IN WHAT WAYS CAN TECHNICAL COMMUNICATORS HELP THOSE SUFFERING FROM FOOD INSECURITY GAIN ACCESS TO NUTRITIOUS FOODSTUFFS?

by

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DEDICATION

In memory of my parents, John R. De Pue and Regina M. De Pue, who instilled in me a love of writing and a passion for civic engagement.

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LIST OF ABBREVIATIONS

USDA	**United States Department of Agriculture**
SNAP	**Supplemental Nutrition Assistance Program**
FRAC	**Food Research and Action Council**
WIC	**Women, Infants, and Children Program**
OSHA	**Occupational Safety and Health Administration**
CBT	**Computer-based Training**
IBHR	**International Bill of Human Rights**
PL	**Plain Language**

I. INTRODUCTION

Problem Statement

Food insecurity in the United States is a pervasive and persistent problem. Access to adequate nutrition is formative and missing nutrition at key development points can have a lifelong impact on cognitive and physical ability. Lack of access to nutritious food causes needless human suffering and loss of productivity on a national scale. According to Feeding America, 1 in 7 people are food insecure, with this number being considerably higher in certain areas of the country, including Texas. The Supplemental Nutrition Assistance Program (SNAP) administered by the federal government provides food aid to many of these individuals, though significant barriers to accessing this aid exist. These barriers include language and literacy issues, a complicated application process, lack of transportation, feelings of personal shame, and failing to meet the low-income requirements to qualify for help. Additionally, many people receiving SNAP benefits find that those benefits are not enough to cover the costs of their nutritional needs each month. One present day narrative circulating in conservative political conversations is that welfare and food stamp benefits should be reduced and that abuse of the system is rampant. The truth is that roughly 90 percent of SNAP benefits are used by the 21st day of each month, clearly demonstrating that funds fall short of adequately addressing the public need. And this is only for those people able to qualify for SNAP benefits to begin with.

Barriers to accessing food aid through the federal government result in a pressing need for charitable organizations to provide food to hungry citizens. The nation's largest

organization filling this role is Feeding America, which is a network of food banks and pantries across all fifty states. In 2014, Feeding America provided food to over forty-six million Americans. Through exhaustive research, the organization reveals that the problem of food insecurity in the United States is expanding. In Hays County, Texas, home to Texas State University, the rate of food insecurity is 15.5%. This equates to 25, 380 people who lacked enough food to cover their basic nutritional needs in 2013.

Can Technical Communication Answer the Call?

In recent years, technical communication scholars have taken on researching, analyzing, and intervening with a multitude of social justice issues. These writers have become advocates for oppressed groups and the public in general. Carlos Evia argues for improved safety training for Hispanic construction workers; Natasha Jones addresses whether Environmental Impact Statements are useful for their readers; Gerald Savage argues for expanding the role of technical writers as community advocates; Melody Bowden investigates how technical communicators can help reduce the spread of HIV. These and a host of other scholars have expanded our awareness of pressing social issues and firmly established our role as social justice advocates. Despite the field's admirable engagement with ethics and civic duty, both domestically and internationally, technical communicators have yet to investigate the critical social welfare issue of food insecurity.

Asking the question "In what ways can technical communicators help those suffering from food insecurity find access to nutritious foodstuffs?" lead me to scholarship in multiple disciplines, including agricultural economics, social work, community activism, governmental writing, literacy studies, and ethics in technical communication. Chapter 2 is a review of the literature from these wide-ranging

disciplines that supports my investigation into a role for technical communicators in addressing domestic food insecurity. I begin my review with a thorough examination of hunger and food insecurity as they exist in the United States today. Here, I trace some of the hardships that lead to food insecurity, measures that individuals take to address their food needs, and current governmental and non-profit organization programs designed to alleviate hunger.

In the course of this review, I reveal a clear picture of the intensity of food insecurity in the United States that helps me build an argument for the need for immediate action by members of the technical communication field. I continue with an examination of technical communication scholarship in the areas of ethics and social justice. Since the focus of my research is a rhetorical and discourse analysis of online documents intended to address food insecurity and the resulting human suffering, I then move to reviewing articles on writing for web audiences, addressing marginalized groups in our writing practices, and conclude with a discussion regarding matters of language and literacy. As a scholar in Texas, my particular interest is in food insecurity in this state, but my research also includes areas across the country. I employ findings from Mary Sue MacNealy's work on discourse analysis and empirical research to analyze two United States Department of Agriculture (USDA) websites. I do so through the lens of critical theory which seeks to identify and dismantle power imbalances in society.

Investigation of Two Government Websites

In Chapter 3 I present my methods for analyzing two different government sites. These methods rely on Mary Sue MacNealy's scholarship on empirical research and the

findings of web researchers Jakob Nielsen, Kathryn Summers, and Michael Summers. I track data from both websites in fifteen separate categories and employ the text analysis tool at Online-Utility.org. The first website, http://www.nutrition.gov/food-assistance-programs, is partially funded by the USDA and outlines all of the governmental programs designed to address hunger and food insecurity. The second, http://www.fns.usda.gov/, is the homepage for the first governmental program linked to on the previous website. It contains information on applying for food stamps (SNAP) and the Women, Infants, and Children Program (WIC).

Chapter 4 details the results from the discourse analysis, drawing attention to key areas of concern. In Chapter 5, I analyze and make meaning from my research results, presenting suggestions for improving the two websites under investigation for food insecure users. The project concludes with identification of possible future roles for technical communicators and the call for a multi-disciplinary response to this serious human welfare issue.

II. LITERATURE REVIEW

Food Insecurity in the United States

In its report, "Food Hardship: A Closer Look at Hunger, State Data through June 2010," The Food Research and Action Center (FRAC) analyzed Gallup poll data to create a clear picture of the widespread suffering experienced across the nation. In this poll, one of the questions posed is "Have there been times in the past twelve months when you did not have enough money to buy food that you or your family needed?" ("Food Hardship: A Closer Look at Hunger") The report identifies affirmative responses to this question as evidence of food hardship. Using this metric, only three of the fifty states were found to have food insecurity rates lower than fourteen percent. The problem is worst in Alabama, Mississippi, South Carolina, Texas, and West Virginia. In all these states, more than 1 in 5 persons suffered food hardship ("Food Hardship: A Closer Look at Hunger"). Of particular concern is the discovery that Texans saw a "significant increase in their food hardship rate(s)" from one twelve month period (July 2008-June 2009) to another (July 2009-June 2010). In that time, the percentage of Texans suffering from food insecurity went from 20.7 to 21.88. This increase confirms the need for immediate action to address this growing social welfare problem.

The Food Research and Action Center report reveals that a few states, Minnesota, North Dakota, and Wisconsin, had much lower rates of food hardship than Texas. At just over 9%, the rate in North Dakota was more than 13% lower than in Texas. What this tells us is that more than twice as many people in Texas are suffering from food

insecurity than in the state with the lowest food hardship rates. This raises some important questions. Namely, why are so many more people having trouble meeting their food needs in Texas? While the answer to this question is complicated and multi-faceted, the interdisciplinary articles I researched give us some important information about barriers to food access.

In their article "The Economics of Food Insecurity in the United States," Gundersen, Kreider, and Pepper state that "food insecurity is one of the most important nutrition-related public health issues in the U.S." (Gundersen et al 281). They examine the prevalence of food insecurity, agreeing with the FRAC report that food insecurity can be defined by survey participants responding affirmatively to questions regarding skipping meals and the lack of necessary funds to purchase needed food. They expand on this definition by including the USDA guidelines on determining food insecurity. The Core Food Security Model was established by the USDA and includes a series of eighteen questions for families with children. The rationale used for these multiple questions is that food insecurity causes vary from household to household. According to participant responses to the eighteen criteria, households are classified as having "very low food security", "low food security", or "food security" (Gundersen et al 283).

I expect an economic analysis article to focus on numbers, and not focus on the individual experiences of people who are suffering. However, the USDA is responsible for administering the largest food assistance program in the country, the Supplemental Nutrition Assistance Program (SNAP), meanwhile their analytical guidelines silence human subjects by placing them into technical categories. Though the questions posed to those surveyed include verbs such as "worried" and statements including "The children

were not eating enough", the language used to summarize the respondents' answers is cold and scientific. Consider for example, that a household classified as "very low food security" is one in which parents are skipping meals so that children can eat, stretching food out over multiple meals so that each meal is smaller than needed, and in some cases telling children that they will have to wait until the next day to eat. These are significant symptoms of human suffering reduced to technical terminology that removes any hint of real suffering. Absent from the classifications are words like "hunger", "hungry", and "starvation". Using a humanistic approach, I will seek to identify areas of the two USDA websites that need to be revised to provide ethical communication.

Gundersen, Kreider, and Pepper trace the effectiveness of the SNAP program, highlighting some important findings. They found that "transaction costs", or opportunity costs, can make it hard for people to sign up for SNAP benefits. These include transportation costs and the cost of childcare when parents are required to visit a physical office. They also found that there is a significant portion of the food insecure public that does not qualify for SNAP benefits due to income levels. Paradoxically, millions of people in the U.S. make enough money to not qualify for benefits, but too little money to cover their necessary food costs. The authors point out that there is a "gap in the literature regarding the environment facing low-income consumers" and that "there appears to be no research on the effects of food prices" (Gundersen et al 296). Also noteworthy is their finding that food deserts may play a significant role in the food hardship experienced by those who suffer from mobility issues, such as physical disability. Incorporating these findings into my analysis of the two USDA websites will help to insure that I perform a rhetorical analysis that addresses a multitude of factors contributing to food insecurity.

Research conducted by Kristin S. Seefeldt and Tedi Castelli from the University of Michigan focused on the particular experiences of 35 low-income women from the Detroit area. Their findings call attention to the impact of food pricing on household nutrition, discovering that "rising prices forced cutbacks in purchase of certain foods, including milk, cereal, fruits, and meat" (Seefeldt and Castelli 1). Many of the women surveyed revealed that SNAP benefits were the only consistent monthly income they had access to. While food prices fluctuated, their SNAP benefit levels did not. Perhaps surprisingly, many respondents reported not receiving other public assistance, despite their eligibility. Seedfeldt and Castelli call for additional research into "circumstances contributing to experiences of food hardships" (1).

The authors found that the survey respondents were careful shoppers, relying on sale items and coupons. Despite this, the women limited the purchase of the afore-mentioned products due to "perceived lack of affordability" (3). In this sample population, lack of funds was the main reason for food insecurity. The authors point to recent political interest in addressing our nation's obesity levels, including discussion of promoting better food choices. While the national conversation has focused on this perspective, they find that "studies that examine the importance of food assistance in families' lives, relative to other assistance programs" and studies on "the perceptions of low income individuals about their ability to buy nutritious food" are lacking (Seefeldt and Castelli 1).

Two key findings in this article caught my attention: 1) the "fluidity" of the households suffering from food insecurity and 2) the perceived barriers to accessing additional funds, such as unemployment benefits, for which several of the respondents were eligible. The flux experienced by many of the respondents, with regard to residency (several of the

respondents reported periods of homelessness) and number of members of the household, created additional barriers to accessing benefits. Several of the respondents also reported that they felt powerless in the face of governmental agencies. In response to being questioned about not re-applying for SNAP benefits after being wrongly denied, one woman stated "everything falls on you as the client, [the workers] are never wrong" (Seefeldt and Castelli 22). These findings help to further define my investigation into the two USDA websites.

Expanding my focus to rural food insecurity, I reviewed Sarah Whitley's article "Changing Times in Rural America: Food Assistance and Food Insecurity in Food Deserts". The article highlights the impact of food retailer consolidation, i.e. small grocery stores being absorbed by larger commercial outfits. This phenomenon has caused many suffering from food insecurity to have no local access to food retailers. Particularly in rural areas, this change can have a dramatic impact on the availability of nutritious food stuffs. Whitley finds that "food insecurity is not affected solely by income level of individuals" (Whitley 37). The author focuses on how social capital can positively impact an individual's food security. She found that "food availability is embedded within the social landscape of a community" (45). Respondents from rural Washington state that had lived in the area for a long time, and had long-established neighbor and community relationships, reported having much greater access to food, despite the relative remoteness of their residence. Residents reported relying on the sharing of commuting costs and sharing in bulk purchases to defray food costs. As in other regions of the country, those receiving SNAP benefits often found that the benefits were not enough to cover all of their food needs. Local food pantries helped to cover the gaps in food intake,

though their provisions were limited leaving residents lacking access to fresh fruits and vegetables and protein sources including eggs.

Whitley states the importance of "recognizing that populations using pantries vary across and within communities, leading to varying food security needs" (49). This is an important distinction, and one that is often missed in the USDA analysis of food insecurity within communities: need varies from household to household, with various types of assistance being more appropriate for some households than others. The need to see those suffering from food insecurity as individuals with specific and particular needs is paramount. What I find perplexing about rural food insecurity is residents relying so heavily on food from grocers and food pantries. Very few of the respondents reported growing any of their own food. While space is an obvious limitation for such pursuits in urban settings, rural settings often provide enough room for home gardens and for the raising of chickens for egg production. Hence, I see the need for educating the public about ways to produce their own food to help alleviate food insecurity.

In the article "When Even the 'Dollar Value Meal' Costs Too Much: Food Insecurity and Long Term Dependence on Food Pantry Assistance," the authors call for identifying the characteristics of those seeking food aid as a way to better shape anti-poverty policy. Here again we see emphasis on understanding the particular needs of individuals versus viewing those suffering from food insecurity as a uniform group. They pose the questions: "Who are the people who receive long term food assistance?" and "Why don't federal programs such as food stamps [SNAP] fill this need?" The goal is to better identify need in an effort to provide information "for policymakers to inform debate on federal and state programs, to strengthen relationships between government

and the non-profit community, and [for] food banks to better understand their clients" (Paynter, Berner, and Anderson 27).

This study focuses on the food pantry system in central and eastern North Carolina. Comparing data from forty different food banks, the authors found several common threads; chiefly that many of those relying on food pantries are also receiving SNAP benefits and that an even greater number of those eligible for SNAP benefits don't apply. Again we see the issue of barriers to federal assistance. About half of the people accessing food pantry aid are members of a minority group, either African-American or Hispanic, despite these groups making up less than a fifth of the overall population in the counties surveyed. Surprisingly, the study found that "when a client receives food stamps this tends to lengthen the time a client seeks assistance [from food pantries] rather than shorten it, meaning that food stamp benefits are not enough to lessen reliance on the food assistance network" (Paynter, Berner, and Anderson 50).

In a turn from other research into food insecurity, the authors investigate focusing on the "supply side" of the food assistance equation. Pantries established with the intent of providing short-term, emergency aid have found themselves called upon to meet long term food security needs. The article suggests that "effective hunger policies will arise when all the stakeholders join at one table" (53). In other words, identifying characteristics of those suffering from food insecurity is just one part of the solution. Also needed is a determination of barriers faced by those attempting to provide much-needed nutrition assistance.

Furthering the investigation into the causes and repercussions of food insecurity, "Understanding Persistent Food Insecurity: A Paradox of Place and Circumstance" examines family behavior in response to food insecurity. The authors identify a paradox "where rural low-income families from states considered prosperous were persistently more food insecure than similar families from less prosperous states" (Mammen, Bauer, and Richards 1). The article highlights consequences of food insecurity on long-term health and well-being. Children are particularly vulnerable to "physical and mental health problems along with adverse developmental outcomes, including poor school performance" (Mammen, Bauer, and Richards 3).

