawkins, 2008, p. 62). Visual rhetoric is concerned with two main considerations: medium and document format, and page design. Medium and document format address several issues:

1. familiarity the reader may have with the document

2. other human factors involving the way the content is transmitted (e.g., the clarity or resolution of a document)
3. transformation (i.e. how dynamic or static a document is)
4. cost (e.g. cost to the reader, cost of production, and its impact on accessibility)
5. the level of interaction the reader may have with the document
6. conditions of use (i.e. the situation to which the document may be responding)
7. storability and longevity, which address the level durability required in document construction

The consideration of page design addresses the following:

1. page-viewing (e.g. whether the document will be read in full or scanned)other human factors involving the way the content is transmitted (e.g., the clarity or resolution of a document)
2. other human factors involving the way the content is transmitted (e.g., the clarity or resolution of a document)
3. relationships among design objects, whether they are connected, hierarchical, balanced, or sequential:
 - connections address similarities, contrast, proximity, alignment, order, and enclosure
 - hierarchy examines how the level of importance assigned to objects and how this is indicated (e.g. headings and sub-headings)

- sequence, which addresses the order of things, may involve applications of proximity, alignment, contrast, and similarity
- balance takes into consideration the visual weight or symmetry of objects

Given its comprehensive approach to the topic, and its examination of two key considerations in particular (i.e. medium and document format, and page design), Kimball and Hawkins's book serves as a particularly rich resource in a multimodal analysis where document design is given generous consideration.

Another useful resource to aid in design analysis is provided in the online article, "Visual Rhetoric: Analyzing Visual Documents" (Pepper & Brizee, 2010). Here, the authors explain the concepts of a rhetorical situation, and how to address the extent to which it has been successfully achieved: "A rhetorical situation occurs when an author, an audience, and a context come together and a persuasive message is communicated through some medium" (Pepper & Brizee, 2010, p. 2). Three considerations were noted to be particularly valuable in a visual analysis: audience, purpose, and context. By looking at the visual content of a document, while applying these considerations, we can attempt to identify the intended audience, the author's assumptions about that audience, and the author's intentions. As an instructional piece for the novice analyst, this short article builds nicely on the theories presented by Kimball and Hawkins (2008).

A final resource addressing visual analysis is concerned with the inclusion of artwork in a document. This is addressed in the introduction to the online magazine, *What is Art and Why does it Matter?*

Looking at art can provide a much needed refuge for reflection, sympathy, quietude, inspiration, and even ecstasy in this

increasingly chaotic world. Looking further can deepen knowledge of cultures and artistic practice, develop and hone observational skills, reveal insights into history that other documents can't, and encourage creative, analytical, and autonomous thinking. (Yale University, 2009)

Thus, we can appreciate the importance of a document, not only as a collection of words from which we must make sense, but as a resource from which we can move towards a higher level of comprehension.

Gap in Research

As is made evident in this literature review, analyses of a variety of health care publications have been broadly documented in technical communication and medical journals. However, there exists a gap specifically with regards to the analysis of medical pamphlets for oral, head and neck cancer patients. The relative infrequency with which these cancers occur has naturally led to fewer publications on the subject. Thus, these patients may be at risk of receiving information that is outdated, inappropriate, inadequate, or inaccurate.

Moreover, the majority of the research literature is concerned with either textual elements or to a lesser extent, visual elements and document design. Since both textual and visual analyses are obviously perceived as legitimate and important in examining a document, it stands to reason that a multimodal analysis combining both approaches could help set a new standard in the improvement of existing publications, as well as in the development of new ones.

Research Questions

This project endeavors to serve as a model for future studies, employing a novel multimodal approach which combines textual and visual analyses as a means of

determining the extent to which a document's intended purpose has been served. This work will further aid in identifying best practices for tailoring new resources to help meet the educational and emotional needs of cancer patients. By following and building on some of the more compelling examples noted in the literature review, several key questions will be answered:

1. Do the two medical publications investigated here facilitate educational purposes? If so, to what extent, and how is this determined?
2. How can this literature be improved upon?
3. Does this analysis identify differences in design approaches specifically related to government-based publishers versus private-corporate sector publishers? If so, what is the significance of this finding?
4. What best practices can be established for future document analyses?
5. What best practices can be established for developing educational resources for cancer patients?

Summary

There are several interesting features associated with the published research on document analysis. In virtually every case, at least two methods were applied. In most cases, researchers used previously established methods for textual analysis. These include the DISCERN questionnaire system, the Flesch-Kincaid test, SMOG (Simplified Measure of Gobbledygook), and SAM (Suitability Assessment of Materials). Of fundamental concern to this thesis are problems associated with the use of established formulas for textual analysis, noted by Clerehan et al. (2004):

While proponents of readability formulas claim to be measuring text difficulty or comprehensibility, others argue that the comprehension

of a text involves a broader range of parameters than that offered by readability formulas (Spiro et al., 1980; Duffy, 1985; Davison and Green, 1988). For example, readability formulas do not consider the overall structure or organization of the text, or the vocabulary used. Neither do they take into account the prior knowledge of the reader or the significance of the role relationships between author and reader. While these factors are well accepted amongst linguists as being important for understanding written text, they have not been formally used for the development and evaluation of doctor-patient written information. (p. 334-335)

Based on this argument, this thesis approaches two documents by applying methodologies included in Clerehan et al.'s (2004) research and building on that approach with the addition of a comprehensive visual analysis.

In cases where both visual and textual analyses were performed in a study, greater emphasis was placed on the textual analysis. In several studies (Whittingham et al., 2008; Ko et al., 2007; Schapira & VanRuiswyk, 2000), cohorts of patient-readers were used to analyze the efficacy of visual elements and document design. For this thesis, which did not employ cohort studies, a visual analysis was performed using the invaluable and comprehensive theoretical insights of Kimball and Hawkins (2008).

Among much of the literature, there exists a shared objective related to the importance of the reader's ability to understand and then use the information provided in a medical document. In her analysis, Sand-Jecklin (2007) lamented that "many education materials continue to be written... above the level of understanding of the targeted readers" (p. 119). This concern was echoed by Demir et al. (2008), who indicated that patient materials were "written at an inappropriate level" which fails to consider the age or the education of the reader (p. 260). Likewise, in addressing vocabulary technicality, Clerehan et al. (2004) indicated that "in a number of leaflets, statements were made which lacked an awareness of the level of understanding of a lay reader" (p. 339).

These observations offer proof that the most important goal in an analysis of this kind should be to help improve the delivery of health care communication. Chapter 2 provides an overview of the methods used to achieve this goal in a multimodal analysis of two health care documents designed for cancer patients. Chapters 3 and 4 provide the results, addressing first the textual, then the visual analysis. Chapter 5 summarizes the findings and provides a response to the research questions presented above.

Chapter Two: Methodologies

Keeping in mind the research questions of this thesis, it bears repeating here that this analysis endeavors to determine the extent to which the educational purposes of the SPOHNC and NIH books are met. As this analysis progresses, the rhetorical elements, (i.e. the functions of the text which support a document's overall purpose) are given due consideration. As indicated in Chapter 1, the rhetorical elements which support educational purposes associated with patient literature are:

- to inform
- to instruct
- to define
- to inspire
- to engage

Thus, the methodologies applied here for both the textual and visual analyses are concerned with the documents' overall adherence to educational purpose.

Textual Analysis Methodology

The literature shows that a multimodal approach to textual analysis is the preferred course of action when assessing documents as a means of shoring up results or comparing research approaches. A comprehensive approach following Clerehan et al.'s (2004) example is discussed here.

Measures. Using the systemic functional linguistics framework introduced by Clerehan et al. (2004), six specific considerations relevant to this thesis were addressed in an analysis of the NIH and SPOHNC books to determine their comprehensibility: overall

organization and structure, rhetorical elements, lexical density, factual content, technicality of vocabulary, and the relationships between reader and writer.

Systemic Functional Linguistics. Clerehan et al. (2004) recognized that document quality is not a singularly measurable trait; rather, several criteria are involved in establishing an adequate assessment. In this particular linguistic framework, the importance of context is well established, as well as its interdependence with content.

Two categories of context are considered in systemic functional linguistics. The first of these is context of culture, which places emphasis on how text is structured in response to its specific purpose. Genre is a term often used to identify cultural context for literary analysis. It “considers the organization or structure of the overall text with respect to its specific purpose”

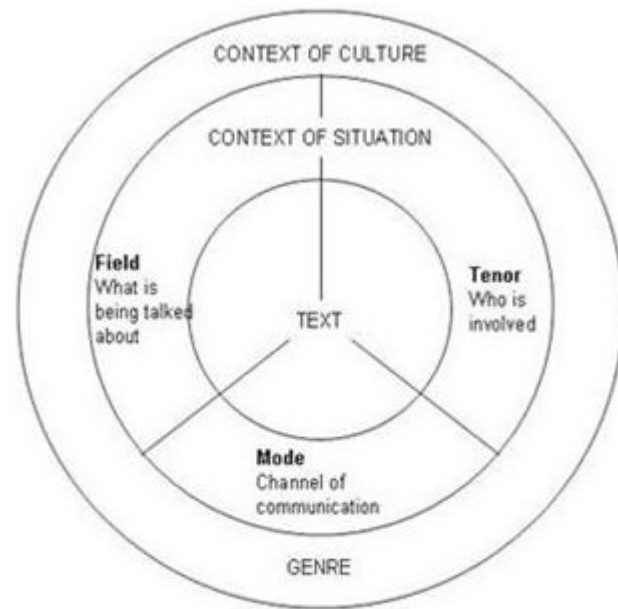


Figure 2. Text and context (Clerehan et al., 2004).

[Clerehan et al., 2004, p. 335 (Swales, 1990)]. In Clerehan et al.’s (2004) research, the genre was healthcare materials. Context of culture (genre), determined by societal considerations, is at the “macro-level.”

The second category is context of situation, which places emphasis on the environment in which a text is functioning, particularly as it correlates to reader

expectations. This category of context applies general questions to each of three subtopics: field (what is being talked about?); tenor (who is involved?); mode (what is the channel of communication?).

In the context of culture, the documents researched for this thesis share Clerehan et al.'s (2004) genre of patient-focused healthcare literature. In the context of situation, both share the same mode; that is, the channel of communication is printed literature. However, further investigation into context of situation yields different fields and tenors: the field for Clerehan et al.'s (2004) corpus is identified as information about methotrexate as a medication for rheumatoid arthritis, and the field for the two books analyzed in this thesis is information about oral, head and neck cancer; the tenor for Clerehan et al.'s corpus is identified as arthritis patients who (may) use methotrexate, and the tenor for the books analyzed in this thesis is identified as oral, head and neck cancer patients, and/or their family and friends.

Procedures. A textual analysis was performed, addressing specific questions related to each of six considerations. Details of these considerations and their respective assessment questions are outlined in Table 1, which is a modified version of Clerehan et al.'s (2004) systemic linguistics framework table (p. 337). This modified table reflects the decision to exclude Clerehan et al.'s (2004) considerations regarding visual analysis in lieu of a separate approach explicated in the next chapter. While LD appears as a consideration in this modified table, the decision was made to use Williamson's (2008) LD analysis model, based on the findings documented in the literature review. Finally, some assessment questions presented by Clerehan et al. were excluded if they were not considered relevant to this analysis. These modifications reflect a more streamlined

approach which is tailored specifically to meet the research goals of this thesis. The considerations located in the modified table are also listed below with their respective questions in abbreviated form:

1. Overall structure: What moves are identified?
2. Rhetorical elements: What is the function of each move?
3. Factual content of text: Is the text current and accurate? Are sources credited?
4. Technicality of vocabulary: How technical is the vocabulary?
5. Lexical Density: What is the LD, as indicated by the number of content words in a clause?
6. Roles and Relationships: Who appears to be the writer and the intended audience?

For considerations 1 and 2, Clerehan et al.'s (2004) model was applied to perform a move analysis on both the SPOHNC and NIH books in their entirety. Move analysis involves categorizing specific textual segments by their objectives, and subsequently identifying the function of each category. These categories of text are called moves, and their functions are called rhetorical elements.

For considerations 3, 4, and 6, again using Clerehan et al.'s (2004) work as a model, a close reading of each document was performed to identify and analyze sections of text. Consideration 5 was addressed using Williamson's (2009) model for measuring LD for calculating the number of content words in a given clause.

Visual Analysis Methodology

The importance of document design is acknowledged in a number of published cohort studies, including the work of Whittingham et al. (2008), Ko et al. (2007), and Schapira and VanRuiswyk (2000). However, since this thesis is based strictly on a document analysis, strategies were employed which recognize established concepts in design theory (Kimball & Hawkins, 2008; Pepper & Brizee, 2010). The published research and academic literature on this topic underscores its importance in augmenting textual analyses to address document comprehensibility.

Measures. Five specific considerations were addressed in the visual analysis, reflecting analytical applications documented by Pepper and Brizee (2010) and design theory discussions by Kimball and Hawkins (2008): audience, purpose, context, medium and document format, and page design. Further discussion is warranted here regarding design theory, as it relates primarily to the last consideration of page design.

The six principles of design and Gestalt theory. Six basic principles of design were identified by Kimball and Hawkins (2008):

- Similarity: suggests that objects are alike in kind or function. [*grouping*]
- Contrast: suggests a difference or distinction among objects, or creates emphasis. [*figure-ground*]
- Proximity: suggests the extent to which objects belong together. [*grouping*]
- Alignment / Continuation: suggests connection and coherence. [*grouping, good figure*]
- Order: suggests sequence and importance. [*good figure*]

- Enclosure: suggests separation of objects for purposes of clarity. [*grouping, good figure*]

Note the bracketed, italicized words next to the description of each principle. These words clarify the function of the principle in the context of Gestalt theory. This takes into consideration how humans perceive objects comprehensively -- a well known concept to accomplished document designers. Using Gestalt theory, three laws of perception germane to this analysis can be applied: figure-ground discrimination; laws of grouping; good figure.

Figure-ground discrimination specifically applies the principle of contrast. It is a visual tool with which we naturally distinguish the object(s) from the setting. Once figure-ground discrimination has been ascertained, readers will be naturally inclined to establish groupings among objects. This is achieved by applying one or several other design principles: similarity, proximity, alignment, and enclosure. Finally, the strength and stability of the design are appreciated through the Gestalt theory of good figure. A design with good figure will seem balanced and coherent, based on its alignment, visual clarity, and observable groupings. The advantage of the six principles of design is their universal applicability in discussions regarding specific design elements, and their key contributions to visual analysis.

Procedures. A visual analysis responding to five considerations was performed by addressing specific questions or topics related to each consideration. Table 2 details these considerations and their respective assessment questions and topics. The list below reflects a synopsis of these considerations:

1. Audience: Who is the target audience, and how is this made evident?

2. Purpose: What is the purpose of the document, and how is this made evident?
3. Context: What are the circumstances of the environment in which the document is intended to be used, and how is this made evident?
4. Medium and Document Format:
 - How is information delivered?
 - How does medium choice respond to context, purpose, and audience? What are the conditions of its use?
 - How are issues of storability and longevity addressed?
5. Page design: What choices are made (and why) with regards to page elements, including graphics, text, and design applications that may indicate connections, similarities, emphasis, or distinctions (e.g. balance, alignment, hierarchy, sequence)?

Summary

This chapter has provided an overview of the methodologies used in a multimodal analysis of the SPOHNC and NIH books, acknowledging the importance of both textual and visual considerations. The following two chapters provide a comprehensive account of the findings from this research.

Chapter 3 explores the textual aspects of these publications, applying models provided by Clerehan et al. (2004) and Williamson (2008). Chapter 4 provides a visual analysis based on design theory and applications provided by Kimball and Hawkins (2008) and Pepper and Brizee (2010).