Examining the "triage" behaviors used by those surveyed, the authors made some troubling discoveries: families were skipping meals and forced to choose between adequate food intake and basic medical care. Reduction in food quality is often times followed by reduction in intake. This is particularly true for adult members of the household, who seek to provide nourishment for children first. These are concrete examples of human suffering. The severity of the triage decisions made by vulnerable citizens speaks to the urgency with which this issue needs to be addressed. When people are choosing between buying food and paying the rent (as 57% of the respondents with very low food security did) the crisis at hand is apparent. Hit particularly hard are single mothers in rural areas who have multiple children and less than a high school education. In yet another paradox, Hispanic farmworkers who are employed with seasonal work in agriculture have a lack of reliable access to sufficient food (Mammen, Bauer, and Richards 6). The authors point out that those most vulnerable to food insecurity are "poorer, younger, [and] a member of a minority race, [with] less than a high school

education." This is our audience for the two websites I will analyze in the upcoming chapters.

Some of the findings above are echoed in the article "How Much Does the Supplemental Nutrition Assistance Program Reduce Food Insecurity?" Here, authors Ratcliffe, McKernan, and Zhang investigate whether or not the SNAP program is meeting its goal of reducing food insecurity. The aim is to provide information that can be used to update state policy and food assistance programs. The study finds SNAP participation rates of roughly 29% in households with income under 150% of the federal poverty level. As above, the research reveals that SNAP beneficiaries tend to be "younger, minority, less educated…female headed [households]" (1090) with multiple children. The presence of a disabled member of a household also increases the likelihood of SNAP participation. Despite receipt of SNAP benefits, nearly 36% of respondents were suffering from food insecurity. Interestingly, the study results indicate that unemployment rates are not tied to food insecurity. This suggests that food insecurity is not simply a matter of lack of income.

In measuring improvement to the access to food stuffs through participation in the SNAP program, the authors present results suggesting that "receipt of SNAP benefits reduces the likelihood of being food insecure by roughly 30% and reduces the likelihood of being very food insecure by 20%" (Ratcliffe, McKernan, and Zhang 1094). Although these numbers are certainly indicative of improvement to food access, they clearly show that a significant percentage of those receiving benefits are still going without enough food to meet their basic nutritional needs. While these findings confirm that SNAP is "meeting its key goal of reducing food-related hardships" (1096), we see the need for increased

accountability and more rigorous goals. The authors advocate expanding SNAP enrollment through "expanding outreach," though fail to describe what these outreach measures would look like. They do suggest that making the rules for qualifying for benefits less stringent would help to increase the number of households receiving food aid.

In a follow-up to the Food Research and Action Center's findings of the widespread lack of food security in 2010, the center published a report titled "A Review of Strategies to Bolster SNAP's role in Improving Nutrition as well as Food Security". FRAC criticizes the suggestion to limit food choice for SNAP participants. This suggestion has been put forward in the national conversation regarding our high obesity rates. Detailing positive health outcomes through SNAP enrollment, FRAC states that "perhaps the most important of all health outcomes is SNAP's roll in reducing food insecurity" ("A Review of Strategies" 5). Food insecurity is linked to health problems ranging from depression to birth defects to diabetes, and the "consequences of food insecurity are especially detrimental to the health, development, and well-being of children" ("A Review of Strategies" 5).

FRAC suggests the following strategies for improving public health through nutrition and the alleviation of food insecurity:

- Expand SNAP enrollment
- Raise benefit levels
- Encourage consumption of fruits and vegetables, by incentivizing the purchases
- Support purchasing of food from farmers, through local markets and CSA's

- Improve the nutrition education provided to SNAP participants
- Address the issue of food deserts by bringing healthy foods to "underserved communities"

The final article I reviewed regarding modern-day food insecurity in the U.S. is Molly Anderson's "Beyond Food Security to Realizing Food Rights in the US". Here, the author makes the case that the United States remains far behind other nations in addressing food as a human right. This position leaves the U.S. lagging behind the efforts of the United Nations to address global food insecurity. Anderson insists, "The US is increasingly isolated in its resistance to embracing the right to healthy food" (Anderson 2). Currently, the Federal Government is responsible for administering the main line of defense against hunger nationwide. Each year from 2000 to 2010, the governmental expenditures for food programs increased, breaking historical records along the way. "In Fiscal Year 2010, the US government spent $94.8 billion on food assistance programs…The largest program, SNAP, is restricted to households that meet income, asset, work and immigration status requirements" (Anderson 2). Anderson investigates why such spending fails to ameliorate wide spread hunger. She points out that the underlying causes of food insecurity are overlooked and identifies four specific problems:

- The SNAP allotments per family have not kept pace with the cost of groceries and do not adequately consider regional differences in pricing.
- Food Banks provide ongoing aid to members of the community that are going hungry in our midst. This helps to disguise the very real issue of persistent hunger and food insecurity in our communities.

- Determining who is hungry (and why) in each community is beyond the scope of the governmental programs. This means that communities themselves must assess who needs help. This results in widely varying access to services from one region to the next.
- Food insecurity is being addressed as a problem of the individual, instead of as a societal problem. "The focus on individual rather than social responsibility masks underlying social problems that are beyond the reach of individuals to control" (Anderson 3).

The United States has resisted acknowledging that its citizens have a right to food. Though our country helped create the Universal Declaration of Human Rights shortly after the end of WWII, the discourse surrounding human rights has curiously omitted the right to adequate nutrition. "In November, 2010, the US submitted its first Universal Periodic Review of its own human rights status to the UN Human Rights Council, *selectively choosing human rights to report without recognizing their indivisibility*" (Anderson 4 , emphasis mine). Other nations responded by recommending the "US realize the rights to food and health for all people within its territory" (Anderson 4). Anderson argues that cultural and social institutions may be better able to address food insecurity at the community level. Even still she presents the problems with local food systems in tackling the inherent "systemic ethnic, racial, class, and gender contributors" to food insecurity. Anderson concludes with a discussion of the Food Sovereignty movement, which focuses on identifying societal power structures in addition to the availability of plentiful nutritious foodstuffs. She makes a persuasive argument that

caring for the environment in which food is raised is essential for long term food security and that food is truly a basic human right.

Ethics in Technical Communication

In "Ethics and Technical Communication: The Past Quarter Century", Paul Dombrowski traces the progression of awareness of ethics in the Technical Communication profession. As Technical Communication has matured as a discipline, focus has expanded from presenting only precise technical and scientific information to include discussion of the societal impacts of and inherent assumptions apparent in documents. Dombrowski argues that language use is complex and that is plays an integral part in the shaping of various discourse communities and "in reflecting and reinforcing the values of these communities" (Dombrowski 3). The author references Michel Foucault's theory that value systems impact language and that the language used serves to reinforce those same values. The article includes discussion of Richard Weaver's impact on communication scholarship. Weaver suggests that all language has rhetorical and ethical implications. Dombrowski highlights the need for technical communicators to "accommodate the cultural values of disparate audiences" (Dombrowski 5). Through a brief survey of a wide-ranging collection of articles published between 1975 and 2000 in the field of technical communication, the author identifies the inclusion of visual rhetoric and a humanistic view of knowledge that informs the professional writing community.

In "Treating Professional Writing as Social Praxis", Thomas P. Miller uses classical rhetoric to argue for the need to view technical writing as a social act with ethical implications. He uses the Aristotelian notions of *techne, praxis,* and *phronesis* to broaden the discussion of technical writing to include consideration of the social role of

the writer; that is, the ways in which technical writing impacts and addresses matters of social concern. Miller's argument here is twofold: he presents the danger of technical writers being seen simply as conveyors of scientific and technical information, thereby potentially diminishing their standing in the professional arena; he also establishes the need for technical writing education to move beyond *techne* into the realm of "social *praxis* with inescapable and political responsibilities" (Miller, T. 59). Miller presents the notion of *phronesis*, or "practical wisdom", as essential to good technical writing.

Miller analyzes the social embeddedness of the act of reading, noting that readers of documents will instinctively draw on past experiences with similar texts. He challenges the suggestion that contemporary information distribution is levelling the social playing field and suggests that technical communicators are uniquely positioned to share humanistic concerns with the larger social audience. The article is a call to arms for professional writers to take up the role of humanist and to engage in discussions of ethics and values, for if "corporate managers are talking about values, can humanists afford not to?" (Miller 64) Miller blames the information "explosion" for focusing attention away from human responsibility and community in favor of hailing the "power of technology". Our texts, whether government forms, business memos, scientific research reports, or academic journal articles, exist in a larger social context, and technical communicators need to recognize this context and embody the role of public citizen.

Carolyn R. Miller addresses several of these issues in her article "What's Practical about Technical Writing?" Also citing Aristotelian rhetoric, she argues for technical writing to employ *praxis* and identifies this as a "high" form of practical action. That is that it exists in the arena of theory that informs technical writing action. Miller

investigates the long standing dichotomy between pedagogical theory and what is practiced by professional writers on the job. Her concern is with blending both the "low" practical action of various workplace writing goals with the theory of praxis which requires community action. The author argues for a change in pedagogical practice, stating "Understanding practical rhetoric as a matter of *conduct* rather than of production, *as a matter of arguing in a prudent way toward the good of the community* rather than of constructing texts, should provide some new perspective for teachers" (Miller, C. 69, emphasis mine). The problem as Miller sees it is that technical writing instruction has focused on creating useful, clear, concise documentation while at the same time ignoring the real social impacts such writing may have. Again we see the argument for viewing texts within the larger context of community, with the technical writer assigned a responsibility to the audience beyond that of the transfer of information.

Cezar M. Ornatowski and Linn K. Bekins begin their article with a quote from Rabelais, "Knowledge without conscience is but the ruin of the soul" (251). They build on the work of Carolyn Miller and Thomas P. Miller by suggesting that the idea of what constitutes "community" is changing due to technological advancements and the global marketplace. In "What's Civic About Technical Communication? Technical Communication and the Rhetoric of "Community"," the authors trace the progression of ethical theory in technical communication pedagogy and investigate whether service learning opportunities meet the goal of producing civic-minded professional writers. The problem with service learning, say the authors, is that interning for a social service organization, such as a food bank or crisis shelter, doesn't guarantee that students will become "ethical or civic-minded rhetoricians" (Ornatowski and Bekins 255). Because the

concept of "community" now extends to worldwide organizations and those who work for corporations that do business globally, being aware of local social issues isn't the only requirement for students to mature into civically-minded technical communicators. Ornatowski and Bekins explore the pressure on technical writers to be both attuned to the interests of industry yet also aware of the impact that the documents they create may have on individuals, the environment, and society at large. The authors give as an example medical writers who are responsible to drafting text for medication inserts. These writers are part of the constructed community of the workplace, part of the larger (sometimes global) public community in which the products are eventually distributed, and part of the communities in which they live. Training technical writers to acknowledge that the writing process itself is deeply rhetorical is essential to ethical technical writing pedagogy. Also important is for technical writers to understand the phenomenon of constructing communities. The authors argue for "a symbolical/rhetorical view, which regards "community" as a discursive construction whose creation or invocation is always expedient in a rhetorical sense" (Ornatowski and Bekins 264).

Nancy Blyler from Iowa State University proposes transitioning from "descriptive, explanatory research" (Blyler 33) to critical research with social action as the goal. In "Taking a Political Turn: The Critical Perspective and Research in Professional Communication", the author suggests "reinterpret(ing) the relationship between researcher and participants as one of collaboration" (33). This approach gives agency to the group being studied and transforms the technical communicator into an advocate for social change. Technical communication, therefore, need not be simply a transmission of technical information, devoid of pathos and compassion. Blyer argues

that students of professional writing need to be encouraged to take up the political and that simply mastering writing skill is not enough. She cites Herndl's edict to research "the relation of discourse…to ideological and cultural production" and "the social, political, and economic sources of power which authorize the production of meaning" (Blyler 35). As technical writers we need to be aware of dominant societal forces that shape our discourse and to consider the ideological in addition to the immediately practical. Because much professional writing is commissioned by industry, the technical writer is in a unique position with inherent social responsibility. Surveying feminist, radical, and participatory action research practices, Blyler convincingly argues against remaining "objective", which upsets much of the early technical communication scholarship. The time has come for technical communication to mature into a dynamic and responsive discipline.

Technical communicators employ the use of graphics to help audiences comprehend statistical information and also to aid understanding of new words and tasks. The vast majority of research on technical illustrations has focused on the issue of truth telling; that is, making sure that the graphics used don't misrepresent or distort statistical information. In "Cruel Pies: The Inhumanity of Technical Illustrations," Sam Dragga and Dan Voss trace the history of this research focus and introduce the need for the definition of "visual ethics" to be expanded to "promote(s) the view that technical communicators should adopt a humanistic ethic of visual communication" (Dragga and Voss, 265). The danger with using graphics that simply display numerical information is that the human significance behind the numbers can be hidden. "In certain rhetorical situations…conventional illustrations offer inhumanity as though it were objectivity"

(265). The authors point to the insufficiency of previous research in visual ethics to address human suffering and argue for adopting "techniques that will bring humanity to technical illustrations" (266).

Just as written communication is situated in and arises from the surrounding culture, visual illustrations are not neutral representations. There has been a disparity between the humanistic orientation to technical writing and the view by many scholars in the field that technical illustrations can be objective. Examining an article titled "Logging is perilous work," Dragga and Voss discover that the suffering and anguish of people who died in work-related accidents is absent from the visual representations provided by the U.S. Bureau of Labor Statistics. "The visual display allows this technical information to appear *ordinary and virtually unavoidable*" (Dragga and Voss, 268, emphasis mine). To address this ethical problem, the authors suggest working towards "semantic fusion", where words and illustrations meld together to produce technical writing that is truly humanistic in nature. Adding drawings, photos, icons, or even cartoons may be helpful in establishing a "human dimension" to technical illustrations (Dragga and Voss, 270). I will employ this humanistic approach, not just to text but to graphics, as I conduct my rhetorical and discourse analysis of the two USDA websites.

Social Justice in Technical Communication

Gerald Savage has argued for redefining the role of teachers of professional writing. In "Redefining the Responsibilities of Teachers and the Social Position of the Technical Communicator", Savage suggests that by accepting responsibility for social action, technical communicators can broaden the focus of our field. "We should

participate in defining and creating new sites of practice for technical communicators" (Savage 309). This will serve two purposes: establishing the relevancy and need for technical writers and ensuring the awareness of social justice, ultimately benefiting the public at large.

Savage traces the progression of technical communication scholarship, from theory to pedagogy to social action. He highlights the need for writers to own their role as authors, thus taking responsibility for the outcomes that result from the documents they produce. He stresses that teachers of writing are doing their students a disservice if they teach only the technical aspects of the craft. Teachers have a responsibility to make students aware of the ethical implications of their discourse practices. Savage agrees with Carolyn Miller who proposed:

> What a technical communicator ought to bring to this work is a critical perspective on it-- a refusal to seek efficient means without examining ends; *a bias for the human side of the relationship between people and technology*; a subversive presence in the technocracy, with enough power, credibility, and knowledge to make a difference-- in product design, policy making, and public affairs (Savage 314, emphasis mine).

Even so, Savage acknowledges that many technical writers are employed in settings where they have relatively little power within the organization. To address this seeming powerlessness, he asserts the need for teachers to move beyond traditional roles in the pedagogy and into roles as civic-minded social actors. Teachers should seek to help

their students find new areas for technical communicators to practice, keeping ever in mind that we are "engaged in the ongoing struggle to reconstitute technical communication as a socially responsible practice" (Savage 324).

Dave Clark from the University of Wisconsin-Madison echoes the call for action research in his article "Is Professional Writing Relevant? A Model for Action Research". Again the concern is for widening technical communication discourse so that technical writers can establish their relevance. We need to expand readership of our articles, and Clark argues that the way to accomplish this is through reaching out to scholars and professionals from other disciplines. He calls to our attention the lack of citation of technical communication articles by other authors. Clark suggests a "path to relevance through the use of entrepreneurial models of community engagement" (Clark 308). This would drive "the development of applied research valued by practitioners, giving students a broad-ranging practical and citizenship experience, and promoting the relevance of our research and discipline outside our departments and journals" (308).