Chapter Three: Textual Analysis Findings

A textual analysis of the SPOHNC and NIH books was performed using, in large part, the documented research of Clerehan et al. (2004) as a model. Table 1 reflects a modified version of Clerehan et al.'s systemic functional linguistics framework, and contains assessment questions regarding six specific considerations. In this chapter, each consideration is presented first, followed by its corresponding assessment question(s) and then a response to each question based on the findings from this study. The six considerations discussed below are: overall structure of text; rhetorical elements; factual content of the text; technicality of vocabulary; lexical density; and the roles and relationships expressed in the text.

Overall Structure of the Text

Overall structure of text was addressed by performing a move analysis to identify how individual passages operate to serve a particular function, which is called a rhetorical element. Collectively, rhetorical elements facilitate and substantiate the overall purpose of a document (Clerehan et al., 2004, p. 336). Research for this thesis began with the assumption that the SPOHNC and NIH books would have an educational purpose, as was the case with Clerehan et al.'s (2004) corpus; this assumption is applied since both sets of documents share the same subgenre of patient-centered medical literature.

For initial data collection and organization of the moves found in the SPOHNC and NIH books, a frequency data table was used. A page taken from the frequency data table is provided as an example in the appendix (Table 3). The number of different moves found on a given page as well as the rhetorical elements they represent are reflected in Table 4. Text examples are indicated there as well. Each move identified in

the texts provided evidence of at least two rhetorical elements supporting an educational purpose. These are given further explanation in the section below on rhetorical elements.

To give some perspective, the SPOHNC book contains 145 pages of text, and averages 162 words per page. The NIH book contains 53 pages, and averages 169 words per page. An average of 1.44 and 1.83 different move occurrences per page were found in the SPOHNC and NIH books, respectively. This indicates that more than one approach was used on any given page to meet the educational purpose of the document.

What identifiable sections of text (moves) are present? A move analysis revealed the presence of ten moves in both books: authorial identification and background; metadiscourse; general information about cancer; human anatomy; cancer diagnosis and symptoms; treatment options and resources; side effects and consequences during and after treatment; personal preventative and palliative care; other available resources; and self advocacy. Through these moves five rhetorical elements were appreciated. Three were also found in Clerehan et al.'s (2004) corpus: *to define*, *to inform*, and *to instruct* (p. 336). The moves in this current analysis indicated the presence of two additional rhetorical elements: *to engage* and *to inspire*.

Despite the three common elements, the moves themselves in this present analysis were different from those of Clerehan et al. (2004), as demonstrated in Table 5. This distinction can be attributed to the contexts of situation which, as mentioned in Chapter 2, place emphasis on the environment in which a text is functioning -- particularly as it correlates to reader expectations (Clerehan et al., 2004). Here, although the modes (channels of communication) are the same, arthritis patients and cancer patients would necessarily reflect different fields (what is being discussed) and tenors (who is involved).

We can therefore appreciate how different fields and tenors require different moves, even if they belong to the same genre.

Does the sequence of moves appear logical? Both the SPOHNC and NIH books generally progress in a logical manner. Section headers effectively signal new topics, and subsequent, relevant text follows those headers in the majority of cases. That is not to say, however, that the texts work in a strictly linear manner or that moves are placed in discrete, easily defined areas in every case. Nevertheless, a general clustering of the moves can be appreciated in Table 4, as indicated by a color-coding system: moves which serve *to inspire* are generally found at the beginning; moves which serve *to instruct* and *to engage* are generally found toward the end; and moves which serve *to inform* and *to define* are found throughout much of the text in both publications.

Rhetorical Elements

As stated previously, five rhetorical elements are made evident in both publications, which would serve their overall educational purpose: *to inform*, *to define*, *to instruct*, *to inspire*, and *to engage*. These are indicated by the presence of 10 moves.

Overview of Rhetorical Elements. The rhetorical element, *to inform*, is indicated by the sharing of information crucial to a document's educational purpose. It can serve to manage the expectations of the reader, and facilitate appropriate decision-making. The rhetorical element *to define* is found specifically in the terminology of the document that attaches short lexical meanings, synonyms, or detailed descriptions to words which may not be readily understood by the reader. The element *to instruct* is indicated in text that teaches the reader how to do something, or provides a method of approaching a situation. The element *to inspire* refers to text which can either arouse a

reader's emotion, move a reader to act, or otherwise compel a reader to respond in a specific way. Particularly in the setting of ethos, *to inspire* refers to the latter (e.g. *to inspire* confidence) (Kimball & Hawkins, 2008, p. 16, 65). The final rhetorical element is *to engage*, and invites the reader's participation and involvement (e.g. through a personal calendar found in a publication).

What is the function of each move in relation to the reader? Examining the function of each move helps us to appreciate how a document's rhetorical elements are developed, and consequently, how its educational purpose is served.

Move 1: Authorial identification and background. Move 1 is found at the front of both publications; essential information about the organizations which co-authored the documents is indicated in narrative form inside the front covers in both books.

While neither publication engages in persuasive argument, they nevertheless bear evidence of two classic rhetorical characteristics associated with persuasion: ethos speaks to the writer's character and authority on the subject; pathos appeals to the reader's emotions (Kimball & Hawkins, 2008, p. 16, 65). These are particularly evident in this first move. SPOHNC authors use this when addressing their own experiences with cancer, as indicated in the title and opening line: *We Have Walked in Your Shoes*. This small, yet information-packed statement establishes pathos, since the intended reader is also a cancer patient; also, by making this claim, the authors substantiate expertise, and ethos is established. The rhetorical element *to inspire* is particularly well served by this move at this point. Inspiring trust and confidence serves as a gateway to a productive educational experience which, again, is the overall purpose of these books.

Though less apparent, implications attached to pathos and ethos are present in the NIH book's title and opening line: *What You Need To Know About Oral Cancer*. This passage communicates that the authors are both confident and competent enough to address the needs of the cancer patient. This is achieved by appealing to the reader's perceived desire for an authoritative and knowledgeable resource (ethos), who understands the experiences of the cancer patient (pathos).

As demonstrated in Table 4, Move 1 was found in 7 pages (13%) in the NIH book, and in 7 pages (4.9%) in the SPOHNC book.

Move 2: Metadiscourse. Metadiscourse advises the reader of what lies ahead. It is a way of explaining the purpose of the text (Clerehan et al., 2004, p. 334-335). This serves rhetorical elements by further inspiring confidence (*to inspire*) and managing expectations (*to inform*). In the SPOHNC book, it also indirectly serves *to instruct*: "This guide is not meant to be read from cover to cover, although you might find that helpful" (SPOHNC, 2008, p. 3).

Both books provide clear descriptions regarding the purpose of the text; however, the SPOHNC book devotes more content to this endeavor. The first indicator of metadiscourse in the SPOHNC publication appears inside the front cover, where a brief overview of the purpose and content of the book is provided:

This booklet contains basic information about oral and head and neck cancer and provides resources for patients and families facing a diagnosis of this type of cancer, its treatment, rehabilitation, and recovery. (SPOHNC, 2008, p. ii)

Further, this passage contains a disclaimer:

It is not intended to replace any information and/or recommendations made by health care professionals, and does not

represent the views of Bristol-Myers Squibb Company and ImClone Systems Incorporated. (SPOHNC, 2008, p. ii)

The metadiscourse in the NIH book first appears in the second paragraph of page 1, which contains the introduction:

This National Cancer Institute (NCI) booklet has important information to help people with oral cancer and their family and friends better understand this disease. It discusses possible causes, symptoms, diagnosis, and treatment of the disease. It also has information about rehabilitation and about sources of support to help patients cope with oral cancer. (NIH, 2003, p. 1)

The next and final passage representing metadiscourse in the NIH book appears in the second paragraph of page 2, and serves as the lead sentence for the section entitled “The Mouth and Throat”:

This booklet is about cancers that occur in the mouth (*oral cavity*) and the part of the throat at the back of the mouth (*oropharynx*). (NIH, 2003, p. 2)

These findings suggest the importance both sets of authors place on keeping the reader informed from the start. Metadiscourse was found in 2 of the NIH pages (3.7%) and 4 of the SPOHNC pages (2.8%).

Move 3: General information about cancer. Move 3 contains statistics and provides background in both the SPOHNC and NIH books, further substantiating an authoritative ethos, and serving the rhetorical elements *to inform* and *to define*. However, the approaches in the two books are distinct; specifically, the SPOHNC book takes a less direct approach:

Being diagnosed with oral and head and neck cancer puts you on a very personal journey. While you may feel as if you are struggling with it by yourself, it may help you to know that you are not alone. In fact, in 2008 in the United States, it is estimated that 35,310 men and women were diagnosed with cancer of the oral cavity and

pharynx; 12,250 with larynx cancer and 37,340 with thyroid cancer. (SPOHNC, 2008, p. 1)

Conversely, here is the first paragraph of the NIH book:

Each year in the United States, about 29,000 people learn they have cancer of the oral cavity (the mouth and lips) or the oropharynx (the part of the throat at the back of the mouth). (NIH, 2003, p. 1)

This move is more distributed throughout the NIH book, and is thus found in more pages.

The SPOHNC book's more circuitous approach is evident throughout, and is cited in other sections of this analysis, as well. Move 3 is contained in 9 pages (16%) of the NIH book and 3 pages (2.1%) of the SPOHNC book.

Move 4: *Human Anatomy*. A brief move in both books is *human anatomy*, which serves *to inform* and *to define*. It contains necessary background information for the reader to begin understanding how the problem of cancer impacts the individual patient. It is a way of "setting the stage" from which the disease process is better understood. The sections in both books which contain this move also include detailed, labeled illustrations and bulleted lists of parts of the body. This move occupies 2 pages (3.75%) in the NIH book and 1 page (0.7%) in the SPOHNC book.

Move 5: *Cancer diagnosis and symptoms*. Move 5 serves *to inform* and *to define* -- primarily through checklists of possible symptoms and narratives about how a diagnosis is made. This move also serves *to instruct* the reader on what questions to ask about symptoms or before a diagnostic procedure. Though similar in content and length, the NIH book devotes one full page of this move to cancer staging, a topic which receives a 4-line, 3-sentence paragraph in the SPOHNC book. Cancer staging is a way of determining and explaining: the size of the tumor; whether the cancer has spread; and the extent the tumor has spread (NIH, 2003, p. 11). Another distinction is the NIH book's

mention of early detection, which is given a 6-line, 3-sentence paragraph. The SPOHNC book does not contain a discussion on early detection. This may be significant in terms of how the books aid in managing patient expectations and alleviating concerns about what is happening to them and why. Move 5 occupies 3 pages (5%) in the NIH book and 3 pages (2.1%) in the SPOHNC book.

Move 6: *Treatment options and resources.* Move 6 serves *to inform, to define* and *to instruct*. This move is concentrated in the front-middle section of both texts, starting on page 10 of the SPOHNC books and 12 of the NIH book. Whole chapters are devoted to the topic of treatment, characterized by dense narrative and technical vocabulary. One can appreciate the efforts taken towards a comprehensive approach to this important topic. Nevertheless, some readers will undoubtedly be intimidated by the potentially overwhelming presentation of this move. This move occupies 8 pages (15%) in the NIH book and 16 pages (11%) in the SPOHNC book.

Move 7: *Side effects and consequences during and after treatment.* This move serves *to inform, to define, and to instruct* patients as a means of helping manage expectations and perhaps mitigating some of the fear associated with cancer treatment. Both books discuss side effects as they relate to each form of therapy (surgery, radiation therapy, chemotherapy), and both provide bulleted lists which offer further definitions and ways to cope with side effects. This move occupies 9 pages (17%) in the NIH book and 26 pages (18%) in the SPOHNC book.

Move 8: *Personal preventative and palliative care.* This move is often embedded in sections of the books regarding side effects and consequences of treatment and illness. It is also the only move found to serve all five rhetorical elements. In order

to *instruct*, it must also *inform* and *define*. Additionally, this move serves to *inspire* patients, particularly through its inclusion of language which encourages healing and coping; along this theme, patients are invited to *engage* in self-care through interactive tools found in the materials or by taking some course of action. This move occupies 8 pages (15%) in the NIH book and 32 pages (22%) in the SPOHNC book.

Move 9: Other available resources. This move consists of narrative descriptions of resources, as well as directory listings of additional resources and glossaries of some of the terms used in the book. In so doing, this move serves to *instruct*, to *define*, and to *engage*. It occupies 26 pages (50%) in the NIH book and 23 pages (16%) in the SPOHNC book.

Move 10: Self-advocacy. Self-advocacy involves any text which encourages readers to ask questions or to otherwise be involved in their own care. This move serves to *instruct* and to *engage*. It contains lists of suggested questions to ask a health care provider, as well as narrative suggestions -- such as a discussion on seeking out a support group. This move occupies 17 pages (32%) in the NIH book and 95 pages (67%) in the SPOHNC book.

Findings indicated that all moves identified in this study served at least two rhetorical elements. Also, on average, 1.44 and 1.83 different move occurrences per page were found in the SPOHNC and NIH books, respectively. This serves as a positive indicator that the books leverage more than one approach on any given page to establish or reinforce their educational purpose.

Factual Content of Text

The analysis of factual content addresses its reliability with regards to the age of the information, the mention of its information sources, and the experience and knowledge of the authors. Inferences can be derived from this analysis about the veracity and timeliness of the information.

Is the factual information correct and up-to-date? The copyright date for the SPOHNC book is 2008, and indicates authorial contributions by Bristol-Myers Squibb Company and ImClone Systems Incorporated.

The revision date for the NIH book is June 2003, which is indicated on the back cover. The introduction to the book (page 1) indicates that “The NCI provides the most up-to-date information by telephone and on the Internet.” Further, this book provides a number of other resources where information can be confirmed or new information can be obtained.

Is the source of information provided? For the SPOHNC book, in addition to Bristol-Myers Squibb Company and ImClone Systems Incorporated, authorship is attributed to SPOHNC. The back of the NIH book contains an acknowledgement of contributions by the National Institute of Dental and Craniofacial Research, which collaborated with the National Cancer Institute on its authorship. It adds that research is conducted in the National Cancer Institute laboratories.

There are striking similarities in some of the passages between the two books. The following reflects sample passages taken from each book, located under their respective sections on side effects of cancer treatment.

It takes time to heal after surgery, and the time needed to recover differs from person to person. Initially, you may be uncomfortable.

Medication can usually control the pain. Talk to your doctor before your surgery about plans for pain relief, as well as after your surgery, if you feel the plan needs to be adjusted. (SPOHNC, 2008, p. 23)

It takes time to heal after surgery, and the time needed to recover is different for each person. You may be uncomfortable for the first few days after surgery. However, medicine can usually control the pain. Before surgery, you should discuss the plan for pain relief with your doctor or nurse. After surgery, your doctor can adjust the plan if you need more pain relief. (NIH, 2003, p. 20)

Neither book credits the other as a resource for this information; thus, there is no conclusive evidence regarding plagiarism. Nevertheless, the NIH is an established organization of the federal government comprised of a large group of medical experts, and thus, less likely to refer to SPOHNC et al. to substantiate and publish crucial medical information. The NIH is also viewed by the medical community as a reputable resource for such information. In any case, if another resource was used for information contained in either book, then due credit to that resource would further the validity of the work.

Are the quality and strength of the evidence discussed? The SPOHNC books endeavor to substantiate the quality and strength of their content through experiential evidence (e.g. “We walked in your shoes.”) This is further shored up by the involvement of industry professionals: Bristol-Myers Squibb Company and ImClone Systems Incorporated. However, the book lacks a reference section or bibliography, giving the appearance that its contents are based solely on authorial experience, and endorsed by industry professionals. Another potential problem is that the use of industry sponsors can be detrimental in attempts to convey an unbiased message which is in the best interests of the reader.⁶

⁶ It is common knowledge among oncologists and other healthcare providers that ImClone markets cetuximab, which can be used in combination with radiation therapy to treat head and neck cancers.

The NIH book does not overtly defend or substantiate the quality and strength of its work. Certain cultural beliefs have been established about government-issued medical materials in general and the NIH in particular with regards to their veracity. Because of the origins of this book, the strength and quality of its contents are generally considered to be self-evident.

Technicality of Vocabulary

How technical is the vocabulary that is used in the text? Clerehan et al. (2004) determined vocabulary appropriateness qualitatively, based solely on the presence or absence of complex terms or medical language potentially unfamiliar to the lay reader (p. 336). The same approach for this current study revealed the presence of language which may be problematic for the lay reader. Responding to this, the SPOHNC book highlights unconventional words either by a bold font followed by a parenthetical definition, or an explanation followed by the key word -- bolded and in parentheses:

- One of the most common side effects of radiation treatment is **xerostomia** (dry mouth).
- Some people experience other problems in the head and neck area such as hardening of the tissues (**fibrosis**) and thyroid malfunction. (SPOHNC, 2008, p. 13)

Conversely, the passage about radiation therapy shown below may not provide sufficient clarity, and may perhaps even frighten a reader who is unsure of how certain words (e.g. “radioactive”) are actually defined in this particular context:

Radiation therapy, or radiotherapy, is a treatment involving the use of high-energy sources to kill cancer cells. Radiation may come from a machine outside of the body (**external radiation** therapy) or it may come from **radioactive** materials (radioisotopes) placed directly into or near the area where the cancer cells are found (internal radiation therapy, or **brachytherapy**). (SPOHNC, 2008, p. 13)

The SPOHNC book contains a glossary in the back with 140 words and phrases, which are also found in the body of the text with bold font. Throughout, this publication attempts a conversational tone. However, the text becomes more technically dense in the sections, “After Your Diagnosis” and “Common Side Effects.” In both sections, the text occupies more space on the page as well; this can create problems as it forces the reader to exert greater visual effort to scan across the entire page, while simultaneously processing potentially complex information. This problem is further addressed in the chapter on visual analysis.

The NIH book takes the similar approach of highlighting words which are potentially new or confusing to the reader. On page 1, a footnote advises the following:

Words that may be new to readers appear in *italics*. The “Dictionary” section explains these terms. Some words in the “Dictionary” have a “sounds-like” spelling to show how to pronounce them. (NIH, 2003, p. 1)

The “Dictionary” contains 82 words or phrases. Additionally, where words are potentially new or unusual to the reader, parenthetical explanations or definitions are quite often provided:

Rehabilitation may include being fitted with a dental *prosthesis* (an artificial dental device) and having dental implants. (NIH, 2003, p. 27)

Though technical vocabulary continues to present challenges in patient literature, particularly in the context of treatment choices and diagnoses, the examples above demonstrate authorial efforts to address this issue.

Lexical Density

An analysis of lexical density measures the number of content words in a clause to assess its readability. Content words convey meaning in language (e.g. nouns, verbs,

adjectives). They are referred to as “open class” words, because new words which fit this category can be added relatively easily to one’s vocabulary. Their counterparts are function words, which express grammatical relationships (e.g. conjunctions, prepositions, articles). These are “closed class” words because, based on their linguistic purpose, there is less likely to be the development of a new word belonging to this group (Williamson, 2009).

What is the average content density of the text (content-bearing words per clause)? Applying Williamson’s (2009) approach, random sample clauses were taken from various sections throughout the SPOHNC and NIH books to examine lexical density. Tables 6a and 6b demonstrate an LD of 51.5% for the SPOHNC book and 53.7% for the NIH book, respectively. Since Williamson’s model identified a relatively low LD of 46.2% and a relatively high LD of 58.8%, we can say that the SPOHNC and NIH books have an LD that falls above Williamson’s low LD level, indicating potential problems with the documents’ readability.

Roles and Relationships Expressed in the Text

Identifying the roles and relationships of writer and reader can help address whether or not a document is successful in conveying information in a way that is deemed appropriate by the reader. Authorial choices regarding the use of first, second, and third person, for example, assume a certain level of familiarity with which a reader may or may not feel comfortable. This consideration also presents questions about the symmetry of the relationship between writer and reader, and how the writer perceives his/her intended audience.

Is it clear who the writer and intended audience are? At the very start, the SPOHNC book clearly attempts to establish a rapport and a sense of camaraderie with the reader, describing a shared “journey” of coping with oral, head and neck cancer:

The contributors to this guide know about these challenges because they have lived with them and through them. This booklet represents the wisdom, experiences, and resources offered by those who have “walked in your shoes.” (SPOHNC, 2008, p. 2)

The NIH book cover page indicates all collaborating author groups, and thus makes clear who the writers are: The U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, and National Institute of Dental and Craniofacial Research. Additionally, the cover page title is indicated: *What You Need To Know About Oral Cancer*. Thus, it is clear that the intended audience is anyone who may need to know about oral cancer. Further discussion about intended audience can be found in the chapter on visual analysis.

Is the relationship between writer and reader clear and consistent? In the SPOHNC book, the assumption of a shared experience with the reader is most evident in the introduction of the SPOHNC book, where the use of first-person phrasing is appreciated (e.g. “We have walked in your shoes...”) (SPOHNC, 2008, title page). However, as demonstrated in the examples below, the use of second person is also applied by SPOHNC, as well as the NIH book. Both also use third person. This example also demonstrates the circuitous versus direct approach taken by the SPOHNC and NIH books, respectively. Though we can only speculate, possible reasons for this include: 1) the extent to which the SPOHNC authors identify themselves as instructors with a vested interest in the reader’s comprehension, and 2) the extent to which the SPOHNC authors,

having experienced problems associated with medical explanations, wish to mitigate confusion for the reader.

If your jaws are stiff

Trismus is a condition resulting from radiation therapy in which there is loss of elasticity of the muscles that open and close the mouth. This may restrict the normal ability to open the mouth. Ask a member of your health care team for exercises to improve your jaw function. This condition is a relatively common occurrence that can be minimized if you do specific exercises prior to, during, and following radiation treatment.

- Consult your physician for various exercises.
- Exercise the jaw muscles 3 times a day by opening and closing the mouth as far as possible (without causing pain) 20 times.
- Ask your physician about the use of tongue depressors to gently increase the degree of oral opening on a gradual daily basis, coupled with carefully designed exercises/physiotherapy.
- A Therabite® Jaw Motion Rehabilitation System device may be helpful.

(SPOHNC, 2008, p. 28)

Jaw stiffness: Radiation can affect the chewing muscles and make it difficult for you to open your mouth. You can prevent or reduce jaw stiffness by exercising your jaw muscles. Health care providers often suggest opening and closing the mouth as far as possible (without causing pain) 20 times in a row, 3 times a day. (NIH, 2003, p. 23)

These examples demonstrate extensive use of second-person phrasing. They further exemplify the relative conversational, loquacious approach employed by SPOHNC compared with the NIH book. Overall, the language in both books traverses between general statements about what others experience or do, and second-person statements which speculate what the reader may experience or do (or should consider doing).

These findings suggest that while the SPOHNC authors approach their intended audience at times as equals, and at other times as learners, the NIH more consistently addresses the intended audience as learners.

Is the person who is expected to take responsibility for any actions clear? In the SPOHNC book, emphasis is placed on autonomy, self-advocacy, and management of one's own care through text that encourages the reader to engage in record-keeping and scheduling activities. These are specifically allocated to two sections of the book, with pages for note-taking located at the end of other sections.

Additionally, the frequent use of second-person phrasing in both the SPOHNC and NIH books presumes a certain onus on the readers to take responsibility for their care, to the extent that they are physically able to do so. Substantial efforts are made in both publications to share a myriad of other helpful resources (e.g. social workers, support groups, other reading materials, etc.) as a means of further supporting and empowering the reader during a most difficult time.

Summary

A detailed textual analysis was performed on the SPOHNC and NIH books with mixed results. Overall, it is evident that their content supports an educational purpose, though perhaps with a few caveats. What follows are some highlights from this analysis.

Ethos plays an important role at the beginning of each book, as a means of demonstrating and authenticating the character of the authors. This is made evident by the frequency, location, and degree associated with the first four moves, which serve to identify the author, describe the text, and provide factual information about cancer and human anatomy. These moves attempt to establish a sense of trust and a belief that the books and their authors are reliable sources of information. If done effectively, this approach can lay a strong foundation from which additional information is successfully conveyed, facilitating an educational purpose.

Analysis of the frequency data table revealed that very little discussion containing the first four moves goes beyond page 5 in the SPOHNC book and page 7 in the NIH book. A review of additional, comparable publications would be required to ascertain whether this is a significant finding or typical occurrence. However, it is certainly easy to speculate that this may be applied universally among other literature with a similar purpose, as a means of first establishing confidence and providing a general overview of the topic prior to approaching a more technical discussion.

The rhetorical elements associated with the moves are detailed in Table 4, where potential trends can be appreciated. The element *to inspire* appears early in both texts, where Moves 1-4 are most appreciated. Along with this, the first two moves address the rhetorical element *to inform*, as one might expect in the context of authorial identification and metadiscourse. The two subsequent moves serve *to define*, in the context of providing information about cancer and human anatomy. Table 4 also reflects the concentration of the rhetorical element *to instruct* once ethos is established and following the first four moves, giving further evidence of an educational purpose.

The consideration of factual content -- particularly in the SPOHNC book -- is somewhat problematic, compromising the overall trust it has attempted to establish early on. Information sources such as a bibliography are not present, and appear to be warranted based on similarities found between the two books. These similarities indicate a possibility that unnamed sources were used and, as such, should be named. However, there is no conclusive evidence of plagiarism, or at least, of who committed plagiarism. It is also possible that, since the NIH book is available for public dissemination, others are free to draw liberally from it for use in their own work. Nevertheless, it is still in the

best interests of the authors to name their sources, as this furthers the credibility of their own work.

Both documents make commendable efforts to address the problem of technical vocabulary with the provisions of synonyms for highlighted or italicized words, as well as definitions and explanations of complex or unfamiliar terms. This is not an easy task in discussions about a complicated illness and its related technical approaches to patient care. Particularly in discussions about treatment options, sentences not only contained more technical vocabulary, but narratives took on a congested, heavy appearance. Thus, both books contained problematic language associated with the consideration of vocabulary technicality. Further problems with language were revealed in an evaluation of lexical density, with results exceeding Williamson's (2009) low LD standard of 46.2%. The LD for the SPOHNC book was 51.5%; for the NIH book, the LD was 53.7%. These problems potentially compromise the books' educational purpose.

On the title page, the SPOHNC book assumes a first-person stance in establishing a certain ethos related to the shared experience of cancer. However, the roles of the reader and writers are generally made clear through the use of second-person phrasing and language that provides the patient with important information, while encouraging an autonomous approach to one's illness. The authorial identification observed in both books serves to define the writers' role as an authoritative, knowledgeable entity. These roles can clearly be appreciated and re-named as those of educator and learner, or mentor and protégé, furthering the educational purposes of the books.

This textual analysis demonstrates that, although key problems exist in the SPOHNC and NIH books, substantial evidence reveals that an educational purpose is

being served. Both documents received comparable assessments in the considerations of overall textual structure, rhetorical elements, factual content, technicality of vocabulary and lexical density. Greater inconsistencies were noted in the SPOHNC book's consideration of roles and relationships, where first-, second-, and third person were all used. Depending on the reader's interpretation and tolerance level regarding the familiarity associated with these three perspectives, this may or may not present a problem.

Of equal concern to the text contained in a document is the way in which information is packaged, arranged, and expanded upon through design choices. This is addressed in the next chapter.

Chapter Four: Visual Analysis Findings

A visual analysis of the SPOHNC and NIH books was performed using design theories and analytical approaches explicated by Kimball and Hawkins (2008) and Pepper and Brizee (2010). Table 2 provides an overview of the five considerations for this analysis: audience; purpose; context; medium and document format; and page design. In this chapter, each consideration is introduced, followed by its corresponding question or discussion topic, which is then addressed in a discussion of the findings.

At this point, a brief discussion may be of interest which addresses textual and design choices made specifically for this thesis. Although this researcher's objective was to aid in the clarity of this multimodal approach by applying parallels between the visual structures of Tables 1 and 2 and Chapters 3 and 4, this was not fully achieved; two of the considerations in the visual analysis necessitated the development of discussion topics in lieu of specific questions, as had been applied to prior considerations. This is due to the vast number of questions which could be addressed in a visual analysis specific to the considerations of page design, as well as media and document format. The decision to use more general discussion topics instead of questions naturally led to different phrasing in the headings below the considerations (as they are not in the form of a question). Nevertheless, this approach is believed to mitigate the potential for confusion and clutter associated with detailed delivery of information. This work underscores the potential challenges and comprehensive demands associated with the design of a new resource to aid visual assessment within a multimodal study.

Audience

An important approach in visual analysis is to try to identify the kinds of individuals for whom a product was designed. Though a given document could potentially have an audience of anyone, specific clues can signal a target audience (also referred to as an intended audience or intended reader) (Pepper & Brizee, 2010, p. 1). These clues include physical placement (e.g. doctor's office versus football stadium), certain accommodations (e.g. large text to accommodate the needs of those with limited vision), and imagery choice (e.g. controversial, soothing, etc.). Specific design elements are likely to attract some people, while they distract or discourage others. An analysis of the target audience can help authors and publishers understand the extent to which their purpose is achieved (based on whether the target audience identified in an analysis matches their intended audience).

Who is the target audience, and how is this made evident? It is made clear by the titles and written content of both the SPOHNC and NIH books that their intended audience is comprised of individuals who have received a diagnosis of oral, head and neck cancer. While we can assume the books could also be intended for others who have a vested interest -- such as family members or friends of patients -- the liberal use of second-person phrases indicates patients as the prime target audience. The titles and text are augmented by the use of design elements which endeavor to facilitate successful delivery of the message.

However, each book employs design elements which are vastly different from one another. This indicates the possibility that the books are each intended for different groups of people who may not share the same general ideas regarding how to approach

their disease, and thus, may not respond the same way to both documents. Consequently, an identification of intended audience subgroups was made within the target audience of oral, head and neck cancer patients. It is important to note that the target audience or its subgroups are, by no means, presumed to be the actual readers of these books.

There is clear evidence that the audience subgroup for the SPOHNC book is comprised of patients who have a desire to address their illness with greater emotional depth than the NIH book's audience. Thus, it is not enough for these patients to understand their disease; they will want acknowledgment of the breadth of their disease experience, and they will want variety in the kinds of ways to approach resources and manage their health care. This audience subgroup desires balance as well: balance between autonomy and access to resources when autonomy is not possible, as indicated by the inclusion in the book of personal calendars and schedule-keeping pages as well as resource pages; and balance between the acquisition of relevant information and of empathic guidance, as indicated by the narrative approach to the journey of cancer as well as the level of information provided throughout the book. Given the book's overall emphasis on design, and its attention to life-affirming details such as the inclusion of artwork and the use of rich colors, this audience subgroup may ask the question, "How do I / will I experience this disease?"

The NIH book design exhibits a much more straightforward approach to sharing information. The audience subgroup, in this case, wants "just the facts." The text is more direct and less circuitous, and the design elements discussed below further substantiate this determination. Because the overall content and design of this book

appear streamlined and non-distracting, it responds to the patient's question, "What do I need to know?"

The first determinant of intended audience can be appreciated in the cover designs. The SPOHNC book cover (Figure 3) shows a painting of a man walking on a beach with his back to us, and ahead of him in the distance is a woman with an umbrella. Shades of muted blues, grays, and creams dominate the color scheme. This illustration appears to be a print of an oil painting, and thus, the colors run into one another.

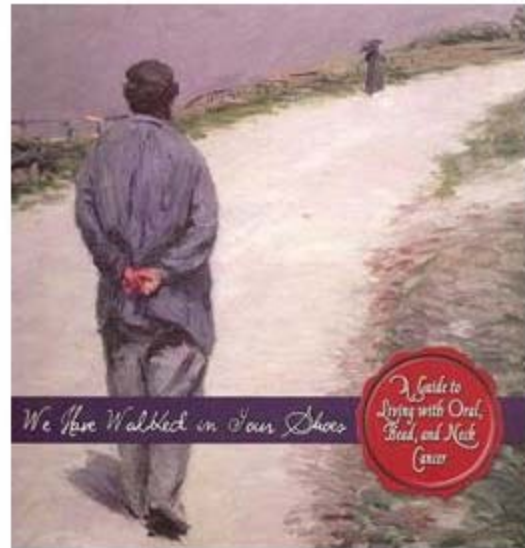


Figure 3. Cover page of the book *We have Walked in Your Shoes*. (SPOHNC, 2008).