Clark calls for examining the power structures inherent in our writing environments and emphasizes the need for empirical research in technical communication scholarship. This research would give credibility to the humanist concerns presented by technical writers who are often seen by industry as academic theorists out of touch with the needs of business. Citing Jeffrey Grabill's work surrounding services for people with HIV/AIDS, Clark suggests that "professional writing researchers can help shape public policy by understanding policy making as a function of institutionalized rhetorical processes and by using an activist research stance to help generate the knowledge necessary to intervene" (Clark 309). What we see here is a call for the technical writer to

embody the role of community advocate, employing their knowledge of rhetorical practice.

Clark discusses the need for building research projects that empower human subjects. Action research "begins with a different premise than conventional research, as it is dedicated to helping rather than describing for publication" (Clark 310). The author sees the opportunity to build a "new relevance and value for our research in our communities" (310). At the same time technical writers are elevating the relevancy of their work, they have the ability to become a voice for the voiceless by focusing on issues of oppression and by bringing about positive social change.

In 2013, the journal Rhetoric, Professional Communication and Globalization published a special issue on human rights. In the introduction to "After the International Bill of Human Rights (IBHR)", the authors reveal that in spite of scholarship in the areas of globalization, social justice, and critical race theory, technical communication has yet to fully embrace the issue of human rights. Professors Miriam Williams and Octavio Pimentel from Texas State University "noted a reticence to discuss such topics in technical communication research and literature" (Sapp, Savage, and Mattson 1). Originally drafted in 1948, the IBHR has been continually updated and includes provisions for wide-ranging human rights issues, from colonialism to diversity to labor rights (among others). Through the phenomenon of globalization, trans-national corporations have become increasingly powerful. In some cases, these corporations wield power over the political climate in other countries. This has a very real human impact, which is presently not being adequately addressed by professional writers who

themselves are often times embedded within the organizational hierarchy of some our nation's larger corporate entities.

As corporations grow, they may accumulate wealth beyond the GDP of smaller nations. For example, "in 2009, Walmart had revenues exceeding the respective GDPs of 174 countries, including Sweden, Saudi Arabia and Venezuela and employed over 2 million people, more than the entire population of Qatar" (Sapp, Savage, and Mattson 2). Clearly, these wealth and power imbalances result in the vulnerability of increasing numbers of human beings across the globe. As wealth is concentrated to this degree, the vast majority of humans on earth have little agency to affect meaningful social change. Recognizing the precariousness of the situation through a humanist lense, technical communicators have the moral obligation to speak out when they discover unethical practice in industry. Special Representative of the Secretary-General, John Ruggie paid particular attention to transnational corporations and their impact on human rights. He determined that "The framework of 'protect, respect, and remedy' can assist all social actors-governments, companies, and civil society- to reduce adverse human rights consequences of these misalignments" (Sapp, Savage, and Mattson 4). The rise of the global corporation has created a unique and critical opportunity for technical communicators to take on the role of advocate on behalf of the many, many voices that will otherwise be ignored.

Natasha Jones' work builds on the concept of representing marginalized groups. In "Navigating Increasingly Cross-Cultural, Cross-Disciplinary, and Cross-Organizational Contexts to Support Social Justice" (Jones 31), the author asks how technical communication scholars can accomplish this navigation using improved

communication practices. The role of the technical communicator should be examined in the context of activism and social change. Expanding this conversation, Jones helped to establish the Diversity and Social Justice in Technical Communication listserv in 2013. The site is a meeting place for scholars in the field to discuss matters of ethics, social justice, and activist research. Jones reinforces the findings of Gerald Savage and Dave Clark, showing the need for a change in technical communication pedagogy to incorporate teachings about advocating for oppressed and marginalized groups. Jones insists that "context--particularly when comprised of complex connections across cultures, disciplines, and organizations—is a central factor of social justice work" (Jones 32). She establishes that much of this work is cross-disciplinary, revealing the need for scholars of technical communication to be aware of the work of scholars and activists from other disciplines. Jones calls for continuing research "exploring the connections between communication and social justice" (33). Possible areas of future research include research methodology, investigating diverse perspectives, and examining ways in which technical communication pedagogy can change to address the complex and changing demands placed on graduates as they enter an increasingly global work environment. "Technical communicators must be focused on and dedicated to promoting social justice in our communities, both local and at large" (Jones 34).

In "Participatory Localization: A Social Justice Approach to Navigating Unenfranchised/Disenfranchised Cultural Sites", Godwin Y. Agboka argues for a participatory approach to technical communication. This approach promotes a bottom-up perspective that considers "user linguacultural, political, economic, legal, and local knowledge systems in the localization process" (Agboka 28). Agboka identifies a gap in

scholarship regarding social justice theory as applied to international technical communication (28). The author suggests that approaching localization with regard only for issues of cultural appropriateness and local language practices ignores important investigation into matters of indigenous knowledge and political and legal ramifications for members of the localized culture. This may serve to "'otherize' or recolonize users" (Agboka 29). New theories for localization should employ a social justice approach to "empower disenfranchised users" (29).

Through analysis of marketing material for several sexuopharmaceutical products sold in Ghana, Africa, Agboka demonstrates why the view of consumers as a passive entity, with no real agency, is unethical. The author uses the term "colonial" to "define two phenomena: (a) the mental process through which one group…could exert some influence over another and (b) the processes, through international politics, economics, and marketing, that accord power to certain areas of the world" (Agboka 31). Technical communicators can be complicit in this colonization through their role as creators of written documents that enforce values from the dominant culture. Analysis of the marketing information associated with the aforementioned products (made in China and Korea) reveals that the labeling text and accompanying product inserts use euphemistic language not understood in Ghanaian culture. Tracing syntactical and grammatical errors in the texts, the study shows that the products fail to meet legal requirements for the countries in which they're being sold. Over 90% of the study participants responded that they could not comprehend the texts on the respective products. The findings highlight how context can change meaning and sometimes even prevent users from understanding a text at all. Agboka uses these findings to expose the power imbalance between industry

(and the technical communicators it employs) and the end user. This demonstrates the danger inherent in assuming that in the age of globalization we are all members of one world-wide "culture". The author explains how the seemingly positive goal of a universal standard can actually "marginalize or "other" some people and groups, if (it does) not reflect the way (the) groups express themselves" (41). Agboka concludes that re-envisioning localization practices through a social justice lens, changing the essential definition of localization, may help to give users agency. A user-centric approach, where users are involved from the beginning of a localization project, would mean the creation of texts and products that are truly useful to the end consumer.

Arguing that "technical writers don't have simply the opportunity to engage in textual activism; in many cases they have no alternative", Melody Bowdon examines what it means to be a "public intellectual" in "Technical Communication and the Role of the Public Intellectual: A Community HIV-Prevention Case Study" (325). Echoing Thomas Miller and Carolyn Miller, the author presents *phronesis* as critically important to technical writing. She insists that "because of our function as liaisons between technical and public audiences and our rhetorical expertise, technical communicators are poised to *create change in our local communities and beyond*" (Bowdon 327, emphasis mine). Bowdon issues a call to arms for scholars of technical communication to use their rhetorical skills to help solve crises both locally and globally. To do so, she posits, the technical writer must take on the role of public intellectual (326).

Bowdon relates her experiences working as an editor and technical writer on a research project on HIV-prevention called the Gay Young Men (GYM) study. Called in at the end of the research project to edit the final report, Bowdon instead found herself

needing to embody the role of public intellectual. The job required her to apply "specialized knowledge to serve as a liaison among groups" (Bowdon 329). She discovered that tacit assumptions about the behavior of gay men resulted in a study that posed questions to the participants that had meanings the writers didn't intend. The survey writers lacked training in rhetorical theory and language practices, leaving a gap in communication that could have skewed survey results. Because the survey was intended to assess risk behavior and inform HIV-prevention strategies, misleading findings could have a real and dangerous impact on public health. Bowdon concludes the article with recommendations for technical communication educators. Referencing Foucault's writings on truth making, she calls for making students aware of the real world impacts of professional writing. Students "need to recognize the powerful effect for positive or negative change that their work may have in their communities and in the messy world we all share" (Bowdon 339). I will analyze the USDA websites with the intention of using technical writing to affect positive change in the lives of those suffering from food insecurity.

In "Plain Language in Environmental Policy Documents: An Assessment of Reader Comprehension and Perceptions", Natasha Jones et al researched the use of Plain Language (PL) in environmental impact statement documents and the impact this use had on reader comprehension and understanding. Conducting two separate surveys, the researchers paid particular attention to the use of headings and personal pronouns and also focused on how documents were perceived by the audience. In other words, did the audience like the documents and find them useful? PL guidelines tell us to use the word "you" when addressing the audience. This helps to catch and hold the reader's attention.

Jones et al cite a "direct relationship between impersonal style and passive voice" (336). Heading usage throughout a document helps both highly knowledgeable readers and those with little knowledge of the topic to locate information and also aids comprehension (Jones et al 336).

Jones et al found a correlation between the appearance of personal pronouns in headings and the document being positively received by the audience. The organizational structure of documents, including text font, formatting, white space, chunking, and the use of headings to delineate new topics, were valued by the survey participants. Overall, the following aspects improved the readers' interest and understanding, and suggest several potential guidelines for analyzing the two USDA websites:

- The document shows that the writer is "on the side" of the readers
- The author avoids use of jargon
- Limiting the amount of information conveyed in each text block
- Key or table of contents to help readers find specific information
- Friendly tone

Literacy and Writing for Web Audiences

Jacob Nielsen is known worldwide as a web user advocate, and The New York Times calls him "the guru of webpage usability". In "Lower-Literacy Users: Writing for a Broad Consumer Audience", Nielsen identifies specific issues that affect low-literacy users' understanding of online content. He defines low literacy not as the inability to read but as "(having) difficulties doing so" (Nielsen 1). Readers with higher literacy skills are able to "scan" text to grasp key points. Low literacy users, however, are unable to do this.

Instead, they read word by word, "plowing" through the text; because of this, they may miss information that appears in sidebars. The inability to scan text also impacts user navigation of a website. Needing to read each line of text word by word, the low literacy user moves through any navigational options much more slowly than a higher literacy user would. Multisyllabic words also serve to slow down these users. By Nielsen's estimation, roughly 30% of online users fall into the category of low literacy readers. A U.S. Department of Education survey found that nationwide 43% of the population has difficulty reading (Nielsen 2). Nielsen stresses that addressing the needs of these users does not necessarily mean that higher literacy users would be underserved. He finds that even users "capable of understanding complex information" prefer websites that present information in a "straightforward" manner (2). Writers for websites with a broad audience, such as government sites like http://www.fns.usda.gov/, need to assume that users will have at least some difficulty reading and present information in a way that a low literacy audience can comprehend. Written in 2005, this article suggested that by 2010 the percentage of low literacy users online might be as high as 40%. As established in the food insecurity articles I reviewed previously, those suffering from food insecurity are more likely than the general population to be poor, young members of a minority race, and to have less than a high school education. With their lack of higher education, we can assume that those suffering from food insecurity are likely to be low literacy web users.

In the report "Latinos in the U.S.", the Pew Hispanic Center and the Pew Internet Project trace the growth of the Hispanic population and the increase in internet usage nationwide from the period 1997 to 2007. Though the majority of Latinos trace their

roots to Mexico, the population is increasingly diverse. Latinos come from countries including Guatemala, Ecuador, Cuba, Puerto Rico, the Dominican Republic, and other nations. Nearly one-half of all Latinos in the U.S. are Spanish speaking dominant (Fox and Livingston 2). As a group, Latinos are "markedly poorer than whites and somewhat poorer than African Americans" (Fox and Livingston 1) and Latinos are less likely than both whites and African Americans to have a high school diploma. Latinos are also statistically more likely to be young, with 63% of the population made up of members between the ages of 18 and 41. Though far less likely than whites to go online, Pew found that over 50% of Latinos are web users. Researchers found a correlation between education and socioeconomic status and web usage. Language fluency is also a factor, with those less fluent in English being less likely to use the internet. The study found that more than twice as many Latinos who read and speak English use the internet as compared to those who are Spanish language dominant; this is true across income levels. Interestingly, Latinos from Mexico are less likely to go online than Latinos from other countries.

The Pew report presents other important findings regarding internet access and connectivity. The report draws a link between broadband internet access and a user's regular internet activity. Latinos are statistically less likely than whites to have internet access at home and "less than one-third of Latino adults have a broadband internet connection at home" (Fox and Livingston 12). This raises design and formatting considerations. If internet access is limited to a dial-up connection, users may find sites with heavy graphics and busy or dense text unhelpful, if not completely inaccessible. Latinos were also 13 percentage points more likely than both whites and blacks to see

their cell phones as “a necessity, rather than a luxury” (Fox and Livingston 14). Taking this finding to its logical conclusion, Latinos are likely to access the internet from their cell phones. This raises the issue of potential non-compatibility with web applications. Echoing food insecurity statistics, where completion of high school makes it less likely that a person will suffer from lack of access to nutritious food, the Pew research found that “Internet use is uniformly low for whites (32%), Hispanics (31%), and African Americans (25%) who have not completed high school” (Fox and Livingston 17). Additionally “41% of Latino adults have not finished high school, compared with about one in ten non-Hispanic whites and one in five African Americans” (17). Knowing that Latinos make up the largest minority group in Texas, and that these users are considerably less likely to have high speed internet access, and that they may even be relying on smart phone compatibility when accessing web content, I will consider whether the two USDA websites support such access.

Carlos Evia addresses audience appropriate communication in “Localizing and Designing Computer-Based Safety Training Solutions for Hispanic Construction Workers”. He proposes a “radical localization approach that uses participatory design sessions with construction workers” (Evia 452) and identifies a gap between the technology embraced by the construction industry and that used to train construction workers. Hispanic construction workers are considered an “at-risk population” due to high rates of work-related injuries, and Evia points out that these same workers seldom use the “information and communication technologies” (ICTs) that are provided by their employers. Evia criticizes designs for “computer-based training” (CBT) that simply translate existing English CBTs into Spanish. He points out that much of the safety

information available through OSHA is presented in a format that is inaccessible because the text is written for higher literacy users (Evia 454). Many of the two million Hispanic construction workers born in countries other than the U.S. come to their roles in the construction industry with little formal education and over 80% lack fluency in English. This raises the chance of workers sustaining serious on-the-job injuries if the training materials they are presented with don't match their cultural identity and language abilities.

Using recommendations from Nielsen, the author created a safety training video in the style of a TV sit-com. To address the largely low-literacy audience, Evia reworked a narrative that had been used in other training videos. He found that reducing the technicality of the texts, that is simplifying the way in which important information was presented through syntactical changes, helped the audience to understand the safety training without losing interest or becoming confused. The simpler video, with comedic elements added to entertain the audience, fit the specific and particular need of the intended audience. This "radical localization" took into consideration matters of culture, not just matters of translation. This textual activism will help to prevent accidents on construction sites and thereby have a very real impact in the lives of the Hispanic workers. This is another example of technical communication advocating for disenfranchised members of our communities and working towards positive social change. Considering the possibility of radical localization for the USDA website content for the anticipated demographic, I will investigate its cultural appropriateness, identify accessibility concerns, and reveal literacy issues.

Focusing specifically on website design and writing, Kathryn A. Mobrand and Jan H. Spyridakis from the University of Seattle, Washington designed a study to investigate how navigational links in hypertext affect user comprehension. The article "Explicitness of Local Navigational Links: Comprehension, Perceptions of Use, and Browsing Behavior" reports their findings. The researchers sought to identify a navigational design that helps users avoid cognitive overload by building on research "that examines the effect of signaling on user performance and the interaction of signaling with text structure, user task, and prior knowledge" (Mobrand and Spyridakis 43). As agencies move away from printed documents and instead use the web to share information with readers, the need for users to understand the textual meaning increases. In many cases, users are interacting with documents without benefit of a live person to answer questions or explain any of the information that the user misunderstands. This is a dramatic shift in communication practice and requires comprehension abilities on the part of the reader that are unique to web distribution. This also requires writers to present information in a way that best matches those abilities and needs. Mobrand and Spyridakis explain that because websites use a platform different than physical texts, where a reader can see other pages at the same time and flip easily from chapter to chapter, there is necessarily a strain placed on user comprehension. "Additionally, hypertext readers must divert some of their cognitive resources from comprehension to activities such as scrolling, clicking on navigational buttons, setting page size, or even adjusting resolution or brightness of the screen (Mobrand and Spyridakis 42). Knowledge of the strains placed on web users will further inform my assessment of the features of the USDA websites.

The study yielded some important findings about web user browsing behavior and comprehension of text. Using a medical text that was originally drafted as a linear written document, Mobrand and Spyridakis reformatted the information into a web page with embedded hyperlinks. Their results show that users are confused by ambiguously worded hyperlinks and that these links often result in "discourage(ing) exploration" (57). They found that use of the familiar terms "'next' and 'previous'" encourages users to explore hyperlinked text. The authors recommend that web writers "double up on signals" because they found that multiple and varied signals further "promote broader exploration of the hypertext space" (57). I will use these and other details to format the list of guidelines for my website analyses.

In "Using Structural Cues to Guide Readers on the Internet", Spyridakis et al report results from a total of three studies they performed in response to the identified gaps in research about the construction of online texts. Finding that most of the research on document structure came from studies of published print documents, they reveal that "many of the web-based studies focus on searching tasks, not browsing tasks and comprehension measures. Further, few studies assess users in their own environments, and even fewer triangulate data about comprehension, perceptions, and behavior" (Spyridakis et al 244). In the three studies, Spyridakis et al used existing websites and had users log in remotely to sites that were likely to be unfamiliar to them; all of the sites contained text that had been copied over from linear documents. Specifically the studies investigated "the explicitness of local navigational links, the intriguing and informative phrasing of hyperlinks, and text previews and navigational menus" (244).

Structural cues are needed in online contexts. In the studies, explicitness of wording in embedded links and navigational links helped users locate desired information and maintained their interest. Ambiguous wording should be avoided as it degrades "comprehension, perceptions, and site exploration" (255). These additional findings will help me to establish guidelines for analyzing the two USDA websites.

Low literacy users read websites in a very different way than users who are reading at a 10th grade level or higher. Those who struggle with reading use a variety of approaches to decipher online text. Instead of scanning text, looking for specific information, low literacy users tend to "plow" through the text individual word by individual word. The act of reading is often difficult enough for these users that they will actively avoid dense text, seeking instead to find information through headings and labels on hyperlinks. In "Reading and Navigational Strategies of Web Users with Lower Literacy Skills", Kathryn Summers and Michael Summers report findings from their Pfizer sponsored study: an investigation of ways to make online medical information accessible to low-literacy users. Of particular value to my investigation of the two USDA websites are the design principals the authors establish.

The authors discover that "as government services move online they may ironically become less available to the constituents who need them the most" and issue a call to action for accommodating the needs of these lower-literacy users (Summers and Summers, 2). In the study group, low-literacy users demonstrated several surprising behaviors. They seemed to have a relatively narrow field of view, so often ignored or missed information in the right hand sidebar. They also skipped over longer chunks of text, even when "target content was appropriately signaled by a heading, a well chunked

paragraph, or a bulleted list" (7). The following items appeared most likely to trigger skipping behavior:

- Long paragraphs of dense text
- Long pages requiring scrolling
- Numbers contained in the text
- Difficult, long, or unfamiliar words
- Parenthetical text (7)

Another tactic employed by low literacy users is to avoid reading by relying instead on the use of hyperlinks. In some cases the users jumped from link to link instead of reading context within the web pages. The search feature presents low-literacy users with a particularly difficult challenge. Because searching requires users to spell out what they are looking for, the task can be daunting. Some search engines are not designed to search for commonly misspelled words and lack the sensitivity needed to parse out what the user may be looking for when a misspelled word is entered into the search box. Summers and Summers make recommendations that I can incorporate into my analysis and feedback on the two USDA websites. In particular, using simple graphics to help explain complex topics aids both immediate comprehension and later retention. Also helpful is presenting information in a logical hierarchy, where the path leads users from general to more specific information over a series of pages.

Conclusion

My review of a total of thirty articles written by scholars across multiple disciplines has yielded the following key findings:

- Food insecurity is a growing and pervasive problem that affects millions of Americans each year
- Technical writers have an ethical obligation to reveal social welfare issues, including the lack of access to nutritious food
- Technical writers have the ability to advocate for those whose agency has been silenced
- Textual activism is a necessary part of affecting positive social change
- Food security should be viewed as a human right, and all Americans have the right to nutritional foods to sustain themselves and their families
- Literacy has a dramatic effect on an individual's ability to locate information online
- Technical writers can help ensure that web content is appropriate for the intended audience, both culturally and with regard to writing at a reading level that matches the user's ability
- Those suffering from food insecurity are likely to be low literacy users of webpages
- Writing for low-level literacy users does not negatively affect higher level literacy users

With these findings plus formatting and textual guidelines pulled from the reviewed articles, I will perform rhetorical and discourse analysis of the two USDA websites, http://www.nutrition.gov/food-assistance-programs and http://www.fns.usda.gov/ .

III. METHODOLOGY

Rationale

I entered the Masters in Technical Communication degree program in the fall of 2011. Over the course of the intervening four years, I became increasingly aware of the need for interdisciplinary research and found myself asking how technical communicators can help with social welfare issues. I live and work on a small family farm, where we produce much of the food we consume. My farming endeavors have introduced me to the concepts of sustainable agriculture and to food security and access. Combining these experiences and interests, I developed my research question for this thesis: In what ways can technical communicators help those suffering from food insecurity find access to nutritious foodstuffs?

The nation's largest program designed to help those suffering from hunger is the Supplemental Nutrition Assistance Program (SNAP) administered by the United States Department of Agriculture (USDA). While it was once routine for those in need to apply for "food stamps" in person at a welfare office, information about this and other governmental assistance programs is now published online. This new paradigm, which directs people away from interaction with workers who can answer questions and inform applicants of the requisite forms and supporting documents presents unique obstacles for those suffering from food insecurity. In my review of literature, I traced food insecurity from states across the country and identified the most likely audience for the USDA websites.

Food insecurity is most often a symptom of poverty, though that is not always the case. As grocery chains have consolidated and smaller markets have been shut down, food deserts across the nation have grown in size and number. While it is tempting to analyze cause and effect and research all of the communities suffering from lack of access to nutritious foods, this thesis is limited to analysis of the appropriateness of two USDA websites for the anticipated audience. In the review of literature, I discovered that those suffering from food insecurity are likely to be low literacy users. Therefore, my analysis of the websites focuses on whether or not the sites are meeting the goal of informing that audience of how to find access to nutritious food.

Theoretical Perspective

I use the theoretical perspective of Critical Theory in my analysis of the two USDA websites. In particular, I focus on the concept of praxis, that is the practical use of technical writing for the advancement of the public good, and Habermas's view that language use, not philosophical theory, should enact social change. A critical analysis of the USDA websites reveals that the documents are not serving the population they are intended to. The web pages are consistent with other government websites, following the template and formatting associated with the .gov style guide, but obscure the human picture of food insecurity: poverty, hunger, and suffering.

Critical Theory seeks to examine and dismantle institutional power; it is concerned with the "simultaneous critique of society and the envisioning of new possibilities" (Morrow, 11). Those suffering from food insecurity are clearly disadvantaged and are subordinated in a system that controls access to information and

thereby access to desperately needed food aid. The critical emancipatory perspective of critical theory presents a compelling way to identify and analyze power imbalance and "underlies the struggles to change those relations of domination-subordination" (Morrow, 149). This investigation in concerned with the gap between what exists now and what ought to be instead (153). Through my research and analysis, I seek to generate recommendations for providing information to those in need in a way that unites them with their personal power and agency, ultimately leading those suffering from food insecurity to access to nutritious food.

Low Literacy Users

In "Lower-Literacy Users: Writing for a Broad Consumer Audience", Jakob Nielsen outlines particular reading practices that are unique to those with lower reading skills. "The most notable difference between lower and higher-literacy users is that lower-literacy users can't understand text by glancing at it. They must read word for word and often spend considerable time trying to understand multi-syllabic words" (1). Nielsen estimates that at least 40% of users are reading at the 8th grade level or below. With the increased likelihood that those suffering from food security are low literacy users, formatting the USDA websites to support these readers is critical. Because these users may be poor spellers, Nielsen also suggests optimizing search engine fields, if present, so that the search functionality can work even with common misspellings.

Nielsen's findings are expanded upon by Kathryn Summers and Michael Summers who identify the following key habits of low literacy users:

- Avoiding scanning of text, reading every word

- Focusing on a narrow field of view
- Skipping chunks of text
- "Satisficing" quickly
- Skipping from link to link
- Avoiding search (pgs.6-8)

Web Graphics and Design Features

Summers and Summers found that presenting information graphically instead of in text form helped low literacy readers understand complex processes. "Presenting information through graphics or animations is especially valuable in helping users with lower literacy skills make the transition from familiar information to new information." They concluded that "informational graphics and animations are a particularly effective way of communicating key information" (15). The significance of graphics in the internationalization of technical communication is well explored. Graphics make learning easier. "It is easier to see and understand than to read, translate, and then understand because visual images are less ambiguous and more memorable than equivalent text" (Aykin, 158). Here, I apply this knowledge to the use of graphics for informing low literacy users about access to nutritious food. In addition to graphics, the layout of information on webpages can affect user understanding. Summers and Summers discovered that creating "Linear Information Paths" aided user comprehension. This format presents a clear path to follow from page to page, with general information

presented first and increasingly specific information appearing on the following pages (14).

Discourse Analysis

Mary Sue MacNealy describes discourse analysis as an empirical approach to textual analysis. In "Strategies for Empirical Research in Writing", MacNealy outlines how to perform a textual analysis with the creation of categories of review and the identification of textual segments. I have used this format to analyze the text on both USDA websites. This analysis addresses style, formatting of text, semantics, and appropriateness of the text for the intended audience. "Texts inherently make assumptions. What is 'said' in a text is 'said'against a background of what is 'unsaid', but taken as given" (Fairclough, 40). My investigation reveals key assumptions made by the document's authors and exposes omission of the voices of some of our most vulnerable citizens.

Methods

To perform the empirical research, I established categories based on the markers provided by Kathryn Summers, Michael Summers, and Jacob Nielsen in their articles on the online practices of low literacy users. Focusing on the use of language, from syntax and grammar to length of phrases and formatting design, I examined each of the websites and collected empirical data specific to my designated categories. I used the Microsoft Word "screen capture" tool to take screenshots of individual sections of the webpages under review. To capture each long homepage in a single pane, so that multiple screenshots weren't necessary, I used a free trial download of the Snagit software

available from TechSmith. Both of these tools allowed me access to static documents so that no revisions made to the websites during my research would interfere with my analysis. The first page, http://www.nutrition.gov/food-assistance-programs, outlines all of the programs intended to address hunger and food insecurity. The second, http://www.fns.usda.gov/, is the homepage for applying for SNAP and WIC benefits. I counted occurrences, as outlined in my categories, and recorded the results in a table which appears in Chapter 4.

Categories for Data Collection

Using the research from Summers, Summers, and Nielsen, I created distinct categories for data collection on both USDA websites and created a table to record data (table 1). They are:

1. Sentence length
2. Incidence of multi-syllabic words
3. Sensitivity of search field option
4. Incidence of parenthetical text
5. Frequency of hyper links
6. Density of text- use of white space
7. Position of text on the page, does text appear in either the left or right sidebar?
8. Reading level of text (as determined with the free usability testing tool at online-utility.org)

9. Presence of graphics

10. Presence of a “bread crumb” trail to help users locate their place within the site

11. Text size

12. Number of hyperlinks per page

13. Scrolling requirements

14. Paragraph length

15. Is the page hand-held device friendly?

Keeping in mind the need for the websites to be appropriate and helpful for low literacy users, I investigated the following attributes on each of the sites.

Table 1

Fifteen established data collection categories

	Nutrition.Gov	FNS.USDA.Gov
Sentence length		
Multi-syllabic word usage		
Search field sensitivity		

Parenthetical text usage		
Frequency of hyperlinks		
Density of text/white space		
Position of text on the page		
Reading level of text		
Use of graphics		
Use of “bread crumb” trail		
Text size		
# of hyperlinks per page		
Scrolling requirements		
Paragraph length		

Hand-held device friendly?		

IV. RESULTS

In this chapter I report the results from my review of both websites, Nutrition.gov and Fns.usda.gov. The chart (table 2) below shows recorded findings in all of the categories I established as important to low literacy users. Screenshots from throughout the two sites under investigation and a detailed narrative of the results follow.

Table 2

Data collection results chart

Criteria	Nutrition.Gov	FNS.USDA.Gov
1. Sentence length	Up to 36 words in length	Up to 41 words in length
2. Multi-syllabic word usage	Average of 1.89 syllables per word	Average of 2.0 syllables per word
3. Search field sensitivity	Search function is optimized to correct common misspellings	Search function less able to correct common misspellings, for example “hungary” was not corrected to “hungry”
4. Parenthetical text usage	Appears twice	None
5. Frequency of hyperlinks	More lines of hyper link text than regular text on each page, in several places links appear stacked atop one another with no regular text between	With the exception of the “What’s Cooking” section, all the text on the page is comprised of hyperlinks with no regular text description preceding or following the links

	them	
6. Density of text/white space	Text heavy, with limited white space usage on first half of page, larger areas of white space appear on the bottom half of page and in the left side bar	White space throughout the page, though text is heavy in the beginning of the page and in the center of the page where hyperlinks dominate
7. Position of text on the page	Links appear in both the left and right hand sidebars	Links appear in left hand sidebar and are also centered in page. Tabs along top of page.
8. Reading level of text	Grade level 16 (results obtained through readability calculator at Online-Utility.org)	Grade level 13-14 (results obtained through Online-Utility.org)
9. Use of graphics	6 photographs of people, 3 logos for USDA programs, no pictures or icons representing food items	Social media icons, slideshow of food photos with accompanying text runs automatically and requires user to "click" icons to pause the slideshow
10. Use of "bread crumb" trail	No use of "bread crumb" trail within this website, users must move back through previously viewed by pages by clicking the back button	"Bread crumb" trail appears to orient users to their location within the website
11. Text size	8 point font in sidebar, 12 point font in body text	10 point font in sidebar, 12 point font in body text

12. # of hyperlinks per page	40+	40+
13. Scrolling requirements	Homepage requires scrolling, total of 3 full screens from top to bottom of the page	Homepage requires scrolling, total of 2 full screens from top to bottom of the page
14. Paragraph length	Where text appears in paragraph form, paragraphs are composed of three to five sentences	Where text appears in paragraph form, paragraphs are composed of three to five sentences
15. Hand-held device friendly?	No, requires scrolling on a pc or laptop	No, requires scrolling on a pc or laptop

The homepage for Nutrition.gov is shown below in figure 1. The page is long and therefore requires the user to scroll through three full computer screens to access all of the text on the homepage.