Given the SPOHNC book's nontraditional appearance, when compared with other medical information literature, the audience subgroup may consist of individuals who have a proclivity towards the aesthetic and an appreciation for the time and thought invested in such a publication. There may even be a sense of prestige attached to such individuals.

In contrast, the NIH book cover design (Figure 4) demonstrates well delineated areas of color. It is split vertically down the center into two panels: on the left side is a light tan panel which contains the title and author credits; on the right side is a silhouette of half a human figure in a darker shade of tan against an off-white background. The silhouette is poised as if looking out from behind the left panel.

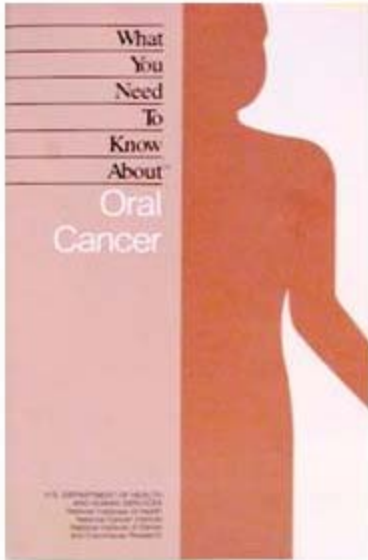


Figure 4. Cover page of the book *What You Need to Know about Oral Cancer* (NIH, 2003).

The NIH book, which consists of black print on white pages with occasional tans and grays, implies a no-nonsense approach. Though aesthetics appear to be of lesser consequence, the design choices behind this book are just as important as those of more detailed work. The audience subgroup in this case seeks a direct, no-frills approach to addressing their diagnosis.

The extent to which lines are used (or not used) to define and separate color in both

publications also gives us a sense that the tone of their content and the approach to their subjects may be vastly different. The more linear NIH book design seems to underscore its direct approach to information. Conversely, oil paintings and other artistic elements reflect a more experiential, circuitous approach in the SPOHNC book.

The text design of the titles is noteworthy here. The SPOHNC book title consists of white, italicized Gigi font contained in a metal-grey strip across the lower third portion of the cover: *We Have Walked in Your Shoes*. To the right of this strip is something which resembles the mark of sealing wax (see example, Figure 5); an explanation of what the book is about is contained in this area: *A Guide to Living with Oral, Head and Neck Cancer*. This mark provides a subliminal allusion to an ethos of prestige. The arrangement of



Figure 5. Example of sealing wax (courtesy of www.customwaxnseals.com/).

the text and choice of font move the eye horizontally across the cover.

The human figure found on the cover of the NIH book serves as a subtle reminder of medical illustrations which may connect the reader to other casual or formal medical learning experiences, such as visits to the doctor's office where wall posters are often found in examining rooms (see example, Figure 6). The human figure is traditionally

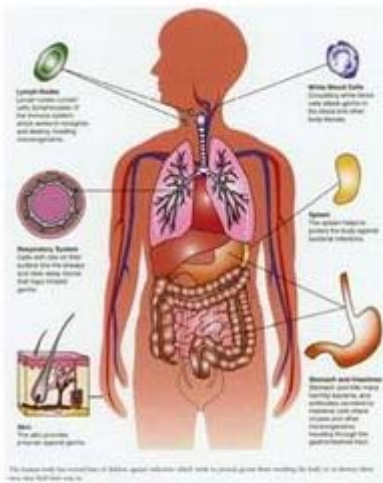


Figure 6 . Example of human anatomy poster (courtesy of Medical Supplies & Equipment Co.)

prone, looking to one side, and in silhouette. Thus, the NIH design caters to an audience subgroup that expects to receive medical information and to be medically educated.

The NIH cover design employs a large, white sans serif font for the theme, **Oral Cancer**, and serif font for the more peripheral, though equally important texts introducing the theme (i.e. “What You Need to Know About...”). The author information is sans serif, located at the bottom of

the cover, and in smaller size font. Design theory is applied here insofar as sans serif typefaces appear in a vertical orientation, subsequently drawing the reader's eye downward (Kimball & Hawkins, 2008, p. 163). This approach attaches a certain importance to the identity of the author, and indicates that the target audience may be particularly interested in knowing where their information is coming from.

Based upon these two distinctly different cover designs, their respective audience subgroups may be identified in terms of their specific needs upon first learning of their diagnosis. In addition to applying a high degree of aesthetic considerations, the

SPOHNC book cover illustration gives the reader a sense that, by virtue of his having a serious illness, he may be embarking on a personal -- and perhaps a somewhat introspective -- journey. One can conceive of such introspection taking place during walks on the beach. There is a subtle message indicated here that the reader is not merely suffering from an illness, but is in fact living with the new experience of oral, head and neck cancer. Metaphorically, one can say that the newly diagnosed patient is, in fact, starting a new chapter in his life; contributing to this theme is the storybook-like appearance and construction of the SPOHNC book.

While the SPOHNC book refers to a life-changing journey, the NIH book employs a straightforward approach to giving information about the disease. The text which alerts us to this is augmented by the limited use of color, the use of neutral colors, linear divisions in color, and the simplistic illustrations. It is worth noting here that the NIH puts out a number of books with similar covers that discuss other illnesses. These are part of the “What You Need to Know AboutTM” series; though different books have the same basic design, their topics are distinguishable by the use of different colors in their cover designs.

There is evidence that the SPOHNC book’s intended audience has a particularly strong desire to be proactive in their own care. The book encourages interaction (*engagement*), particularly evident in Sections 5 and 6 (“Your Personal Calendar” and “Your Personal Records”) which contain a number of designated areas in which readers are invited to write information:

- **Treatment Schedule.** A four-column treatment schedule grid to record up to 22 treatment activities, specifically prompting the reader to include the date/time, the type of treatment, and notes.
- **Monthly Calendar.** A personal monthly calendar to keep brief records for up to seven months.
- **Weekly Calendar.** A weekly calendar with space for daily detailed notes for up to 11 weeks. Instructions precede this section.
- **Symptoms and Side Effects.** A grid for recording and tracking symptoms and side effects, along with personal notes, located on the page opposite each calendar week. Instructions precede this section.
- **Your Healthcare Team.** A form to indicate the name, specialty, address, hours, and contact information for up to 11 health care providers.
- **Medications.** A grid to record up to 16 medications prescribed to the reader, with fields for the name of the medicine, the reason it is being prescribed, date medicine is started, dose (how much and how often it should be taken), date the medicine is stopped, and notes.
- **Laboratory Tests.** A grid to record up to 25 laboratory tests, with fields for the name of the test, the purpose, date, and results.
- **Medical Bills and Health Insurance.** (1) A form to record health insurance provider information, plan/identification numbers, telephone and mailing addresses, and (2) a grid to record up to 16 billing-related conversations, with fields for the date/time, purpose, name of person talked to, phone extension, and notes.

Alternatively, the NIH book encourages the readers to seek out the “most up-to-date information” beginning on page 1, signaled by bolded areas of text:

Telephone (1-800-4-CANCER): Information Specialists at NCI’s Cancer Information Service can answer questions about cancer and send materials published by NCI. (NIH, 2003, p. 3)

Additional resources, which include internet addresses, telephone numbers, and print materials, are listed in the back of both books. A heading adequately signals this section.

These findings suggest that each book attempts to address different audience subgroups. Based on design and artistic choices associated with the SPOHNC book, their intended audience appears to be comprised of individuals who will be proactive in their own medical care, and will also appreciate an introspective approach to their illness which is perceived as a “journey.” Conversely, the design choices and minimal art used in the NIH book indicate a target audience who wants a no-frills approach consisting of the essential facts about their disease.

Purpose

A visual analysis which addresses the consideration of purpose seeks evidence in design choices of the rhetorical elements which support that purpose. The textual analysis established the presence of five rhetorical elements which support an educational purpose: *to inform, to instruct, to define, to inspire, and to engage*. This present visual analysis endeavors to identify further evidence of these elements in the two books.

What is the purpose of the documents, and how is this made evident? There is sufficient evidence in both books which speaks to the purpose of education through the rhetorical elements *to inspire* and *to engage*. Due consideration to the inspirational component of the books -- particularly the SPOHNC book -- is demonstrated through the inclusion of classical artwork. The NIH book may endeavor to inspire through its illustrations, though not with the same depth. In the latter, a limited number of black and white illustrations serve to augment some of the text. Figures 7 and 8 are



Figure 7. Illustrated page from *What You Need to Know About Oral Cancer* (NIH, 2003).

examples taken from sections of each book which address the topic of nutrition.

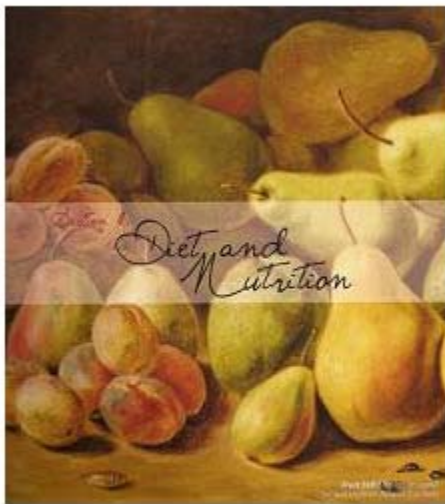


Figure 8. Illustrated page from *We Have Walked in Your Shoes* (SPOHNC, 2008).

Another important factor which can indicate the books' educational purpose is found in page layout. Different areas within a given page may be allocated to serve different rhetorical elements. Their placement signals groupings of like objects, separation of ideas or approaches to conveying ideas, and in some cases, may present information in a variety of ways to facilitate understanding by different types of learners.

Another goal of this approach is to augment the information presented in one section with a different kind of presentation in another separate section. The top half of a page taken from the SPOHNC book (Figure 9) contains a narrative about the topic. The lower left portion provides a labeled illustration. A bulleted list on the lower right side augments this information. Together, these three sections serve two rhetorical elements: *to inform*, and *to define*.

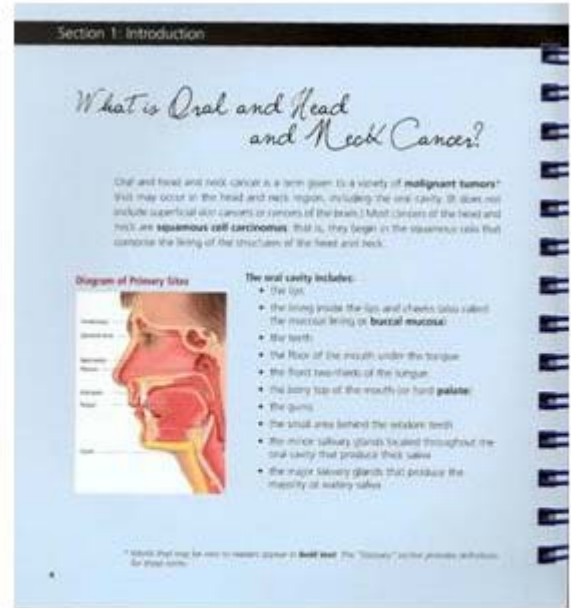


Figure 9. Page layout example from *We Have Walked in Your Shoes* (SPOHNC, 2008).

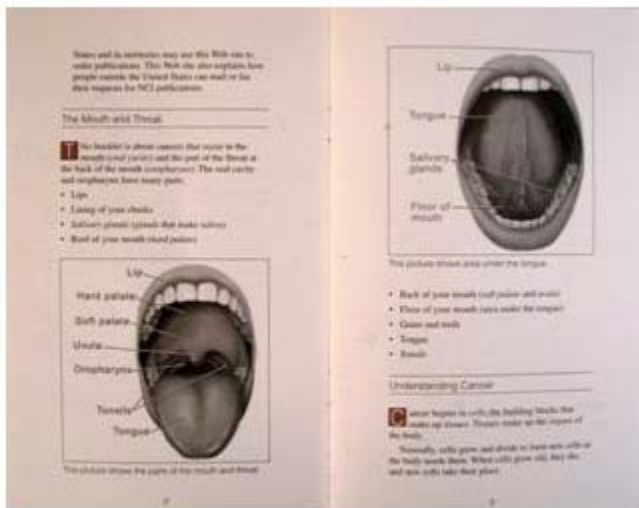


Figure 10. Two-page layout example from *What You Need to Know About Oral Cancer* (NIH, 2003).

Figure 10 shows a two-page spread taken from the NIH book. Note the similarity to the SPOHNC book in the use of labeled illustrations and bulleted lists. For both books, these sections provide background information that contributes to the definition of cancer (oral cancer for the NIH book, and oral, head and neck cancer for the SPOHNC

book). Of note, these sections are the only ones in both books which utilize labeled illustrations of the body, specifically to address the location(s) of potential impact of the cancer. Like the SPOHNC book, the NIH book uses grouping -- though to a lesser extent -- to address information in different ways. The bulleted lists following the narratives contain the rhetorical elements *to inform* and *to define*.

These findings suggest that based on evidence of the five rhetorical elements found in, or facilitated by document design choices, both the NIH and SPOHNC books demonstrate an educational purpose.

Context

According to Pepper and Brizee (2010), “context refers to the circumstances of the environment where a piece of communication takes place” (p. 3). The success with which a document is able to achieve its intended purpose can be determined by the extent to which design choices serve to anticipate and respond to the environmental situation (e.g. physical constraints and constructs) in which the document will likely be used. We can appreciate that context ties in with audience in this analysis; each book employs design elements which are intended to cater to a certain kind of audience who is placed in a given set of circumstances.

What are the circumstances of the environment in which the document is intended to be used, and how is this made evident? The context in which the SPOHNC book is ostensibly used requires a sturdy document which can withstand the rigors of being toted about as an accessible, quick reference and record-keeping tool. It consists of 81 durable, glossy sheets of paper, spiral-bound with 12 sheets of heavy cardstock for the covers and section dividers. Further, it contains sections which

specifically invite the user to input information and build a comprehensive personal health care management record. The book measures 8" x 8", and weighs 1.125 pounds. Though this evidence indicates that it is intended to be used as a portable, personal management tool, its size and weight may make it somewhat unwieldy or potentially impractical for bringing along to medical appointments.

The context in which the NIH publication might be used requires a light-weight guidebook. Though not as sturdy as the SPOHNC book, it can be easily carried about, placed in a handbag, or even rolled up into a jacket pocket. It weighs approximately 3 oz., and measures 8.5" x 5.25". This book is lighter, slightly taller, and 2.75" narrower than the SPOHNC book. It consists of 12 separate sheets, including one of lightweight cardstock, which have been folded in half and bound in the center with two staples. It may be more likely to fall apart than the SPOHNC book, not only because it is less sturdy, but -- given its accessible weight and size -- it may simply be picked up and opened more often.

These findings indicate that both documents respond to context differently. The SPOHNC book is sturdy enough to carry around and contains sections which facilitate record-keeping, suggesting its use during one's travels (e.g. between medical appointments). The NIH book may also be used in this manner, though there is no content which prompts record-keeping. Thus, while both books have the potential to serve the rhetorical element *to engage*, their response to context indicates disparate approaches.

Media and Document Format

Considerations related to media and document format address how the information contained in a document is constructed and conveyed, in terms of serving its overall purpose.

Conventions. The concept of conventions responds to the level of familiarity and expectations associated with a document. The patient literature distributed by the Department of Radiation Oncology at the Indiana University School of Medicine (IUSM) indicates conventions which are generic in appearance. For example, oncology staff often provides patients with instructions, suggestions, and information about side effects in the form of white, photocopied, typewritten, 8.5” x 11” patient information sheets. The NIH book researched for this thesis is provided or made available to all patients in the department. Of note, this NIH book is part of a series of books from the same source about different kinds of cancers, and similar design principles are applied in each case. Given its placement in a series of similar NIH documents, its general availability to the public and for liberal distribution among medical centers, the NIH book falls in line with standard conventions in its familiar and traditional appearance as a government-published patient education book. It conforms to standards set within its own organization. A mass-produced appearance is indicated by its more generic size, soft cover, limited use of color and graphics, and a simple staple binding.

The information in the SPOHNC book is contained in a colorful, spiral-bound, 145-page, multi-colored, hardback publication. Given these qualities, its overall appearance may remind one of a storybook or coffee table book, which does not respond

to standard conventions associated with cancer patient materials. This book is not available at the IUSM.

These findings suggest that standard conventions are not a consideration in the SPOHNC book, as it attempts to stand out from other patient information on the subject. This can be seen as a good thing for patients who desire a less conventional approach to coping with their illness. Conversely, later discussions in this thesis address the benefits of the more conventional NIH book, particularly in terms of its relative ease in being mass produced -- an important aspect to medical publications about diseases that encounter changes in treatment and diagnoses.

Human Factors. In addition to conventions, media decisions involve what Kimball and Hawkins (2008) refer to as human factors (p. 76-77). These are associated with the physical relationship with, and physical response to a document based on several specific ideas: interaction with light; resolution; and transmission and access. These are further explained below.

Interaction with light. This topic is concerned with the ease with which readers are able to see a document based on its reflective versus transmissive nature. Since both works in this study are print documents, light reflects from the pages to the human eye. (Transmission refers to other forms of media, such as a computer screen, from which light is transmitted.) Even in an adequately lighted environment, however, portions of the SPOHNC book may not be easy to see, owing to problems related to color choice and text size. Conversely, the NIH book contains black, serif text against a white or tan background, facilitating optimal visualization.

These findings suggest that the NIH book may more successfully facilitate visualization of text and objects.

Resolution. Resolution considers the extent to which objects are clear and easily defined. This takes into consideration the Gestalt theory of figure-ground discrimination. Though portions of the SPOHNC book are characterized by good clarity, the use of deep reds and blues as a background color on some pages may present problems. The NIH book again exhibits consistency in this area, with darker objects discernable against a light background. These findings suggest that in the realm of resolution, the NIH book may achieve comprehensibility more readily than the SPOHNC book.

Transmission and access. This item addresses how the information contained in the document is transmitted or shared, and whether it is portable or disseminated through networking. Since the documents for this research are books, they are technically portable. The SPOHNC book has potential limitations, as mentioned previously, regarding its unwieldy size and weight. Paradoxically, sections in this book allocated for personal notes and record-keeping suggest that it is intended to be used during one's travels. While the SPOHNC book is provided for free to the public, availability is limited to one copy per household through the SPOHNC Website, <http://www.spohnc.org/>.

As mentioned in the discussion on conventions, the NIH provides patient print materials to medical facilities to be distributed freely to patients. The NIH book is lightweight, portable, and bendable. No sections are specifically allocated for personal notes or record-keeping.

These findings suggest mixed results in regards to transmission and access. The SPOHNC book may invite engagement and encourage its use as a portable document, but

its weight and size may discourage users from taking full advantage of it. Conversely, the NIH book facilitates optimal use through its highly portable construction, though it does not invite the reader's engagement.

Transformation. Transformation takes into account the dynamic potential of the document (i.e. whether it can be easily modified or updated). The SPOHNC and NIH books are, of course, static (compared to a Website, for example). Further, they are not bound in such a way that additional or replacement pages can be inserted. If new information is available about the topics discussed in the books, new editions are therefore warranted.

Associated with this topic is the ease with which updated materials may be produced. This takes into account other topics, including cost, which is discussed below. However, given the general construction associated with these documents (and previously addressed in the sections on context and conventions), the NIH book would most likely have more success in expeditious production of updated materials.

These findings suggest a potential problem associated with the SPOHNC book in terms of providing updated material comparable to its present design, based on issues related to cost and the time and resources involved in manufacturing this more elaborate document. The NIH book is less likely to encounter this problem, given its mass-produced appearance, and simple, inexpensive construction.

Cost. The topic of cost helps determine who may have access to a document (and who may not). This can also address the economical significance of design choices. Both books are free to the public. The SPOHNC book gives an expensive appearance. This is made evident by a robust and broad use of color in both the text and pages, its

hardback cover, cardstock section dividers, and glossy pages. It is professionally laid out, with the use of several kinds of fonts and different colored title strips at the tops of many of the pages. Availability is limited to Website orders, one per household, further indicating a potentially high production cost. The higher investment attached to the SPOHNC book may signal that the cost of production is of little concern in relation to the importance of conveying a message and sharing key information to the patient. The NIH book is constructed from paper which is slightly thicker, more opaque, and slightly smaller than standard 8.5" x 11" copy paper. This book is approximately 33% thinner than the SPOHNC book. It is available for mass distribution.

These findings suggest that, while the SPOHNC book's higher production cost may imply that a greater value is placed on the patient's well-being than on the price of conveying important information, the NIH book's lower production cost may optimize its potential availability and efficiency in reproduction.

Artwork. This topic takes into account specific choices and applications of art and the extent to which they have facilitated and/or bolstered the document's purpose, through the identification of rhetorical elements connected with those choices. Art has the potential to serve each rhetorical element in unique ways. The rhetorical element *to inspire* can be particularly well served through visual communication. And inspiration certainly has its place in a document with an educational purpose, as is indicated in the introduction to the online magazine, *What is Art and Why does it Matter?*:

Looking at art can provide a much needed refuge for reflection, sympathy, quietude, inspiration, and even ecstasy in this increasingly chaotic world. Looking further can deepen knowledge of cultures and artistic practice, develop and hone observational skills, reveal insights into history that other documents can't, and encourage creative, analytical, and autonomous thinking. (Yale University, 2009)

Though both books used some artwork, the rhetorical element *to inspire* received considerably more attention in the SPOHNC book, where prints of classic paintings occupy each chapter separator. Alternatively, the NIH book's artwork consists of a total of two modern sketches that demonstrate a connection to the text near them.

Further analysis of five areas of artwork follows. Additionally, Tables 7a and 7b list the chronological inclusion of artwork in both books, and serves as an aid in analysis.

General observations. In the SPOHNC book, all of the artwork, except that which occupies the front cover, is represented from two perspectives: its original form, and a mirror image of its form, depending on which side of the page one is looking at. The art on the front cover of the SPOHNC book is not titled and not credited to any artist (indicated as "N/a"). The artwork in the SPOHNC book occupies the entire page on which it is located

None of the artwork in the NIH book is titled or credited to anyone. The artwork takes up half of the page, and is in black and white, except for the cover illustration -- a silhouette of the human figure in light and darker shades of tan.

Human Subjects. Seven of the eleven pictures in the SPOHNC book contain at least one human subject. While human subjects are clearly the focus of five pieces (1, 3, 5, 8, 11) faces are clearly distinguishable in only two of these pieces. In four pieces, human subjects have their backs to the observer, and their faces cannot be seen (1, 3, 4, 11). In two of these particular four pieces, the subjects are individual men, and no other people are in the foreground (1, 3). Piece #4 has three subjects -- all men -- only one of whom has most of his face obscured. Piece #11 shows the backs of two women walking together on a beach.

Only two of the pieces which highlight human subjects have them engaged in some activity other than walking or standing (4, 5). In both of these pieces, one is able to see the entire face of one subject, and the profile of a second subject. One of these pieces includes three men participating in a ball game (4). This piece -- the only one which includes an animal -- has a black dog watching the game from the side. The second of these two pieces (5) displays a close-up of a woman at a café in the foreground, with a man looking at her from the background. The full facial features appreciated by the single subjects in both pieces are attributed to those in the background; the foreground subjects are both in profile.

All of the pieces are done by different artists, except for two pieces, both of which were painted by Vincent van Gogh. Interestingly, in both of his pieces, people are an incidental -- rather than a primary focus -- of the piece. One piece takes place on a sea shore, highlighting the shoreline, with two boats and a man and a woman walking together (8). None of these subjects is well defined or detailed, though they are clearly evident. In his second piece, a café is highlighted, employing striking color contrasts in a yellow awning against a dark evening backdrop (10). Again, the features of the people sitting in the café and walking down the street are not well defined.

The NIH book contains just two illustrations in addition to the one which occupies the front cover. Both illustrations portray people engaged in a medical activity. The first shows a male medical specialist (i.e. dentist, physician, etc.) performing an oral exam on a male patient. The second shows a man and woman sitting across the desk from a woman in a white lab coat holding a paper. The subjects are in profile.

This finding suggests that the roles of human subjects contribute to different approaches to the rhetorical element *to inspire*. Greater importance is placed on human subjects in the NIH book as participants in their care, thus ostensibly inspiring the reader to act in a similar manner. This role is not indicated in the SPOHNC book, where human subjects are observed at play or in introspection, thus inspiring the reader to ponder and experience (life, his journey, the artwork, etc.).

Elements of Nature. In the SPOHNC book, water plays an integral part in six of the eleven pieces (1, 2, 7, 8, 11). As for the weather and the time of day, night or evening clearly play important roles in three of the eleven pieces (3, 8, 11). Rain or dusk plays a part in piece #1, as indicated by the umbrella and the purple-blue background of the piece, though it is difficult to clearly ascertain either. Daytime is clearly evident in only two pieces (4, 6). The time of day for the remaining pieces is undetermined (1, 3, 5, 9, 10). Natural settings predominate six of the pieces (1, 2, 7, 8, 9, 11), and five of these include water. There are no elements of nature in the NIH book.

This finding suggests that the SPOHNC book places greater importance on aspects which support the rhetorical element *to inspire*, evoking an emotional response through the use of artwork that portrays natural settings.

Man-made elements and environments. Manmade elements as predominant features in the SPOHNC book are evident in two café scenes (5, 10). Two pictures include boats (7, 8), and in one of these, the boat is a predominant subject (7); in the other, the boat is incidental (along with two human subjects mentioned previously) (8). Notably, in the former piece, the boat, which occupies most of the canvas, faces away from the viewer. Two pieces include only nature: flowers on water (2) and fruit (9).

The illustrations in the NIH book both take place in a medical or dental office. These illustrations are not highly detailed, but contain enough props (e.g. a desk) that indicate the venue.

These findings again suggest that greater importance is placed on supporting the rhetorical element *to inspire* in the SPOHNC book through the use of detailed artwork. This is in contrast to the direct, practical approach associated with patient activities observed in the NIH book. The former attempts to evoke emotion; the latter augments text about medical care.

The Significance of Solitude. As one takes time to regard the artwork used in the SPOHNC book, it becomes evident that a sense of either solitude or isolation is being addressed. Even in the pieces where human subjects are not the focus, single key objects seem to predominate over the piece (6, 7). Artwork of this kind is not evident in the NIH book. This particular aspect may further the book's endeavors to relate to the cancer patient whose disease has led to feelings of detachment or isolation.

This finding again suggests that greater importance is placed on supporting the rhetorical element *to inspire* in the SPOHNC book than the NIH book as a means of encouraging reflection, relating to the reader's emotional experience, and/or evoking an emotional response.

Medical illustrations. The extensive use of illustrations in medical publications enables laypersons to more easily understand complex ideas that are important to their well-being. For many topics, such as self-care and personal hygiene, illustrations can serve the rhetorical elements *to define, to inform, to instruct* and *to engage*.

Both books use labeled illustrations in discussions about human anatomy, as demonstrated in Figures 9 and 10. The use of illustrations in these particular cases serves the rhetorical elements *to inform* and *to define*.

These findings indicate considerable effort by both the SPOHNC and NIH books to educate readers through medical illustrations that are clearly marked and easy to understand.

Overall, the findings regarding artwork indicate that the choices involved in these illustrations support the rhetorical element, *to inspire*. However, greater emotion is attached to the SPOHNC book, given the settings, subjects, and overall mood of the pieces. The NIH book addresses a proactive approach to patient care through illustrations that depict human subjects engaged in related activities.

Interaction. This topic addresses the level of involvement the reader may have directly with the book, as indicated by its construction and design. Interactive indicators in a document serve the rhetorical element *to engage*, and thus, they have potential in promoting an educational purpose. The SPOHNC book invites interaction in sections which contain calendars and other information for the reader to complete, as well as a page in the back of several sections specifically indicated for note-taking. There is no evidence of this kind in the NIH book.

These findings suggest that the SPOHNC book more effectively bolsters its educational purpose through interaction than does the NIH book, by applying the rhetorical element *to engage*.

Storability and longevity. This topic addresses how the document is constructed, and considers the necessity and effectiveness of that construction. It takes into account the importance of construction quality as it facilitates the purpose of the document.

Owing to its hardcover construction and high-quality layout, the SPOHNC book is designed to be read over time, and retained as long-term reference material. However, as with many illnesses such as oral, head and neck cancer, treatment protocols and other vital information may change over time. Thus, its storability and longevity may work against its educational purpose.

The NIH book is less sturdy; it is apparent that storability is not as much of a concern in its construction. Books of this size and structure tend to get lost in a standard bookshelf. Different from the SPOHNC book, the NIH book's construction responds to the possibility that updated versions will be necessary in a relatively short time period.

Another observation here is that the reader may intuitively attach a sense of heaviness and time-consumption to the SPOHNC book -- and subsequently to the disease itself. This is attributed to the book's dark colors, bulk, and width. The NIH book does not "make light" of its subject matter, figuratively speaking; however, the lightness associated with the book's weight, dimensions, and color can promote an intuitive sense that, even if the disease leads to lengthy treatments, difficult lifestyle changes, or chronic problems, this will somehow be manageable.

These findings suggest that the NIH book reflects optimal response to issues of storability and longevity insofar as disease information changes. While the SPOHNC book's construction is of higher quality, from a production perspective, its content is less

likely to be relevant over the duration of its shelf life, leading to problems in meeting its educational purpose. The NIH book is constructed in a way that may help the reader appreciate the changeable nature of illness. The reader may thus be more likely to seek out updated materials when using the NIH book. This indirectly facilitates its educational purpose. Its overall appearance can also elicit a general sense of manageability in approaching one's disease.

Page Design

According to Kimball and Hawkins (2008), page is defined generally as “a single coherent visual field in a document” (p. 114). However, its true meaning can also encompass a wider scope, and this leads to enhanced ways of our thinking about page design, which Kimball and Hawkins (2008) define as follows:

... the process of placing design objects such as text, headings, and images consistently and effectively on the page, taking into account the actual visual field, the characteristics of the design objects, and the relationships implied among them by the principles of design. (p 115)

The consideration of page design addresses the potential which visual appearance has in aiding or enhancing the purpose of a document, through placement and organization of objects in a way that makes sense to the reader.

Page viewing. The topic of page-viewing involves the mode of reading, that is, the way in which a reader approaches a document. Readers skim to look for something eye-catching, they scan when seeking out particular information, and they read when they want to look at the entire book (Kimball & Hawkins, 2008). Different design choices will accommodate these different approaches, which can greatly impact the extent to which the purpose of the document is achieved. Another aspect of page-viewing relates

to eye movement. Studies have indicated that the human eye naturally starts at the top left of a page, and moves in a downward “Z” pattern (Kimball & Hawkins, 2008, p. 33-34). Successful document design attempts to respond to this phenomenon.

The SPOHNC book contains tabbed sections of cardstock as a means of facilitating skimming or scanning. A table of contents is provided, which occupies three pages. Some of the headings in the section dividers are different from the headings on the first pages of those sections, creating potential problems when scanning for particular information. For some readers, the book may appear to be like a storybook, intended to be read from cover to cover. However, it also can give the appearance of a coffee table book which would be skimmed. The tabs marking the section dividers are hidden behind the front cover. This, along with the cardstock separators, presents problems for skimmers who want to quickly flip through the pages. The different page colors, small print, and wide variety of font may make skimming and scanning difficult. A general “weighty” appearance to the SPOHNC book, attributed to its actual weight, dimensions, and detailed content, implies that a full reading of the text may take some time. Additionally, the natural Z-scanning eye movement may be challenged due to page width, resulting in a physically taxing reading experience for some people.