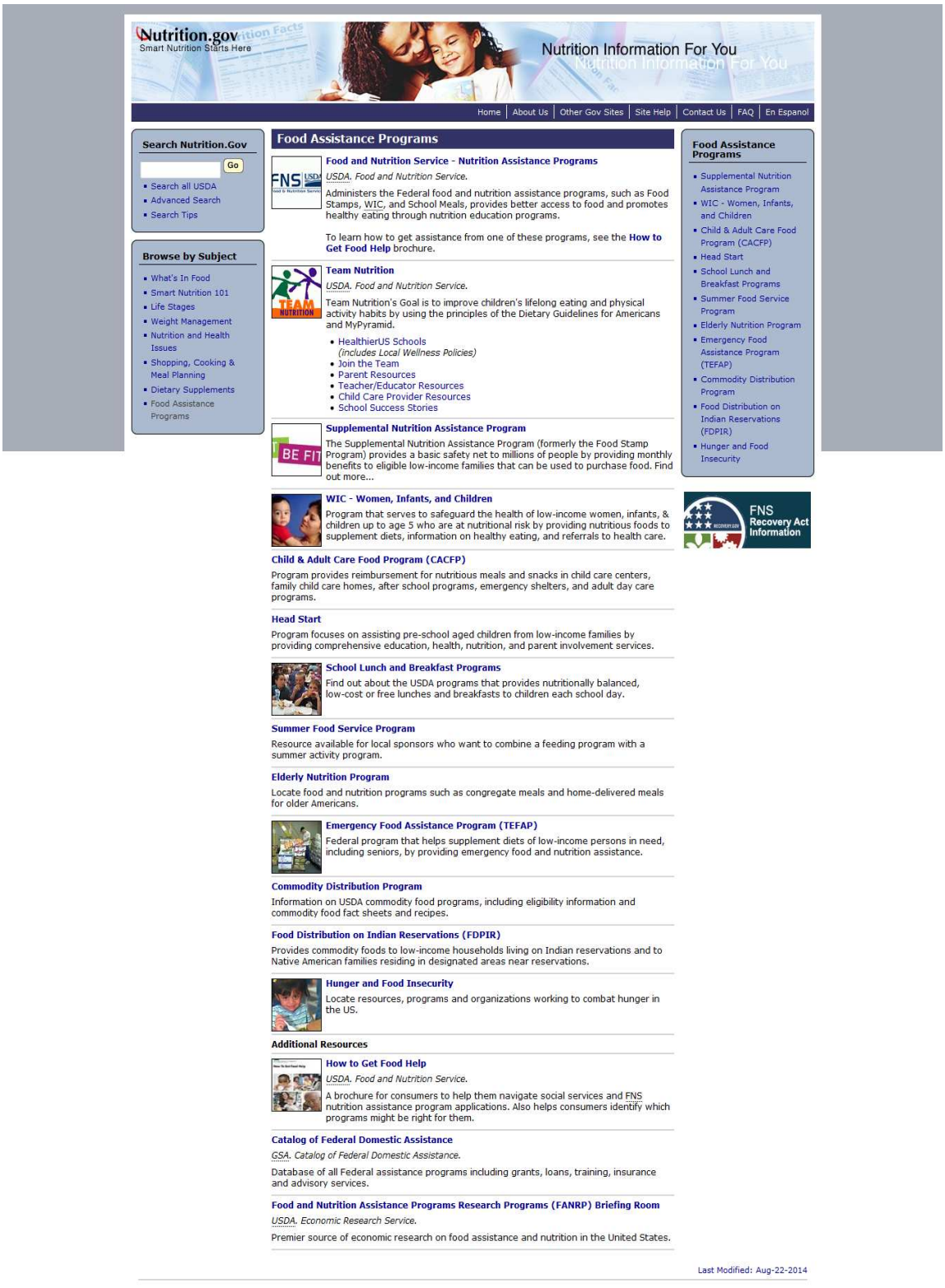


Figure 1. Nutrition.gov homepage- Snagit capture

The Fns.usda.gov homepage is shown in figure 2, with the same phenomenon of page length and the need to scroll down to read the text occurring.

Figure 2. Fns.usda.gov homepage- Snagit capture

Sentence length

The sentences on Nutrition.gov are up to 36 words in length. Figure 3 shows one of these long sentences, which introduces the SNAP program.

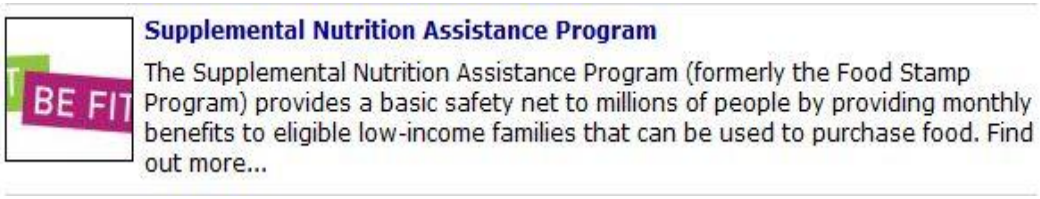


Figure 3. Overly long sentence at Nutrition.gov

The sentences on Fns.usda.gov are up to 41 words in length. The highlighted text in figure 4 shows one such sentence.

Figure 4. Overly long sentence at Fns.usda.gov

Multi-syllabic word usage

Both the Nutrition.gov and Fns.usda.gov websites have an average usage of fewer than 2.0 syllables per word. Figures 5 and 6 show results from an analysis of text samples

from each of the pages. For Nutrition. gov, the average word syllable usage was 1.86. For Fns.usda.gov, the average was 1.73.

Number of characters (without spaces) :	1,095.00
Number of words :	194.00
Number of sentences :	6.00
Average number of characters per word :	5.64
Average number of syllables per word :	1.86
Average number of words per sentence:	32.33
Indication of the number of years of formal education that a person requires in order to easily understand the text on the first reading	
Gunning Fog index :	21.18
Approximate representation of the U.S. grade level needed to comprehend the text :	
Coleman Liau index :	16.52
Flesch Kincaid Grade level :	18.98
ARI (Automated Readability Index) :	21.32
SMOG :	19.12
Flesch Reading Ease :	16.59

Figure 5. Counting syllables in words used at Nutrition.gov with the Online-Utility.org program

Number of characters (without spaces) :	168.00
Number of words :	33.00
Number of sentences :	1.00
Average number of characters per word :	5.09
Average number of syllables per word :	1.73
Average number of words per sentence:	33.00

Indication of the number of years of formal education that a person requires in order to easily understand the text on the first reading	
Gunning Fog index :	22.90

Approximate representation of the U.S. grade level needed to comprehend the text :	
Coleman Liau index :	13.28
Flesch Kincaid Grade level :	17.66
ARI (Automated Readability Index) :	19.05
SMOG :	18.49

Flesch Reading Ease :	27.21

Figure 6. Counting syllables in words used at Fns.usda.gov with the Online-Utility.org program

Search field sensitivity

The "Site Help" page at Nutrition.gov provides the following instructions for using the websites search function (figure 7).

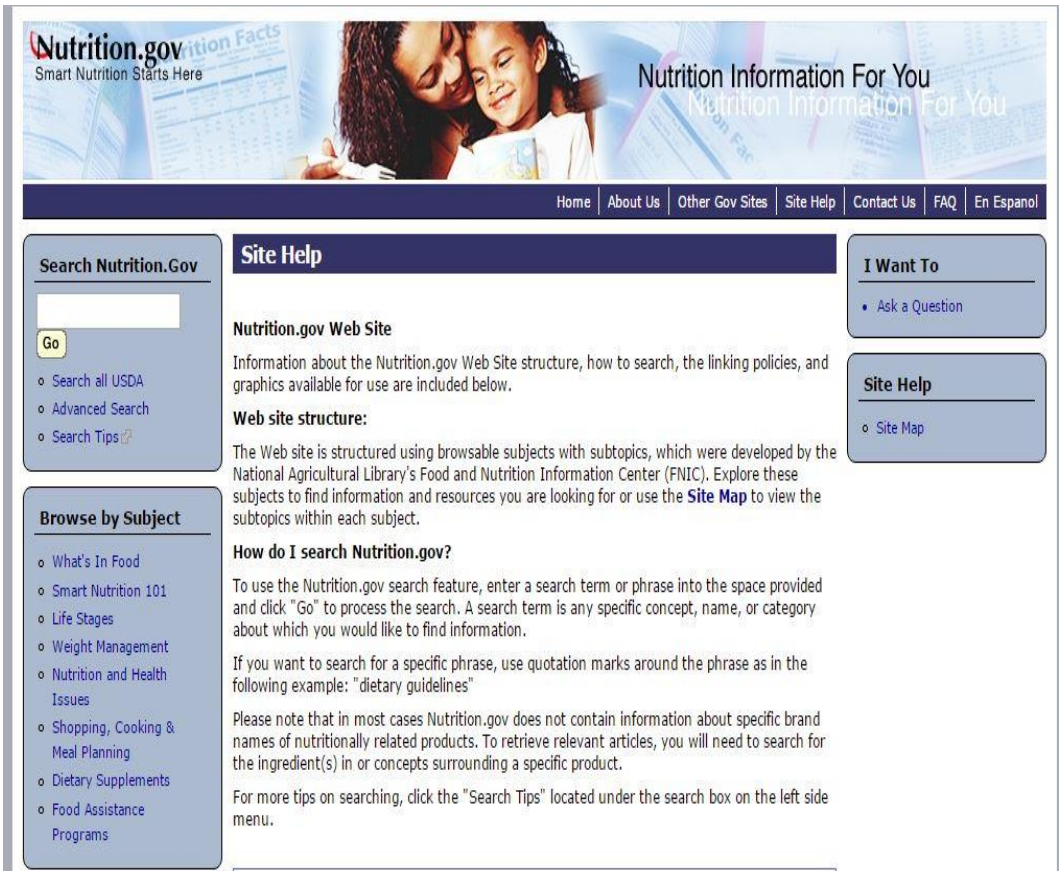


Figure 7. Site help page at Nutrition.gov

The “search tips” link in the left-hand sidebar is broken and leads to the following page (figure 8).

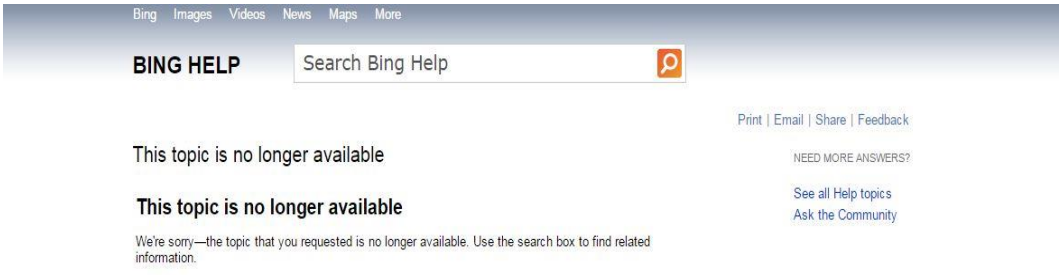


Figure 8. Nutrition.gov ‘search tips’ page links to missing topic page

The site help page did not provide details on specific search terms, and the contact details for asking questions don't include a phone number. Therefore, I used several common words and phrases to check the search field sensitivity to spelling errors and syntax on Nutrition.gov. The results of these queries are shown in figure 9. In the first search, I used the phrase "need food". The link that populates first is to the page within Nutrition.gov that informs users about programs that help with access to food. Next I intentionally misspelled the word "hungry" as "hugry". The search engine corrected the misspelling, but none of the top four search results mentioned food assistance programs. The query "need help" brought up a link to the food assistance programs and links to information about weight loss. "Hungry" misspelled as "hungary" yielded a link to information about nutrition and health.

Figure 9. Search query results at Nutrition.gov

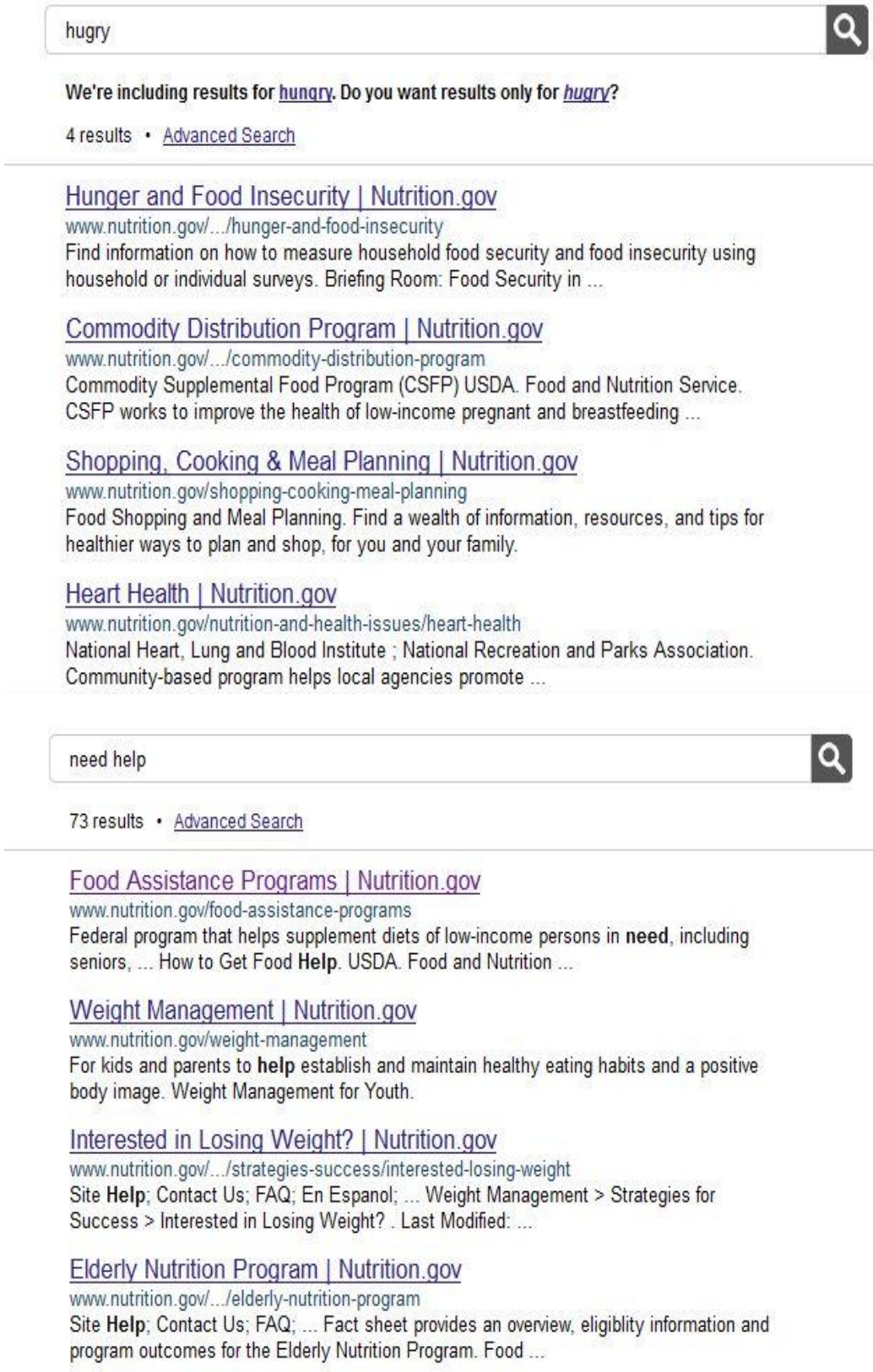


Figure 9 continued.

Figure 9 continued.

On Fns.usda.gov, I searched for the same phrases and misspelled words. The results are shown in the screenshots displayed in figure 10. “Hungry” misspelled “hungary” brought up links to programs that address hunger in public schools and also a link to a pdf about food in foreign countries. The search engine did not correct my misspelled word. When I used the misspelling “hugry” instead, the search engine corrected the word to “hungry” and populated results related to hunger in children. The second link shown was to a program specific to the Triangle area of North Carolina. The search terms “need food” and need help” yielded links to pages with information about SNAP (the Supplemental Nutrition Assistance Program). The misspelling “strving” was corrected by the search engine to “starving”. The results included links to information about the school lunch program and the Healthy, Hunger- free kids act of 2010.

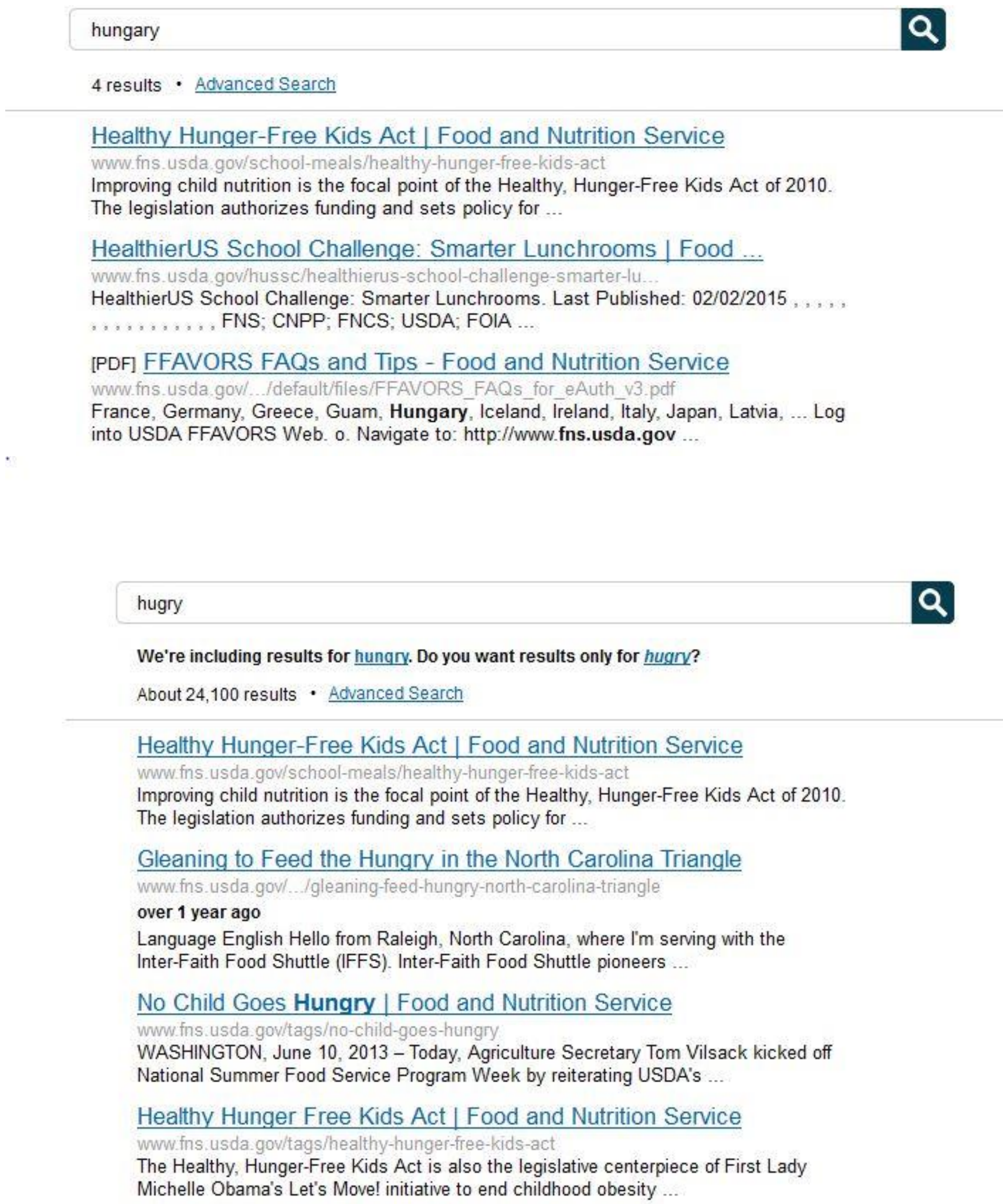


Figure 10. Search query results at Fns.usda.gov

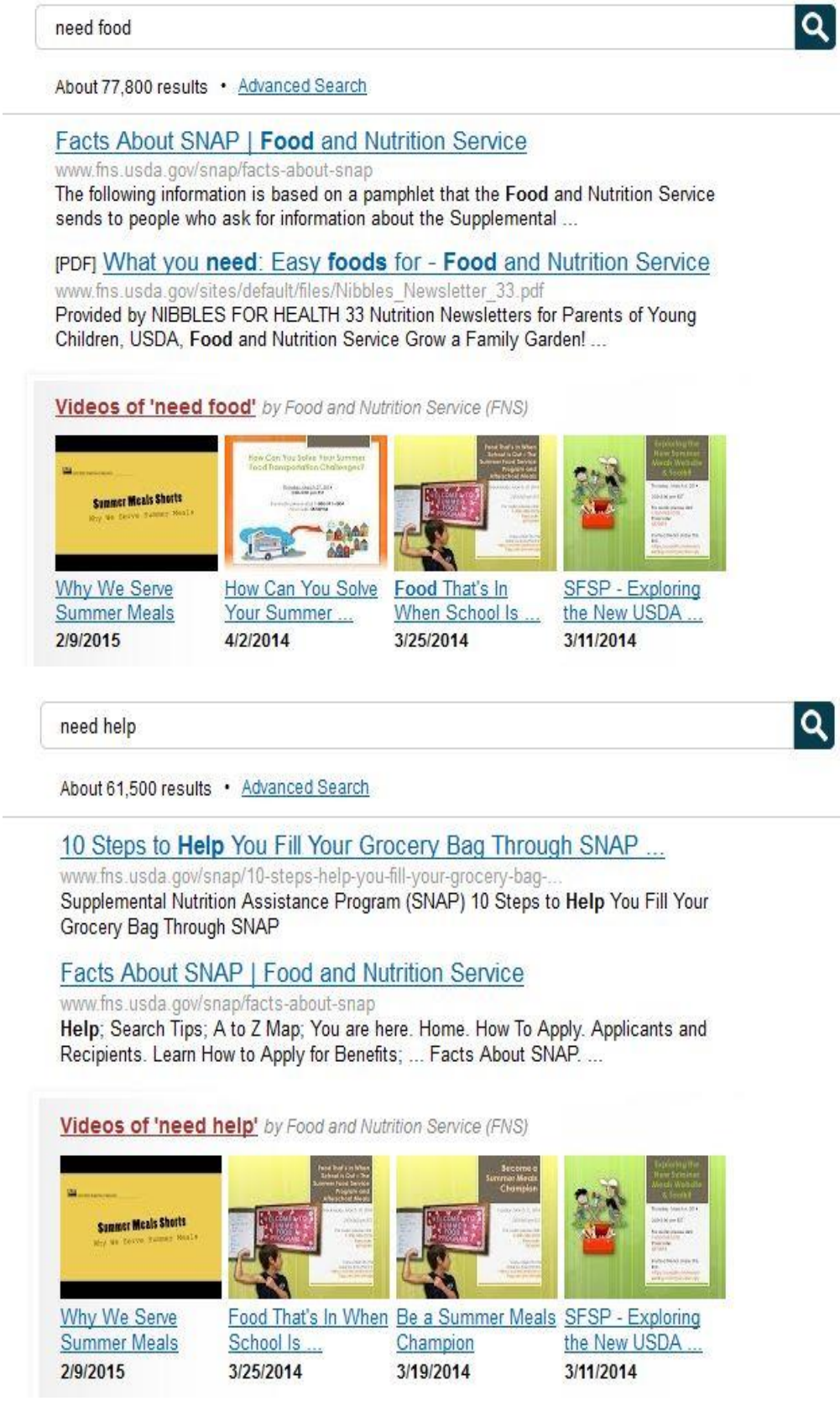


Figure 10 continued.

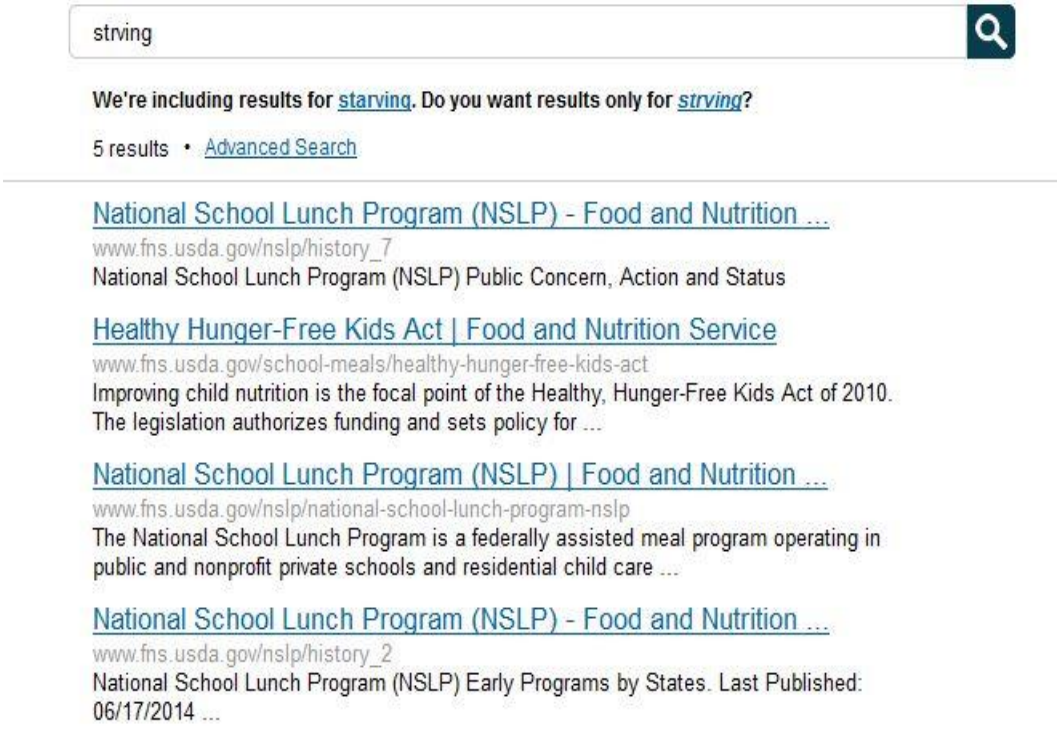


Figure 10 continued.

Parenthetical text usage

There were two instances of parenthetical text usage on Nutrition.gov and none on the Fns.usda.gov website.

Frequency of hyperlinks

On Nutrition.gov, most of the text on the page is in the form of hyperlinks. Figure 11 shows the left hand sidebar from the top of the homepage, which consists entirely of links. In several places within the homepage body text, links appear stacked on top of each other with no regular text between them.

Figure 11. Left hand side bar on homepage at Nutrition.gov

On Fns.usda.gov, the only regular text that appears is within the "What's Cooking" section that features a rolling slideshow. The rest of the text on the homepage is comprised entirely of hyperlinks without any supporting textual description.

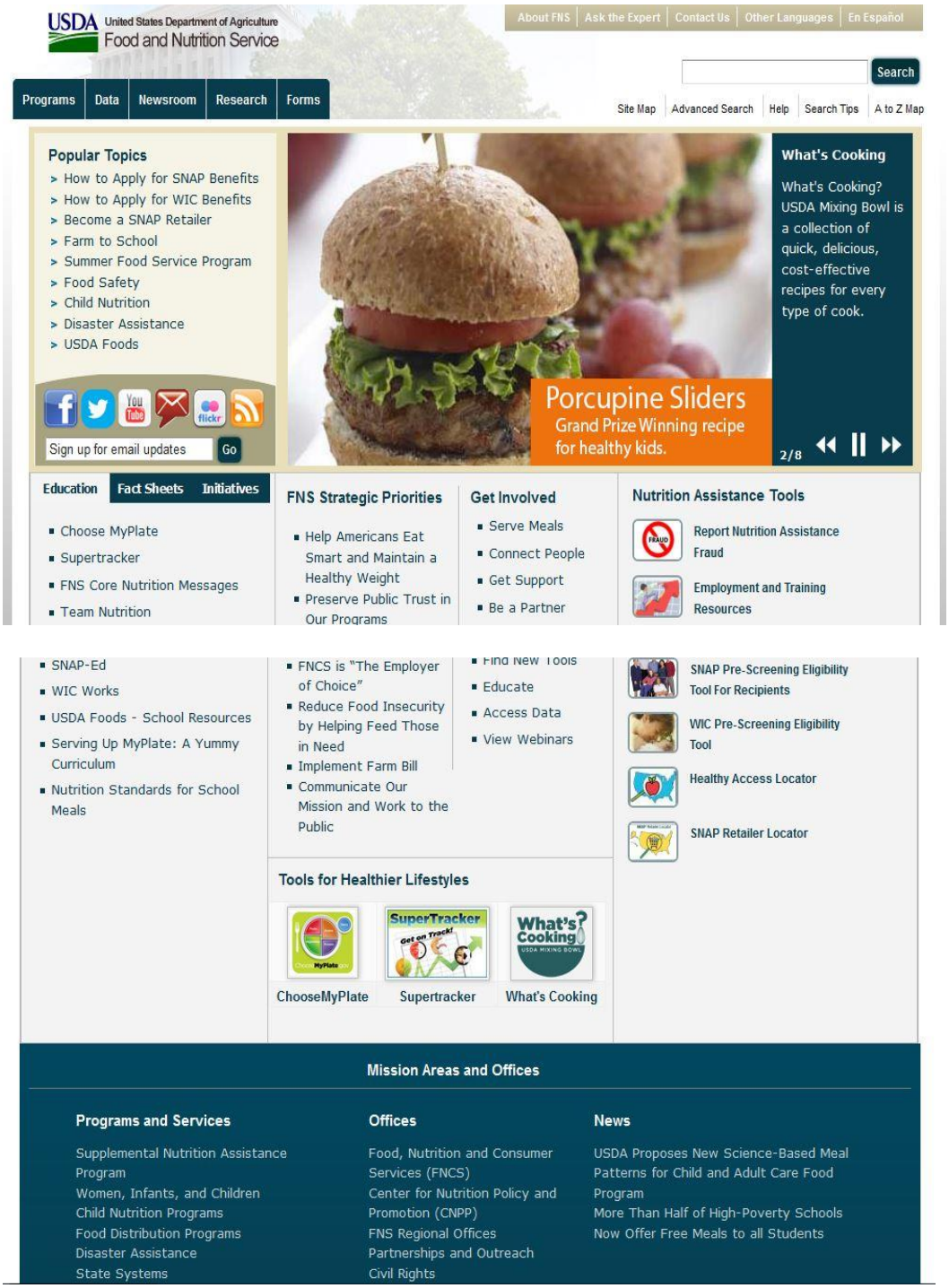


Figure 12. Fns.usda.gov homepage screenshots

Density of text/white space

The Nutrition.gov homepage is text heavy. Hyperlinks in both left and right sidebars frame the body text in the center of the page (figure 13). Some white space is used in the middle and bottom half of the page (figure 14), but text predominates.

Figure 13. Usage of text and white space at Nutrition.gov

At Fns.usda.org, the “white space” is a muted grey background. This white space is distributed throughout the homepage, though text is heavy in the beginning of the page and again in the center of the page where hyperlinks dominate the space.

Figure 14. Density of text on bottom half of homepage at Fns.usda.gov

Position of text on page

At Nutrition.gov, text appears all across the page, from left to right and top to bottom. Sidebars with stacked hyperlinks appear on both the left and right sides of the homepage. Tabs with links to frequently asked questions, Spanish language webpages, help pages, and other government websites appear on the right beneath the header. Figure 15 shows the display of text in the first of three full screens that make up the homepage.