The NIH book’s table of contents occupies one page. The book does not have tabbed sections. It is flexible enough to facilitate skimming through quick page-flipping. The book has a general “lightness” associated with its weight, size, and use of light color. Additionally, the overall layout of text, owing to the book’s relative narrowness, facilitates the natural Z-scanning pattern of the human eye. This presents an opportunity for a manageable reading experience in a reasonable amount of time.

These findings suggest that page-viewing is better facilitated by the NIH book design, as indicated by the following: Z-pattern accommodations; flexibility; lightness in weight; manageable dimensions; and limited use of color. This is in contrast to the SPOHNC book's page-viewing challenges attributed to the following: wider dimensions (which are less accommodating for Z-pattern eye movement); rich use of colored pages as a setting for small print; general "weightiness;" and overall construction. Thus, on the topic of page-viewing, the NIH book more convincingly supports an educational purpose.

Relationships. The consideration of relationships addresses questions about how visual elements are arranged with respect to one another and why, as well as the extent to which they facilitate comprehension of the document and aid in meeting the document's purpose. Relationships also take into account the laws of grouping and good figure -- concepts associated with Gestalt theory.

Connections. Connections among visual elements are established and appreciated using several design principles: similarity; contrast; proximity; alignment; order; and enclosure. Gestalt laws of grouping are applied throughout a number of these design principles (Kimball & Hawkins, 2008, p. 28-36, 121). Applications of design principle are observed in both books; due credit for the resource that aids in this discussion is given at this time to Kimball and Hawkins (2008, p. 28-36). The implications associated with connections are located at the end of this section.

Similarity. Connection can be established through the use of like objects, so that their similarity aids in understanding and drawing meaning from a document. In the SPOHNC book the principle of similarity is appreciated with the colors of the pages: the same pastel backgrounds are used for pages contained in the same section.

In the NIH book, main sections are marked by sans serif font enclosed in parallel lines. The first letter marking the narrative after the heading is white, sans serif, slightly larger than the text, and enclosed in a tan box.

Contrast. The principle of contrast establishes differences and emphasis among objects. Headings of contrasting text size and font choice are observed in the SPOHNC book, as a means of identifying the level of importance and emphasis. In general, the use of the Gigi font indicates a main heading, and sans serif fonts signal subheadings. Headings will be addressed more fully in the discussion about hierarchy. The NIH book's use of sans serif font for headings and Times New Roman font for narrative text further demonstrates the use of contrast.

For both books, contrasting text and fonts apply to distinguishable sections in a page to signal differences in how a topic is approached. This is also established through the use of bulleted lists. Further discussion on this topic is addressed in the discussion on balance.

Proximity. This principle acknowledges a connection based on groupings. In both books, this is demonstrated primarily through the use of bulleted lists set off to the right and left margins of the pages, or within the narrative.

For example, in the SPOHNC book, a page titled "How Treatment is Determined" contains two paragraphs in the body which serve to inform the reader. Off to the right is a small bulleted list, titled "Questions you may want to ask your doctor," which serves to instruct the reader. Similarly, in the NIH book, the subsection, "Methods of Treatment," includes a bulleted list enclosed in a tan box preceded by this advice to the reader: "You may want to ask the doctor these questions before treatment begins." Titles are set off at

a distance from the body of the page in both books. In the NIH book, they are also enclosed between two horizontal parallel lines.

Alignment. Alignment, that is, the arrangement of objects and textual content, is applied throughout both books to establish important connections and distinctions among the text elements as the eye travels across and down the page. Bulleted lists are employed in both books to further enhance a sense of connection among ideas, and as a means of augmenting the narratives preceding them. Some of these lists are set off to the side of the page in the SPOHNC book, applying principles of enclosure and proximity. Likewise, these principles are applied in the NIH book where bulleted lists are enclosed in tan boxes in the middle of the page.

In summary, these findings suggest ample use of connections in both the SPOHNC and the NIH book as a means of aiding comprehension and thus, promoting an educational purpose. This is appreciated primarily in the use of bulleted lists, the use of background and text color, as well as text size, strength, location, and font.

Hierarchy. Hierarchy demonstrates levels of consideration attached to specific objects in the document. For example, composite text would appear smaller than the heading preceding it. The role of hierarchy in facilitating a document's purpose is crucial, as it takes into consideration how the reader processes and organizes information.

The use of headings responds to important concepts about hierarchy by signaling readers to changes or shifts in topics. When appropriately placed and worded, they serve as a powerful navigational tool and contribute to a positive, seamless reading experience.

The SPOHNC book contains a multitude of headings and sub-headings to serve different purposes. Each main section -- distinguishable and separated by a round-tabbed, cardstock, illustrated page -- contains a title printed in what appears to be italicized Gigi font. The section number is represented with a smaller font in red, while the title is in a larger black font.

For the SPOHNC book, headings are leveraged throughout to delineate and identify topics in the body of the text. Inconsistencies were found among section titles and the first headings contained in those sections. For example, the Section 3 title of “After Your Diagnosis” is directly followed on the next page by a paragraph with the heading, “How Treatment is Determined.” There are a few occasions where the first heading in the section extends the section’s title: Section 4, “Common Side Effects” starts with the heading, “Common Side Effects of Treatment.” There are three cases where the section titles are the same as the first body headings: “Introduction,” “Diet and Nutrition,” and “Glossary.”

Second-level headings are identifiable by a heavy Arial font, as are third-level headings. Some of these headings are all upper case, while others combine upper and lower case, based appropriately (that is, logically) on the level and topic of the text which supports them.

Perhaps more salient to the reader are the content (and therefore the implications), and inappropriate locations for a small number of headings. For example, under “Types of Treatment (contained in Section 3: “After Your Diagnosis”), 3rd-level headings logically follow, with accompanying discussions: “Surgery,” then “Radiation Therapy.” However, directly following the narrative on “Radiation Therapy” the heading, “Dry

Mouth” appears, and is given the same textual weight as these latter two 3rd level headings. Though this topic is certainly important when discussing radiation treatment, it is the only side effect discussed in this section, and its placement here does not appear to be logical. Figure 11 demonstrates this error.



Figure 11. Example of heading error in *We Have Walked in Your Shoes* (SPOHNC, 2008).

The NIH book consists of three levels of headings which serve as appropriate signals to their designated sections. For example, the main heading, Side Effects of Cancer Treatment is immediately followed by a narrative overview and mention of resource guides to get additional, specific information on the topic. Following this narrative, one of the sub-sections -- **Radiation Therapy** -- contains a bulleted list marked by the third-level headings, such as **Dry Mouth** and **Infection**, which signal narrative paragraphs explaining these side effects.

These findings suggest that the NIH is firmly established in its use of hierarchy, in contrast to the SPOHNC book, which exhibits some problems. Design issues with the

latter can lead to confusion regarding the level of importance attributed to a given text, and the way in which its meaning is interpreted. Thus, with regards to hierarchy, the NIH book is determined to more adequately serve its educational purpose.

Sequence. Sequence refers to the order that objects appear in the text. This again responds to a document's purpose insofar as it facilitates the flow of text and allows the reader to make sensible connections of the contents.

In the SPOHNC book, design objects generally appear logically ordered. Subheadings are left-justified. The more bolded, larger text signals the start of a new topic or sub-topic, effectively acknowledging the sequence of events and suggesting good figure. Nevertheless, we again run into challenges associated with text which appears out of place (see discussion above on hierarchy).

The NIH book uses a logical application of headings and subheadings to give appropriate sequence signals, augmented by the use of bulleted lists. The text appears less dense and cumbersome, and the eye is generally able to travel with relative ease through the text.

These findings suggest that in general, design applications related to sequence are used for both documents. Given its relationship and reliance upon other design approaches -- particularly hierarchy -- sequence is more firmly established in the NIH book.

Balance. Balance gives “a sense of unity and coherence to a page.” (Kimball & Hawkins, 2008, p. 129), and the Gestalt theory of good figure is particularly relevant here. Like the other considerations, balance also aids in document purpose by helping the reader process information.

Good balance is a strength of the SPOHNC book, which leverages this design approach with liberal and convincing form. Figure 12 demonstrates good balance, as well as successful applications of Gestalt theory. A narrative under a Gigi font header occupies the center section of the page. The left lower area is occupied by an illustration which expands on this explanation, and the lower right is occupied by a bulleted list which helps to elucidate key ideas. Additionally, this illustration demonstrates successful applications of Gestalt theory.

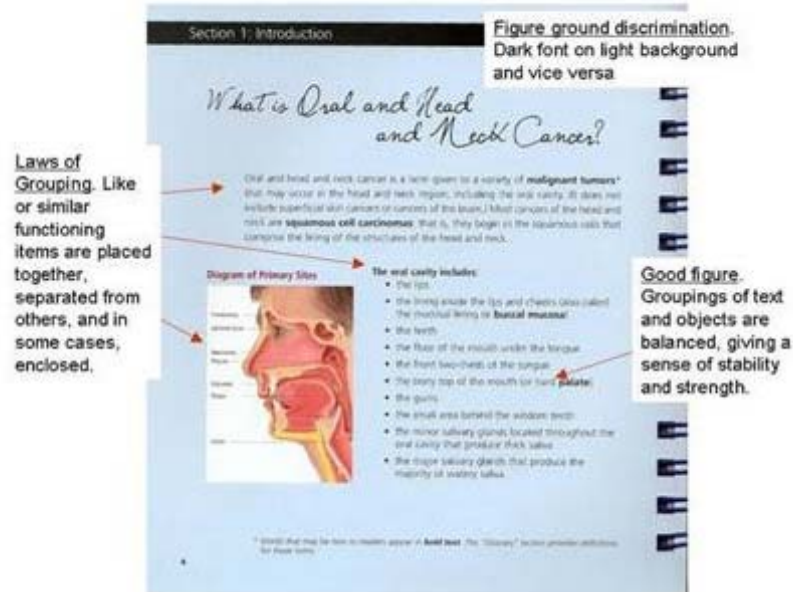


Figure 12. Example of good balance and applications of Gestalt theory in *We Have Walked in Your Shoes* (SPOHNC, 2008).

Balance is achieved in the NIH book (Figure 13) using a less complex approach. Equal weight is given to text elements across the page. Owing to its relatively narrow pages, enclosed text, bulleted lists, and illustrations are all centered.

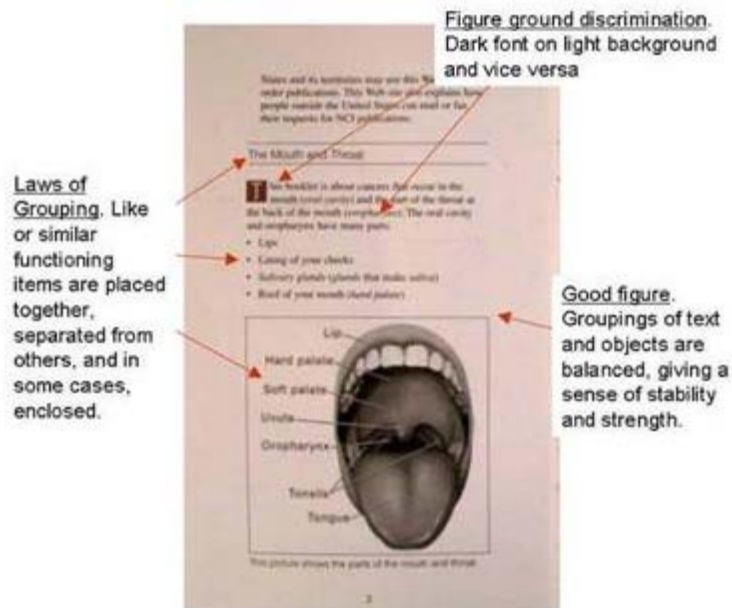


Figure 13. Example of good balance and applications of Gestalt theory in *What You Need to Know About Oral Cancer* (NIH, 2003).

These findings suggest a strong understanding in both the SPOHNC and NIH books of how balance operates to help the reader process information on a given page. In particular, this approach is leveraged to allocate specific sections to different areas on the page, while establishing equal importance among them.

Overall, the consideration of relationships is appreciated throughout both the SPOHNC and NIH books. The SPOHNC book takes a more artistic approach to some of its headings and font choices. This can result in a failure to signal the reader to changes or

to attribute appropriate levels of importance to text sections. Hierarchy is somewhat problematic in the SPOHNC book, and the NIH book's simplicity may aid in promoting an educational purpose more successfully. Additionally, sequence presented a problem for the SPOHNC book, again specifically with regards to heading choice and font. Balance and connections were appreciated and skillfully applied in both books.

These findings suggest that the educational purpose was a prominent consideration in the development of both documents, as indicated by the level of attention to details associated with design decisions. Nevertheless, the SPOHNC book requires a re-write of certain sections which fall short of consistently responding to important design concepts.

Summary

A detailed visual analysis was performed on both the SPOHNC and NIH books with mixed results. Overall, it is evident that the use of visual elements and design applications supports an educational purpose, though -- as with the textual analysis -- a few caveats were noted. What follows are some highlights of this analysis.

Five considerations were discussed in this chapter: audience; purpose; context; medium and document format; and page design. As this analysis evolved, the importance and meaning of each of these considerations gained clarity

An analysis of the documents to determine their target audience yielded interesting findings that led to the identification of two audience sub-groups. These sub-groups were divided by their aesthetic sensibilities and their approach to disease. The first group, identified through the SPOHNC analysis, would approach their disease much like a journey -- circuitously and introspectively. They would be engaged in the process

of their medical care, and would appreciate the way in which the book encouraged one to consider aesthetics. Font and artistic choices aided in this determination. The NIH subgroup consisted of people who were simply interested in obtaining crucial information about their disease. They may also be engaged in their medical care, as indicated by a list of other resources; but the lack of interactive sections in this document indicated that this was not necessarily an expectation.

The purpose of educating the reader was evident in both books. There was a compelling finding of several rhetorical elements contained on single pages, indicating the books' attempts to present information in different ways to facilitate understanding and ensure their educational purpose was achieved.

The third consideration addressed was context. Findings here also revealed interesting differences between the two documents. The durability of the SPOHNC book, and its interactive content, suggest that it was intended to be carried around, perhaps between clinical appointments. However, its size and weight were found to be somewhat unwieldy, which could compromise that intention. The NIH book, on the other hand, was constructed to be easily carried about, but contained no interactive components, such as a personal calendar. These mixed results indicate that the rhetorical element *to engage* is not wholly applied through considerations of context, and thus, an educational purpose is not fully appreciated here.

A multitude of discussion topics were addressed under the general consideration of media and document format: conventions; human factors; transformation; cost; artwork; interaction; and storability and longevity. Choices made with regards to this consideration in both documents reflected a genuine attempt to achieve an educational

purpose. Though aesthetically appealing, the novelty of the SPOHNC book suggested higher production costs and potentially compromised visualization of content. The NIH book was found to meet with standard conventions, owing to similar design applications used in other cancer booklets.

The topic of human factors also yielded mixed results. The NIH book received a more positive review in terms of its interaction with light, resolution, and transmission and access, due to design choices that facilitated optimal visualization of the text and easy portability. The SPOHNC book revealed inconsistencies in these areas, attributed to colors which could compromise figure-ground discrimination and impede reading. Additionally, despite the interactive aspects associated with some of its content, the portability of the SPOHNC book was called into question, given its unwieldy construction.

For the topic of transformation, the NIH received mixed reviews, given the static nature of the document and inability to replace pages and update the information. Nevertheless, its relatively low durability and low shelf life could indicate to the reader that the information is subject to change, encouraging a heightened interest in seeking up-to-date resources. Seen in this perspective, the SPOHNC book presented problems associated with its high durability and long shelf life, potentially misleading readers to believe that its information is less likely to change.