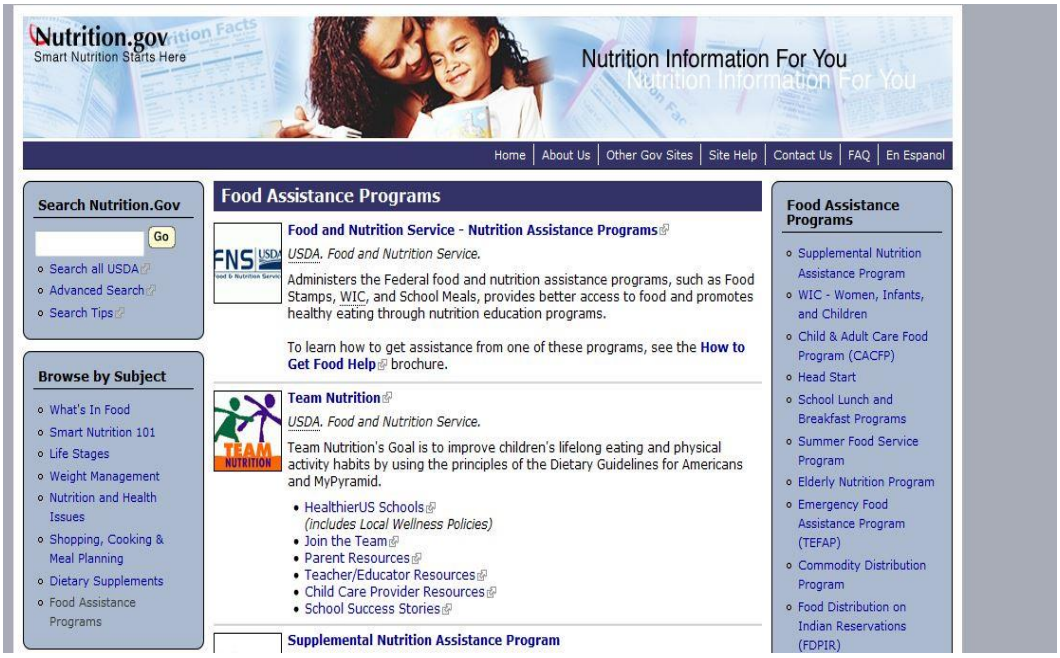


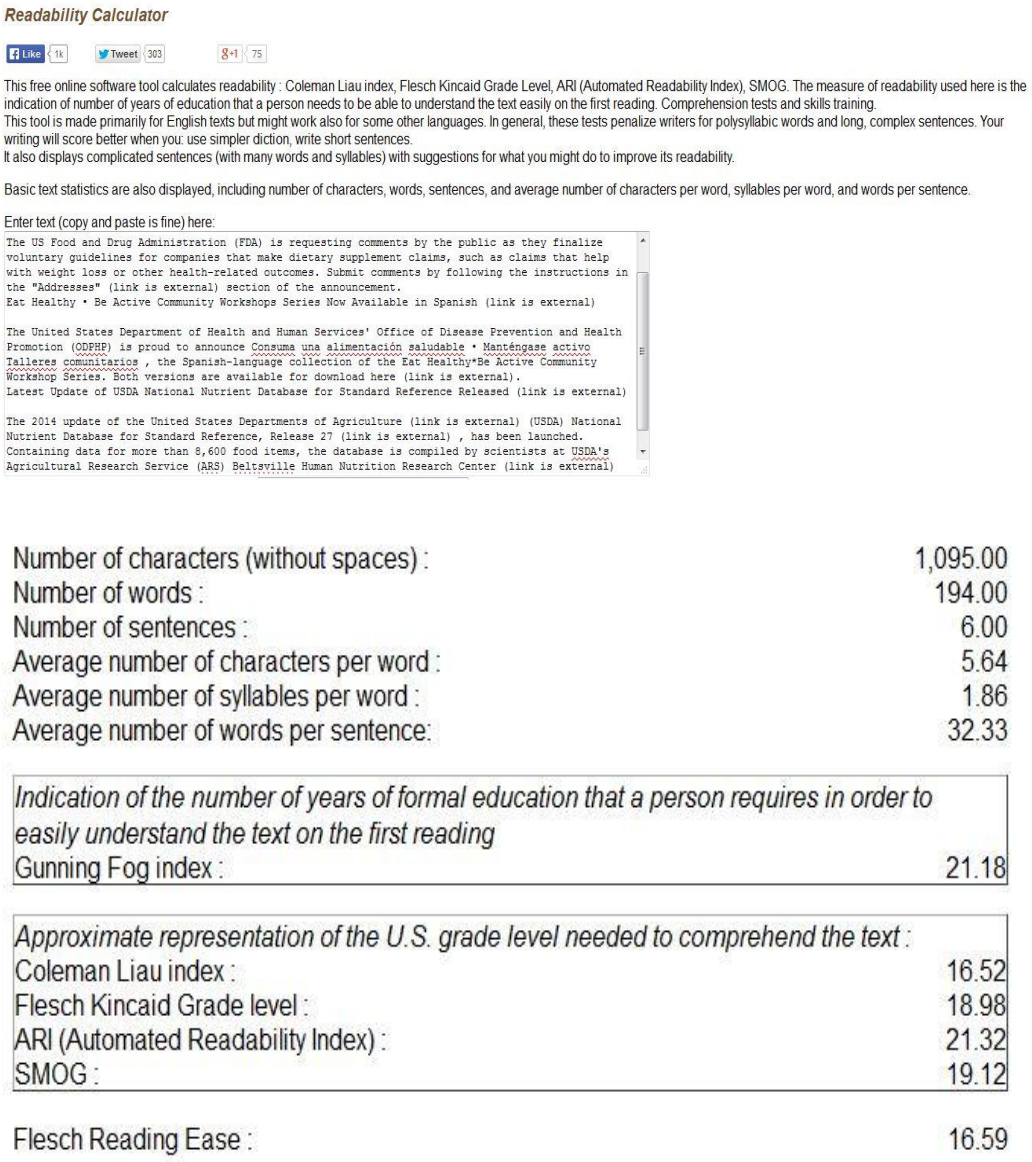
Figure 15. Position of text at Nutrition.gov

At Fns.usda.gov, text appears in the form of links in the left hand sidebar. There is no right hand sidebar; instead there is a scrolling slideshow with accompanying scrolling captions on the upper right hand side of the homepage. Tabs with links to programs, forms, help pages, and site maps appear under the header on both the left and right sides of the page. Figure 16 shows the top half of the Fns.usda.gov homepage. The bottom half of the page contains hyperlinks distributed between four columns.

Figure 16. Position of text at Fns.usda.gov

Reading level of text

Using the text analysis tool at Online-Utility.org, I found that Nutrition.gov has a Flesch Kincaid grade reading level of over 18. This is equivalent to a Master's degree education and beyond; it means that in order to understand the information presented on the website readers would need to be well educated. Figure 17 shows the readability analysis tool with the copied and pasted section of text from the Nutrition.gov site. The findings are summarized at the bottom of the figure.



Readability Calculator

Like 1k Tweet 303 +1 75

This free online software tool calculates readability : Coleman Liau index, Flesch Kincaid Grade Level, ARI (Automated Readability Index), SMOG. The measure of readability used here is the indication of number of years of education that a person needs to be able to understand the text easily on the first reading. Comprehension tests and skills training.
This tool is made primarily for English texts but might work also for some other languages. In general, these tests penalize writers for polysyllabic words and long, complex sentences. Your writing will score better when you: use simpler diction, write short sentences.
It also displays complicated sentences (with many words and syllables) with suggestions for what you might do to improve its readability.

Basic text statistics are also displayed, including number of characters, words, sentences, and average number of characters per word, syllables per word, and words per sentence.

Enter text (copy and paste is fine) here:

The US Food and Drug Administration (FDA) is requesting comments by the public as they finalize voluntary guidelines for companies that make dietary supplement claims, such as claims that help with weight loss or other health-related outcomes. Submit comments by following the instructions in the "Addresses" (link is external) section of the announcement.
Eat Healthy • Be Active Community Workshops Series Now Available in Spanish (link is external)

The United States Department of Health and Human Services' Office of Disease Prevention and Health Promotion (ODPHP) is proud to announce Consuma una alimentación saludable • Manténgase activo Talleres comunitarios , the Spanish-language collection of the Eat Healthy•Be Active Community Workshop Series. Both versions are available for download here (link is external).
Latest Update of USDA National Nutrient Database for Standard Reference Released (link is external)

The 2014 update of the United States Departments of Agriculture (link is external) (USDA) National Nutrient Database for Standard Reference, Release 27 (link is external) , has been launched. Containing data for more than 8,600 food items, the database is compiled by scientists at USDA's Agricultural Research Service (ARS) Beltsville Human Nutrition Research Center (link is external)

Number of characters (without spaces) :	1,095.00
Number of words :	194.00
Number of sentences :	6.00
Average number of characters per word :	5.64
Average number of syllables per word :	1.86
Average number of words per sentence:	32.33

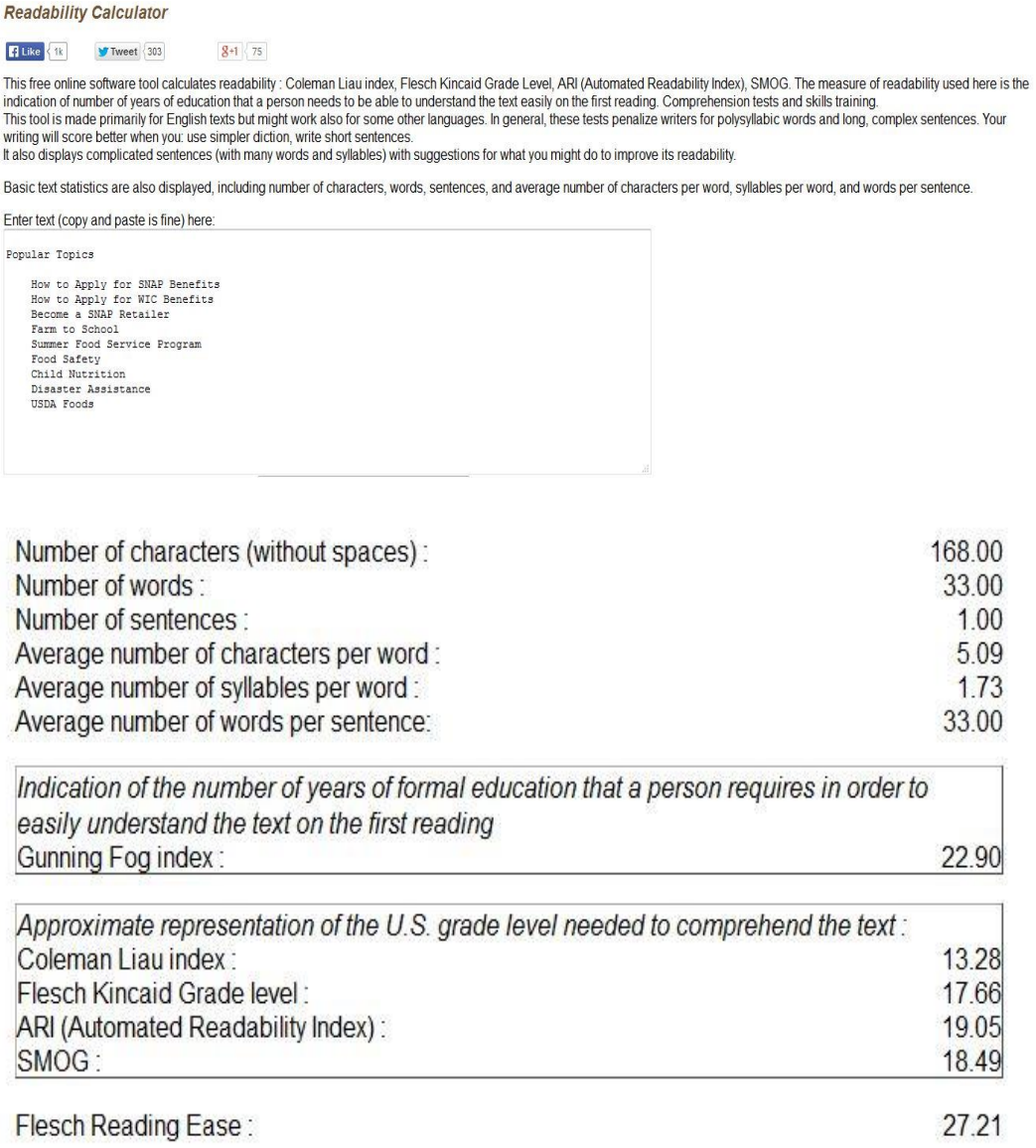
Indication of the number of years of formal education that a person requires in order to easily understand the text on the first reading	
Gunning Fog index :	21.18

Approximate representation of the U.S. grade level needed to comprehend the text :	
Coleman Liau index :	16.52
Flesch Kincaid Grade level :	18.98
ARI (Automated Readability Index) :	21.32
SMOG :	19.12

Flesch Reading Ease :	16.59

Figure 17. Using Online-Utility.org to analyze reading level at Nutrition.gov

I also used the Online-Utility.org analysis tool to investigate the reading level at Fns.usda.gov. Figure 18 shows the readability calculator, the section of text I copied and pasted for review, and the subsequent findings. The Flesh Kinkaid reading level was estimated to be over 17; this means that readers would need a high level of education in order to comprehend the information presented at Fns.usda.gov.



Readability Calculator

Like 1k Tweet 303 8+1 75

This free online software tool calculates readability : Coleman Liau index, Flesch Kincaid Grade Level, ARI (Automated Readability Index), SMOG. The measure of readability used here is the indication of number of years of education that a person needs to be able to understand the text easily on the first reading. Comprehension tests and skills training.
This tool is made primarily for English texts but might work also for some other languages. In general, these tests penalize writers for polysyllabic words and long, complex sentences. Your writing will score better when you: use simpler diction, write short sentences.
It also displays complicated sentences (with many words and syllables) with suggestions for what you might do to improve its readability.

Basic text statistics are also displayed, including number of characters, words, sentences, and average number of characters per word, syllables per word, and words per sentence.

Enter text (copy and paste is fine) here:

```
Popular Topics

    How to Apply for SNAP Benefits
    How to Apply for WIC Benefits
    Become a SNAP Retailer
    Farm to School
    Summer Food Service Program
    Food Safety
    Child Nutrition
    Disaster Assistance
    USDA Foods
```

Number of characters (without spaces) :	168.00
Number of words :	33.00
Number of sentences :	1.00
Average number of characters per word :	5.09
Average number of syllables per word :	1.73
Average number of words per sentence:	33.00

Indication of the number of years of formal education that a person requires in order to easily understand the text on the first reading	
Gunning Fog index :	22.90

Approximate representation of the U.S. grade level needed to comprehend the text :	
Coleman Liau index :	13.28
Flesch Kincaid Grade level :	17.66
ARI (Automated Readability Index) :	19.05
SMOG :	18.49

Flesch Reading Ease :	27.21

Figure 18. Using Online-Utility.org to analyze reading level at Fns.usda.gov

Use of graphics

The images in figure 19 show the range of graphics displayed at Nutrition.gov. This includes icons and links to instructive videos, the icon for the My Plate meal planning tool and other government programs including Michelle Obama's "Let's Move" campaign, and images of what appear to be mothers and daughters.

Figure 19. Graphics appearing on Nutrition.gov

Figure 19 continued.

At Fns.usda.gov, social media icons appear in the left hand sidebar of the homepage. There is a slideshow of food photos, some with recipes, that runs automatically. To stop the slideshow, users must click on the video display icons in the right side bar. At the bottom of the page, there are more graphics in the form of icons with links to various government programs.