Further, intuitive responses to the overall presentation and construction of the SPOHNC book could lead readers to attach a greater sense of chronicity to their disease. Conversely, the NIH book's construction and presentation might elicit intuitive responses associated with the ability to manage one's illness.

The topic of cost yielded disparities between the two books. The SPOHNC book appeared more costly, and the NIH book appeared to be more easily mass-produced. The significance of this lies in the documents' availability to the public, and the turnaround time associated with producing updated versions. Both documents are free to the public, though they differ considerably in availability -- the SPOHNC book being more limited.

The topic of artwork yielded mixed results. While it was determined that both books sought *to inspire*, there was an emotive quality attached to sections of the SPOHNC book which was not apparent in the NIH book. Thus, the SPOHNC book's artwork primarily approached inspiration as a means of moving one to address feelings. The NIH book addressed inspiration as a means of moving one to take action or to comprehend an idea.

With regards to the topic of interaction, the SPOHNC book contained several sections inviting the reader to participate, such as through the use of a personal schedule contained in the book. The NIH book did not contain any interactive tools.

The topic of storability also yielded disparate results. The SPOHNC book was found to have a long shelf life, in contrast to the NIH book which gave a more temporary appearance. As discussed in the topic of transformation, the NIH book is indicative of the possibility of change associated with oral, head and neck cancer, and the SPOHNC book's durable construction would not support this.

The final consideration in this analysis was page design, which was addressed through discussions about two topics: page-viewing, and relationships. Page-viewing refers to how one approaches a document (i.e. reading, scanning, or skimming). Concerns regarding page-viewing related to the ease with which these approaches could

be taken. The NIH book yielded better results, owing to its construction, general design choices, and ease with which Z-pattern scanning of the eye could be performed.

Conversely, the SPOHNC book was less likely to facilitate optimal page-viewing, owing to its wider pages, generally dark colors, and its unwieldy size.

The topic of relationships was subsequently addressed, specifically with regards to connections, hierarchy, sequence, and balance. This analysis highlighted the interdependence and close relationships associated with these four applications. Results were mixed, although Gestalt laws associated with good figure and laws of grouping were particularly strong through the application of balance in both books.

Despite some of the limitations associated with the documents, findings from this visual analysis indicated that overall, both documents revealed commendable efforts to support all five rhetorical elements in achieving an educational purpose. However, the NIH book is a stronger product, given its availability, portability, visual accessibility, and the intuitive message of manageability associated with its simplistic design, light weight, and light colors.

Chapter Five provides further discussion regarding the findings from both the textual and visual analyses, specifically as they apply to the research questions presented at the beginning of this work.

Chapter Five

Summary

A multimodal analysis was performed on two health information documents: *We Have Walked in Your Shoes* (SPOHNC, 2008) and *What You Need to Know About Oral Cancer* (NIH, 2003). The objectives of this study were to determine whether such a research approach could ascertain the extent to which a document's purpose is achieved, to address whether these specific documents achieved an educational purpose, and to identify new best practices in both document analysis and document production.

Five specific questions were presented at the beginning of this thesis as a means of addressing those objectives. Based on the findings of this study, responses to those questions are provided here:

Do the two medical publications addressed here facilitate educational purposes? If so, to what extent, and how is this determined? To respond to these questions, a textual analysis was undertaken using six considerations on which to base the results: overall structure of text; rhetorical elements; factual information; technicality of vocabulary; lexical density; roles and relationships expressed in the text. The first two considerations were addressed using Clerehan et al.'s (2004) model of move analysis. As a result, 10 moves were identified, and five rhetorical elements were subsequently discovered within those moves. These rhetorical elements, *to inform*, *to instruct*, *to define*, *to inspire*, and *to engage*, were determined to support an educational purpose.

While the move analysis successfully acknowledged the existence of an educational purpose, a close reading yielded mixed results for the following considerations: factual content of text; technicality of vocabulary; and roles and

relationships expressed in the text. In both documents, factual content was called into question where resources were not fully cited. Vocabulary in both documents was also prohibitively technical at times, particularly in the sections on treatment options. Roles in the SPOHNC book were less clear than the NIH book: the SPOHNC presented itself as an authoritative source and an informed ally at various times. The NIH book was more clear on the roles of reader and author -- the former being a seeker of information, the latter being provider of information. Lexical density was determined to be inappropriately high based on results using Williamson's (2009) model for LD analysis.

Both publications demonstrated an effort to address some of the challenges unique to this type of literature. Specifically, potential lay reader confusion arising from technical vocabulary and lexical density was addressed by signaling and defining complex terminology. The SPOHNC book's vacillations among first-, second-, and third person, (and its particular use of first-person phrasing) may or may not be a problem, depending on the individual reader's perceptions of familiarity. Although limitations were observed with regards to factual information, several resources were also included in the books for readers to obtain additional information.

A subsequent visual analysis was performed, addressing five considerations: audience; purpose; context; media and document format; and page design. Using design applications from Kimball and Hawkins (2008) and analytic approaches outlined by Pepper and Brizee (2010), a detailed investigation yielded promising results.

A significant finding about audience suggested that each book sought a different kind of audience, based on their personal preferences and learning styles. The SPOHNC book's target audience would appreciate a circuitous and aesthetic approach to receiving

information, and the NIH book's target audience would appreciate a more direct approach to receiving information.

The consideration of purpose was quickly identified as educational through the visual analysis, which substantiated the textual analysis. This was evident by the presence and augmentation of the five rhetorical elements in the document design.

Each book responded differently to the consideration of context, attributed to their overall construction and approach to teaching. While the SPOHNC book encouraged engagement through its inclusion of interactive tools, the NIH book was easier to carry around.

Overall, the NIH book yielded better results with regards to media and document format considerations. In general, it was found to be more accessible from an educational and physical standpoint. In addition to being portable, it was easier to read, and its somewhat flimsy construction was thought to be a hidden benefit in terms of encouraging the reader to appreciate the potential for manageability with regards to the disease. The SPOHNC book yielded less optimal results, owing to its bulk and dimensions, its compromised contrast, and issues with transformation and storability.

The consideration of page design further yielded mixed results. From a structural standpoint, the NIH book was thought to facilitate optimal page-viewing, unlike the SPOHNC book. The topic of relationships yielded more positive results for both books. In particular, strong use of design applications was noted in the assessment of balance. A caveat to this topic was the problem associated with inappropriate, and inappropriately placed headings in a few areas of the SPOHNC book.

The findings from this study indicate that while both books exhibited a high level of understanding of textual and visual approaches necessary in creating a document which achieves an educational purpose, the NIH book showed more promise in successfully doing so. Both books had comparable outcomes in their textual evaluations. Also, the SPOHNC book showed greater depth of understanding of certain design approaches. However, it is apparent that the NIH book placed greater consideration on conveying information than on aesthetics, and ultimately, this led to a more effective document.

How can this literature be improved upon? Given the limitations discussed above, several improvements can be made to the documents:

In response to the absence of information sources found in the documents, appropriate credit to sources should always be given. Even in cases where information may be considered public domain, the identification of sources can further the ethos behind a document, and establish the trust necessary to hold a reader's attention.

In response to problems associated with resolution and page-viewing, due consideration to a novel design approach should always be seriously undertaken, followed by readability testing prior to its availability for dissemination. Measures such as this, which address document design, ensure comprehensibility and foster an educational purpose.

In response to problems related to relationships -- specifically hierarchy and sequence -- special consideration should be given to headings to ensure they are appropriately designed, indicated, and placed.

In response to problems associated with storability and transformation, document construction should respond appropriately to the dynamic nature of the subject in addition to the environment where it is likely to be used. Cancer research is a thriving and dynamic area; thus, patient literature generally does not require a long shelf life. A publication that has a more temporary look may actually serve as a means of encouraging a patient to seek out new information and make sure he/she is well informed. This approach facilitates portability, making information more accessible and fostering an educational purpose. Also, a more dispensable appearance to patient literature can give a subliminal message about the manageability of one's illness.

Does this analysis identify differences in design approaches specifically related to government-based publishers versus private-corporate sector publishers?

If so, what is the significance of this finding? The research of Carrigan et al. (2008) noted an appreciable difference in design approaches between generic and brand name drug inserts. This led to similar questions with regards to the two documents assessed in this study, since one was published by a branch of the United States government and the other was the product of two private industries and a volunteer group.

Profound differences in design approaches were immediately appreciated. The NIH book had a mass-produced appearance, utilizing minimal-color artwork. Design considerations were nevertheless appreciated, unlike Carrigan et al.'s (2008) corpus. Specifically, the long narratives observed in their study were not seen in the NIH book.

A more important finding here relates back to audience. While the SPOHNC book addressed an audience with aesthetic sensibilities, and applied a circuitous approach

to its text, the NIH book assumed a direct approach to an audience that wants or needs only that information.

Personal preferences notwithstanding, clinicians may choose the NIH book solely because of the authors' established presence within the medical community. Further, from the standpoint of comprehensibility alone, this is a good publication, perhaps because of its straightforward approach to text and design. This finding is significant with regards to future considerations for document design, and the choices to be made when identifying prototypes.

What best practices can be established for developing educational resources for cancer patients?

Give credit to sources of information. The absence of information sources can create problems related to ethos and the general reliability of the authors. Due credit not only ensures a strong ethos; it enhances it.

Use consistent and logical design applications to adequately reflect purpose. Although commendable efforts were revealed in the design of both books, they were not without their flaws. Figure-ground discrimination was particularly problematic in areas of the SPOHNC book, defeating the aesthetic objective behind its use of rich colors. The NIH book's use of limited colors was less inspiring, but the resulting strong contrast of black text against white page facilitates a basic understanding of the message without distracting the reader. Conversely, applications of good figure (balance), and grouping of like items (implementing separation, enclosure, and bulleted lists for example) were observed throughout both books, and set a strong example for future publications.

In addition, this analysis underscores the importance of considerations regarding media. The somewhat unwieldy bulk of the SPOHNC book defeats its purpose, insofar as the rhetorical element *to engage* is compromised by the inconvenience of carrying it around.

Consideration should be given to the subtle implications associated with design choices. A less durable publication might signal the brevity, or at least the manageability of a reader's illness. Hardcover, dark, heavy publications may lead to negative connections associated with the reader's illness.

Using the SPOHNC book as an example of what not to do, practice extreme caution -- particularly in large documents -- with regards to how and where headings are situated. Give equal textual weight to like objects.

Use document analysis and readability testing to assess a document prior to dissemination. The findings related to LD and vocabulary technicality indicate a need to reevaluate approaches to drafting similar materials in order to successfully meet their educational purpose. Additionally, a preliminary move analysis could provide substantial insights into the rhetorical elements and the extent to which an overall purpose will be met. Cohort testing of document drafts at intervals throughout the production process will head off many problems associated with comprehensibility.

What best practices can be established for future document analyses? A frank assessment of this multimodal approach will be required at some later date when some distance has been established between this researcher and her work. Presently, based on this work, best practices in document analysis involve a multimodal approach responding to six textual considerations and five visual considerations: overall structure

of text; rhetorical elements; technicality of vocabulary; factual content of text; lexical density; roles and relationships expressed in the text; audience; purpose; context; media and document format; and page design. Some of these considerations may overlap, and so there is a possibility that future work will involve an abbreviated, yet equally effective approach.

A glossary of terms used in such a study would be required to enable a more streamlined approach in discussions. Novel meanings attached to a number of everyday words and phrases evolved, or were identified during the course of this analysis, and their consistent use in future analyses would be helpful. These words include: consideration; topic; and rhetorical element. In the context of this thesis, consideration refers to a primary item of focus in an analysis. A particular topic would be placed as a subheading under a consideration, and is defined as a specific area of a consideration that is being assessed. A rhetorical element, as defined by Clerehan et al. (2004) is “the function of each move in relation to the reader” (337).

Although the literature shows that multimodal analysis is not new, this thesis demonstrates that when equitable attention is given to the textual and visual aspects of a document, the assessment can yield rich and comprehensive findings.

Significance

The purpose of this project was to analyze a sub-genre of publications which has heretofore received minimal attention, namely, medical literature for oral, head and neck cancer patients. Significant outcomes follow:

1. This research has successfully demonstrated a novel approach to multimodal analysis, distinguished by its equitable attention to textual and visual

features, with a specific goal of determining the extent a document's purpose is achieved.

2. This work identifies potential benefits and limitations to government, and private-corporate sector patient materials.
3. These research findings aid in establishing best practices toward the successful development of new resources to meet the educational and psychosocial needs of cancer patients and their caregivers.
4. This novel multimodal approach makes possible the establishment of best practices in document analysis.

Future Research

The obvious next step in this research initiative is to implement a cohort study of these books among individuals who meet the criteria of the intended audience. Such work could offer tremendous insights into the validity and possible limitations of this multimodal analysis. The identification of audience subgroups which occurred during this process underscores the challenge of creating a single, effective document -- even when it is intended to serve a relatively small number of people. However, a cohort study could help determine whether a particular target audience actually exists in the real world, or if one document could be tailored to meet the needs of all who require information about their illness.

New document analysis projects will aid in assessing and improving upon the approach used in this study. For example, this researcher has been invited to perform a corpus analysis of informed consents for the IUSM Department of Radiation Oncology. This analysis will respond to the ongoing challenges faced by radiation oncologists in

communicating complex treatment plans to a variety of patients. A multimodal study will be performed using visual analysis applications identified in this thesis combined with two established readability tests (as yet to be determined).

Providing patients with precisely what they need at a given moment remains an important consideration in clinical care -- and one best suited for healthcare providers to administer personally. Nevertheless, patient literature is used extensively to augment healthcare provider communication, and the challenge remains to ensure that an educational purpose is achieved.

Appendix: Tables

Table 1.

Modified Systemic Functional Linguistics Framework Table (Clerehan et al., 2004)

| CONSIDERATION | ASSESSMENT QUESTIONS |
|---|---|
| Overall structure of text (Series of sections or moves in a text) | What identifiable sections of text (moves) are present? Does the sequence of moves appear logical? |
| Rhetorical elements (The function of each move in relation to the reader) | What is the function of each move in relation to the reader? |
| Factual content of text | Is the factual information correct and up-to-date? Is the source of information provided? Are the quality and strength of the evidence discussed? |
| Technicality of vocabulary | How technical is the vocabulary that is used in the text? |
| Lexical density (The number of content words in a clause) | What is the average content density of the text (content-bearing words per clause)? |
| Roles and relationships expressed in the text | Is it clear who the writer and intended audience are? Is the relationship between writer and reader clear and consistent? Is the person who is expected to take responsibility for any actions clear? |

Table 2.

Considerations and Assessment Questions for Visual Analysis (Kimball & Hawkins, 2008; Pepper & Brizee, 2010)

| CONSIDERATION | ASSESSMENT QUESTIONS AND DISCUSSION TOPICS | | | | | | |
|------------------------------------|--|------------------------|-----------------------------|-------------------------|------------------------------------|--------------------------|-----------------------|
| Audience | Who is the target audience, and how is this made evident? | | | | | | |
| Purpose | What is the purpose of the document, and how is this made evident? | | | | | | |
| Context | What are the circumstances of the environment in which the document is intended to be used, and how is this made evident? | | | | | | |
| Media and Document Format | Conventions | | | | | | |
| | Human Factors | | | | | | |
| | <table border="1"> <tr> <td data-bbox="857 926 1073 953">Interaction with light</td> </tr> <tr> <td data-bbox="857 961 1159 989">Resolution: high versus low</td> </tr> <tr> <td data-bbox="857 997 1130 1024">Transmission and access</td> </tr> </table> | Interaction with light | Resolution: high versus low | Transmission and access | | | |
| Interaction with light | | | | | | | |
| Resolution: high versus low | | | | | | | |
| Transmission and access | | | | | | | |
| | Transformation | | | | | | |
| | Cost | | | | | | |
| | Artwork | | | | | | |
| | <table border="1"> <tr> <td data-bbox="857 1220 1086 1247">General observations</td> </tr> <tr> <td data-bbox="857 1255 1029 1283">Human subjects</td> </tr> <tr> <td data-bbox="857 1291 1060 1318">Elements of nature</td> </tr> <tr> <td data-bbox="857 1327 1273 1354">Man-made elements and environments</td> </tr> <tr> <td data-bbox="857 1362 1104 1390">Significance of solitude</td> </tr> <tr> <td data-bbox="857 1398 1066 1425">Medical illustrations</td> </tr> </table> | General observations | Human subjects | Elements of nature | Man-made elements and environments | Significance of solitude | Medical illustrations |
| General observations | | | | | | | |
| Human subjects | | | | | | | |
| Elements of nature | | | | | | | |
| Man-made elements and environments | | | | | | | |
| Significance of solitude | | | | | | | |
| Medical illustrations | | | | | | | |
| | Interaction | | | | | | |
| | Storability / Longevity | | | | | | |
| Page Design | Page-viewing | | | | | | |
| | Relationships | | | | | | |
| | <table border="1"> <tr> <td data-bbox="857 1673 992 1701">Connections</td> </tr> <tr> <td data-bbox="857 1709 964 1736">Hierarchy</td> </tr> <tr> <td data-bbox="857 1745 967 1772">Sequence</td> </tr> <tr> <td data-bbox="857 1780 946 1808">Balance</td> </tr> </table> | Connections | Hierarchy | Sequence | Balance | | |
| Connections | | | | | | | |
| Hierarchy | | | | | | | |
| Sequence | | | | | | | |
| Balance | | | | | | | |

Table 3.

Sample Page from Frequency Data Table Used for Move Analysis

| PAGE # | MOVES | | | | | | | | | |
|------------|---|--------------------|---|-----------------------|--|---|---|---|--|--|
| | 1 Authorial Identification and Background | 2 Metadiscourse | 3 General info. about cancer (site, statistics, risk factors) | 4 Human anatomy | 5 How a cancer diagnosis is made; symptoms | 6 Treatment options and resources | 7 Side effects, consequences during and after treatment | 8 Personal preventative and palliative care during & after treatment | 9 Other available resources (specific info) | 10 Self-advocacy (e.g. asking questions, using resources) |
| 25 | | | | x | | | x | x | x | x |
| 26 | | | | | | | | x | | |
| 27 | | | x | | | x | x | | X | x |
| 28 | | | | | | | x | x | X | x |
| 29 | | | | | | | | | X | x |
| 30 | | | x | | | | | | X | x |
| 31 | | | | | | | | | X | |
| 32 | | | | | | | | | X | |
| 33 | | | | | | | | | X | |
| 34 | | | | | | | | | X | |
| 35 | | | | | | | | | X | |
| 36 | | | | | | | | | X | |
| 37 | | | | | | | | | X | |
| 38 | | | | | | | | | X | |
| 39 | | | | | | | | | X | |
| 40 | | | | | | | | | X | |
| 41 | | | | | | | | | X | |
| 42 | | | | | | | | | X | |
| 43 | | | | | | | | | X | |
| 44 | | | | | | | | | X | |
| 45 | | | | | | | | | X | |
| 46 | | | | | | | | | X | |
| 47 | | | | | | | | | X | |
| 48 | | | | | | | | | x | |
| Back Cover | x | | | | | | | | | |
| Subtotal | 2 | 2 | 9 | 4 | 3 | 12 | 9 | 8 | 26 | 17 |

Table 4.

Number of Pages in Which Each Move Occurs

| # | Moves | Rhetorical Elements | SPOHNC Tot. Pgs: 145 | | NIH Tot. Pgs: 53 | | Examples |
|---|---|---------------------|-------------------------|-----|---------------------|------|--|
| | | | # pgs | % | # pgs | % | |
| 1 | Authorial identification and background | inform inspire | 7 | 4.9 | 7 | 13 | <p>NIH: "This book was written and published by the National Cancer Institute." (pp 49)</p> <p>SPOHNC: "Members of this organization (SPOHNC) have 'walked in your shoes' and are ready to offer you information, support, and encouragement." (pp 2)</p> |
| 2 | Metadiscourse | inform inspire | 4 | 2.8 | 2 | 3.7 | <p>NIH: "This booklet is about cancers that occur in the mouth (<i>oral cavity</i>) and the part of the throat at the back of the mouth (<i>oropharynx</i>)." (pp. 2)</p> <p>SPOHNC: "This booklet is designed to help you get the answers you need." (pp 2)</p> |
| 3 | General info. about cancer (site, statistics, risk factors) | inform define | 3 | 2.1 | 9 | 16 | <p>NIH: "Each year in the United States, about 29,000 people learn they have cancer of the oral cavity (the mouth and lips) or the oropharynx (the part of the throat at the back of the mouth.)" (pp. 1)</p> <p>SPOHNC: "Oral and head and neck cancer is a term given to a variety of malignant tumors that may occur in the head and neck region, including the oral cavity." (pp 4)</p> |
| 4 | Human anatomy | inform define | 1 | .7 | 2 | 3.75 | <p>NIH: "Normally, cells grow and divide to form new cells as the body needs them." (pp 3)</p> <p>SPOHNC: "The oral cavity includes: the lips; the lining inside the lips and cheeks (also called the mucosal lining or buccal mucosa; the teeth; the floor of the mouth under the tongue; the front two-thirds of the tongue; the bony top of the mouth (or hard palate); the gums; the small area behind the wisdom teeth; the minor salivary glands located throughout the oral cavity that produce thick saliva; the major salivary glands that produce the majority of watery saliva." (pp 4)</p> |

Table 4. (cont'd)

| # | Moves | Rhetorical Elements | SPOHNC Tot. Pgs: 145 | | NIH Tot. Pgs: 53 | | Examples |
|----|---|---|-------------------------|-----|---------------------|----|---|
| | | | # pgs | % | # pgs | % | |
| 5 | Cancer diagnosis and symptoms | inform define instruct | 3 | 2.1 | 3 | 5 | NIH: "If an exam shows an abnormal area, a small sample of tissue may be removed" (pp 10) SPOHNC: "If the diagnosis is cancer, your doctor will want to learn the stage (or extent) of the disease" (pp 8) |
| 6 | Treatment options and resources | inform define instruct | 15 | 10 | 12 | 22 | NIH: "Patients may have surgery alone or in combination with radiation therapy." (pp 16) SPOHNC: "The conventional modalities used in the management of oral and head and neck cancer include surgery and radiation alone or in combination." (pp 12) |
| 7 | Side effects, consequences during and after treatment | inform define instruct engage | 26 | 18 | 9 | 17 | NIH: "The side effects of radiation therapy depend mainly on the amount of radiation given" (pp 21) SPOHNC: "Dry mouth can make it difficult for you to talk, chew, or swallow." (pp 24) |
| 8 | Personal preventative and palliative care. | inform define instruct inspire engage | 32 | 22 | 8 | 15 | NIH: "You should not use lotions or creams in the treated area without your doctor's advice." (pp 24) SPOHNC: "Drink plenty of water" (pp 27) |
| 9 | Other available resources (information about support groups, specialists, other reading material, glossaries, etc.) | define instruct engage | 23 | 16 | 26 | 50 | NIH: "You can order National Cancer Institute (NCI) publications by writing to the address below:..." (pp 44) SPOHNC: "You may seek help from family, friends, other cancer survivors, support groups, SPOHNC's National Survivor Volunteer Network, and professionals such as a therapist or a member of the clergy." (pp 45) |
| 10 | Self-advocacy (advice about asking questions, using resources) | instruct engage | 95 | 67 | 17 | 32 | NIH: "You may want to ask the doctor these questions before having chemotherapy:..." (pp 19) SPOHNC: "It may help to have a complete list of contact information for each member of your health care team that you can keep handy as a reference." (pp 11) |

Table 5.

Contrasting Moves Found in Two Types of Patient Literature (Clerehan et al., 2004;

MacDougall, 2010)

| Methotrexate Literature | Oral, Head and Neck Cancer Literature |
|----------------------------------|---|
| Dosage instructions | Authorial identification and background |
| Account of side-effects | Metadiscourse |
| Constraints on patient behavior | General information about cancer (site, statistics, risk factors) |
| Information regarding monitoring | Human anatomy |
| Background of the drug | Cancer diagnosis and symptoms |
| Summary of use of drug | Treatment options and resources |
| Clinical contact available | Side effects, consequences during and after treatment |
| Outline of benefits of drug | Personal preventative and palliative care |
| Storage instructions | Other available resources |
| -- | Self-advocacy |

Table 6a.

Lexical Density of the SPOHNC Book (Williamson, 2009)

| Section | Pages | Example | Lexical Density |
|------------------------|---------|---|---|
| Introduction | 1-4 | The best care you can receive will include treatment for your cancer and its side effects , plus any emotional and psychosocial issues you may be facing . | # Content words: 12 # Total words: 26 .46 |
| Symptoms and Diagnosis | 5-8 | Symptoms of oral and head and neck cancer vary depending on the site of the cancer . | # Content words: 9 # Total words: 16 .56 |
| After Your Diagnosis | 9-22 | The higher the energy produced , the greater the depth of penetration of the radiation beam . | # Content words: 8 # Total words: 15 .53 |
| | | However, not all radiotherapy options are available at all medical centers , nor are all options applicable for treating all oral and head and neck cancers . | # Content words: 12 # Total words: 25 .48 |
| Common Side Effects | 23-50 | However, treatment is planned to keep these side effects to a minimum without compromising your care . | # Content words: 8 # Total words: 16 .50 |
| Your Personal Records | 91-100 | This is the page from his first week of treatment . | # Content words: 4 # Total words: 10 .40 |
| Looking Forward | 101-108 | Most people who have battled cancer experience fear of recurrence to some degree . | # Content words: 7 # Total words: 13 .53 |
| Glossary | 125-136 | Breakdown of muscle mass resulting from rapid weight loss . | # Content words:7 # Total words:9 .77 |

Total Words: 130

Total Content Words: 67

LD = 51.5%

Table 6b.

Lexical Density of the NIH book (Williamson, 2009)

| Section | Pages | Example | Lexical Density |
|--|-------|--|---|
| Introduction | 1 | It also has information about rehabilitation and about sources of support to help patients cope with oral cancer . | # Content words: 9 # Total words: 18 .50 |
| Symptoms | 8-9 | Most often, these symptoms do not mean cancer . | # Content words: 4 # Total words: 8 .50 |
| Treatment | 12-19 | Your doctor may refer you to a specialist , or you may ask for a referral . | # Content words: 5 # Total words: 15 .33 |
| | | Other health care professionals who may work with the specialists as a team include a dentist, speech pathologist, nutritionist, and mental health counselor . | # Content words: 14 # Total words: 23 .60 |
| Side Effects of Cancer Treatment | 20-25 | Good mouth care can help you keep your teeth and gums healthy and can help you feel better . | # Content words: 11 # Total words: 18 .61 |
| Support for People with Oral Cancer | 29 | You may worry about caring for your family, keeping your job, or continuing daily activities . | # Content words: 9 # Total words: 15 .60 |
| Dictionary | 32-42 | Palliative care is not given to cure a disease but to improve a patient's quality of life . | # Content words: 9 # Total words: 17 .60 |
| National Institute of Dental and Craniofacial Research Information Resources | 47-48 | NIDCR can supply free information about oral cancer and taking care of your mouth during cancer treatment . | # Content words: 10 # Total words: 17 .58 |

Total Words: 132

Total Content Words: 71

LD = 53.7%

Table 7a.

Artwork in the SPOHNC Book

| # | Location | Title | Artist | Colors of Prominence | | Elements |
|----|---------------------------------|--|-----------------------------------|--|--|---|
| | | | | Background | Foreground | |
| 1 | Front cover | N/a | N/a | Blue-purple, white, green, brown | White, dk. blue, blue-purple, green, brown | 1 man -frgrd 1 woman w/umbrella – bckgrd Sand, water |
| 2 | Introduction | Waterlilies, Evening | Claude Monet | Indigo | Muted green, white | Water, flowers, |
| 3 | Sect. 2: Symptoms and Diagnosis | Reservoir Nocturne, 1986 | Max Ferguson | Charcoal grey, black | Off-white, white, charcoal grey, black, | 1 man, bckgrd. City skyline, lamp post, water, fence, lights |
| 4 | Sect. 3: After Your Diagnosis | Boules Players | Margaret Loxton | Muted greens, lt. blue, off-white, brown | Blue, black, white, lt. tan, muted green. | 3 men, frgrd 1 dog (black) 6 balls, 1 stone. |
| 5 | Sect. 4: Common Side Effects | At the Café (c. 1877) | Pierre Auguste Renoir | Off-white, black, brown, dk. blue. | Black, brown, green. | 1 woman, frgrd 1 man, 1 woman, bkgrd |
| 6 | Sect. 5: Your Personal Calendar | 91 st Street at Lexington Avenue | Julian Barrow | Red | Muted green, brown, grey, yellow, sky blue. | Fire hydrant Townhouse City sidewalk |
| 7 | Sect. 6: Your Personal Records | Old Fishing Launch at the Wharf, 1988 | Ted Blackall | Lt. blue, dark blue, indigo, grey, white, brown, yellow. | Indigo, lt. blue | Boat, water |
| 8 | Sect. 7: Looking Forward | The Starry Night, 1888 | Vincent van Gogh | Muted green, black, off-white, tan | Black, off-white, grey. | 1 man, 1 woman together in frgrd. 2 boats Shoreline Water City lights |
| 9 | Sect. 8: Diet and Nutrition | Fruit Still Life | Johann Friedrich August Tischbein | Muted green, orang, yellow, off-white, brown. | Dark brown, dk. green, dk. yellow, dk. orange. | Fruit (pears and peaches) |
| 10 | Sect. 9: Resources | Café Terrace, Place du Forum, Arles, 1888 | Vincent van Gogh | Yellow, tan, orange | Dark blue, black, green, off-white. | Café, numerous people – bkgrd. |
| 11 | Sect. 10: Glossary | Summer Evening on the Skagen Southern Beach with Anna Anche and Marie Kroyer, 1893 | Peder Severin Kroyer | Lt grey, off-white, yellow, black. | Med. Grey, lt. blue. | 2 women – frgrd Sand, beach, water |
| 12 | Medical Illustration | Profile of human anatomy from the neck up. | N/i | White, blue | Neutrals, browns, reds, yellow | |

Table 7b.

Artwork in the NIH Book

| # | Location | Title | Artist | Colors of Prominence | | Elements |
|---|---------------------------|-------|--------|----------------------|--------------------|--|
| | | | | Background | Foreground | |
| 1 | Front cover | -- | N/i | Tan | Brown, dark tan | Silhouette of figure in brown; sans serif font in white and black. |
| 2 | Diagnosis | -- | N/i | Grey | Black, grey, white | Two men. Medical specialist performing oral exam on patient. |
| 3 | Treatment | -- | N/i | Grey | Black, grey, white | 2 women 1 man Woman in white lab coat holding a paper, and sitting across the desk , facing man and woman. |
| 4 | Medical illustrations (2) | -- | N/i | Grey | Black, grey, white | Two labeled illustrations of oropharynx. |

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Curriculum Vitae

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Education

- 2008 B.A., English, Indiana University
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- 2007-08 Graduate Studies, Public Affairs
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School of Public and Environmental Affairs
- 2010 M.A., English, Indiana University
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Additional Training

- 2005 Web Publishing and Dreamweaver
Indiana University: Bloomington, IN

Professional Experience

- 2008 – Medical Editor, Grant Writer, Research Administrator
Department of Radiation Oncology
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- 2006 – 2008 Resource Coordinator, Transitional Jobs Program
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- 2003 – 2009 Pro Bono Website Designer and Manager
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Honors and Awards

- 2009 Invited Speaker and Performer: “Rengetsu’s Journey”
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- 2007 Outstanding English Major Award
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- | | |
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| 2006 | English Department Poetry Award Indiana University-Purdue University Indianapolis |
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