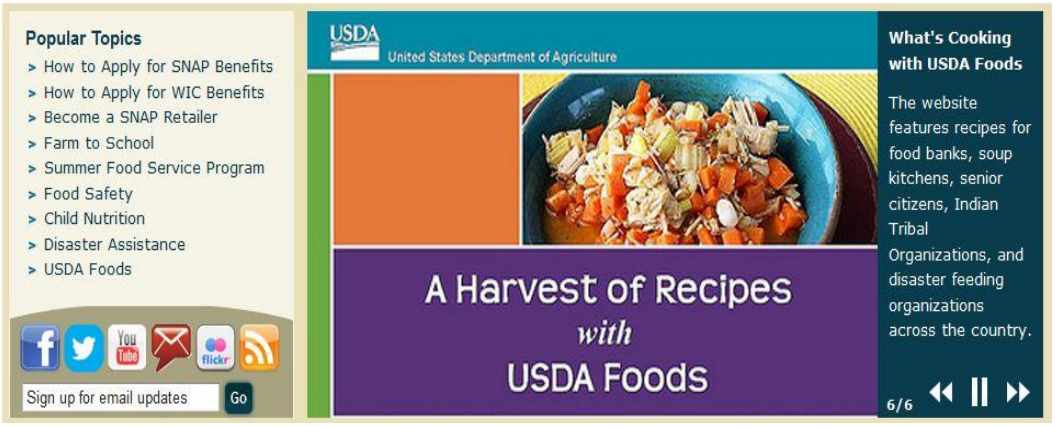


Figure 20. Graphics appearing on Fns.usda.gov

Figure 20 continued.

Use of "bread crumb" trail

There is no "bread crumb" trail present on Nutrition.gov. Users must use the back button to move through previously viewed pages. The lack of navigational trail makes it difficult to gauge where you are within the site once you have left the homepage.

At Fns.usda.gov, a "bread crumb" trail appears to orient users to their location within the website. Figure 21 shows the trail from the homepage to applying for and receiving SNAP benefits.

Figure 21. Fns.usda.gov “bread crumb” trail

Text size

At Nutrition.gov, the body text is 12 point font. The text in both the left and right hand sidebars is 8 point font. At Fns.usda.gov, the body text is also 12 point font and the text in the left hand sidebar is 10 point font.

Number of hyperlinks per page

Figure 22 shows all three screens of the Nutrition.gov homepage. Between the text in the left and right sidebars, the body text at the top of the page, and the list of programs on screens two and three, this single page contains more than 40 hyperlinks.

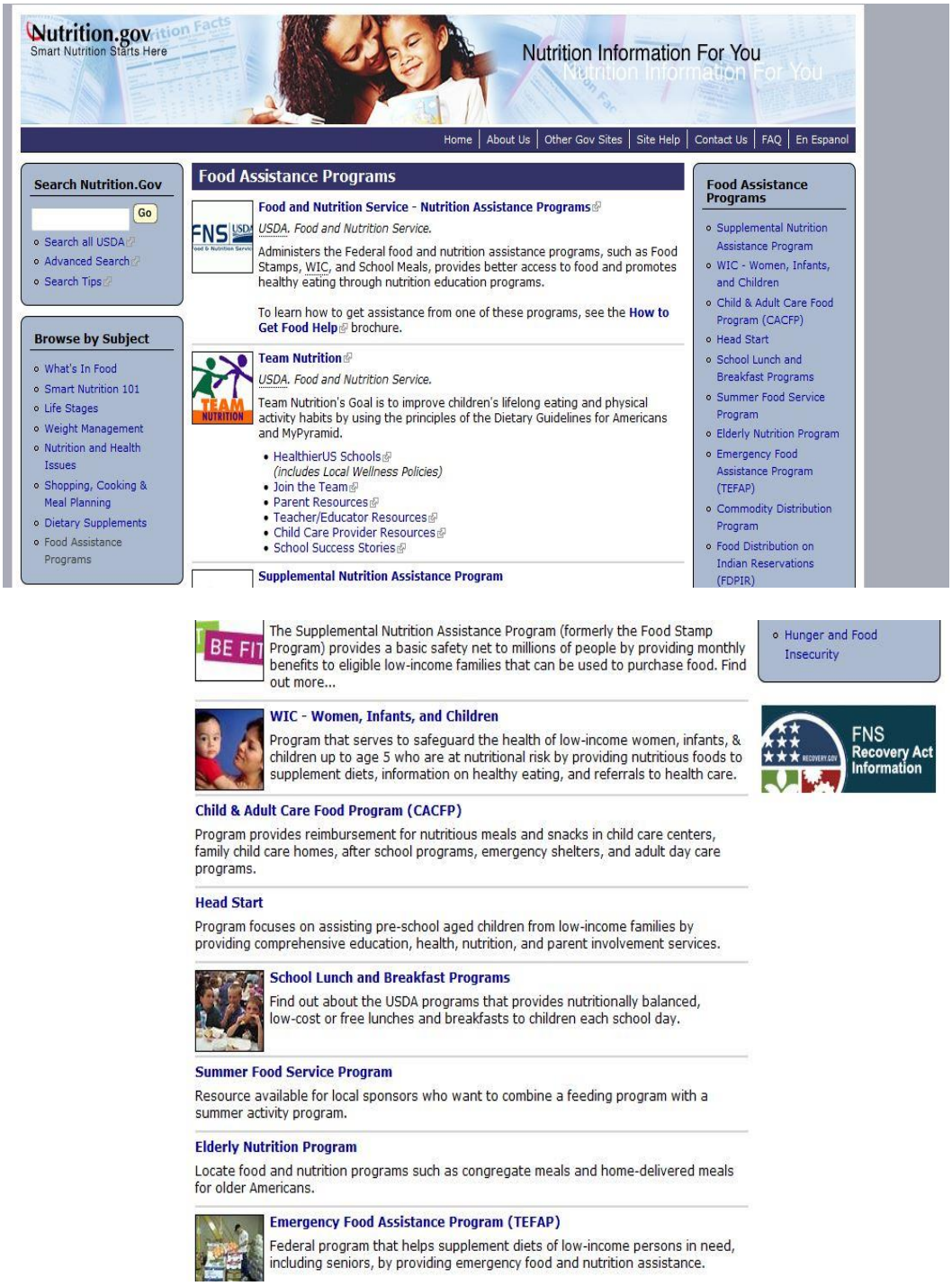


Figure 22. Hyperlink usage on Nutrition.gov

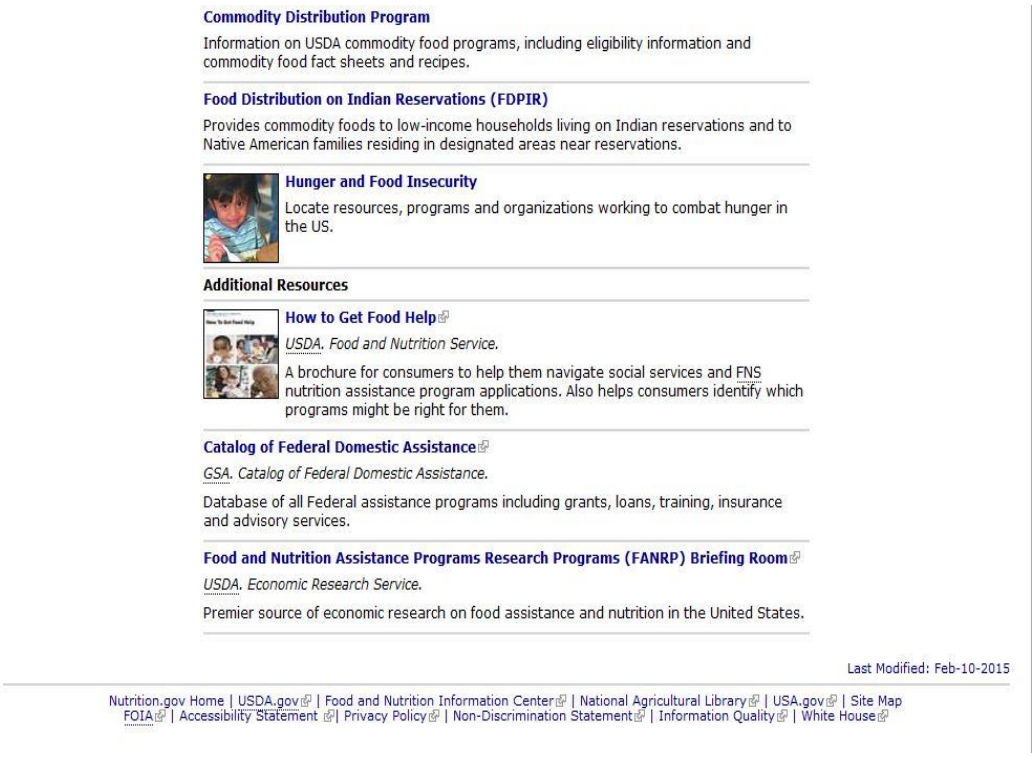


Figure 22 continued.

At Fns.usda.gov, more than 40 hyperlinks appear on the homepage. They are distributed throughout the body text and the left hand sidebar. Figure 23 shows both screens that make up the Fns.usda.gov homepage.

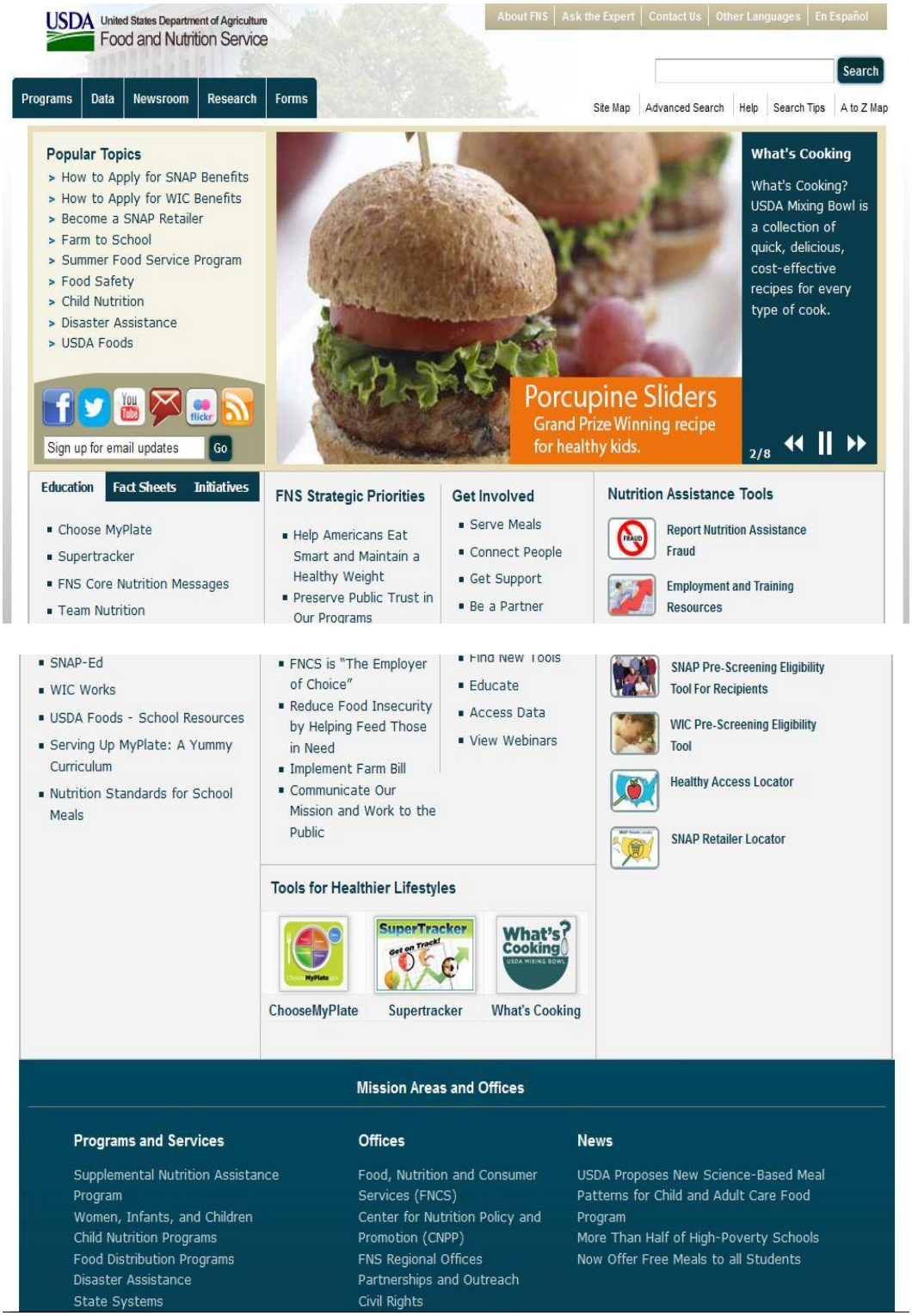


Figure 23. Hyperlink usage on Fns.usda.gov

Scrolling requirements

The homepage at Nutrition.gov consists is very long and full of text. This means that users must scroll down through multiple pages to see all of the information presented on the homepage. The same is true for Fns.usda.gov where users must scroll between two full screens to see the entire homepage.

Paragraph length

No paragraphs appear on the Nutrition.gov homepage. Where text appears in paragraph form on Fns.usda.gov, the paragraphs are composed of three to five sentences as shown in figure 24.

Figure 24. Following the "How to Apply" link from Nutrition.gov to Fns.usda.gov

Is the website hand-held device friendly?

No. Both websites require users to scroll through multiple full screens to access all of the information on the homepage. Because the screens on hand-held devices are severely limited in size, this renders the web platform incompatible with these devices and therefore virtually unusable.

Validity and reliability of results

To establish a valid and relevant list of criteria for the discourse analysis, I turned to recently published peer-reviewed articles in agricultural economics, public policy, and social work to build a thorough understanding of the current food insecurity problem in the United States. This research revealed the fact that those suffering from food insecurity are likely to have literacy issues, whether related to reading in general, to technological know-how, or the ability to easily navigate websites. Therefore, I turned to the research and publications of Jakob Nielsen, Kathryn Summers, and Michael Summers to discover key elements of website design that work for and against reader comprehension. Nielsen, called the "guru of Web page usability" by The New York Times, is highly respected as an expert on website design and has paid special attention to the issues that face low literacy web users. His consulting firm, Nielsen Norman Group, publishes an email newsletter with over 77,000 subscribers; his "Alertbox" site has more than 12 million views per year. Kathryn Summers is an associate professor at the University of Baltimore and is currently researching how to make medical information on the internet more accessible to low literacy users. Michael Summers and Kathryn Summers published the book "Creating Websites That Work" in 2004, and both have worked since then on improving the internet for low literacy users. Criteria I created from the research findings of these contemporary scholars allow for reliable, reproducible results.

V. CONCLUSION

My investigation into food insecurity in the United States lead me to journal articles from multiple disciplines including social work, agriculture economics, technical communication, and literacy studies. Following the strategies suggested by Mary Sue MacNealy in *Empirical Research in Writing*, with new-found knowledge of the ways in which low literacy users read webpages, I performed discourse analysis of the two homepages after establishing relevant "recording units" (132). Using a critical theory lens and fifteen separate criteria, I recorded my findings from the review of two websites, Nutrition.gov and Fns.usda.gov, in Chapter 4- Results.

I interpreted these findings from a critical perspective: the viewpoint that individuals seeking help from a government agency are necessarily at a disadvantage. That is to say, those suffering from food insecurity lack power to affect change in their access to nutritional food and lack agency in the face of a monolithic and seemingly unresponsive entity. Recognizing this imbalance, I hunted down specific areas on each webpage that work against reader comprehension. Here, lack of comprehension may present a real barrier to accessing food assistance through the Supplemental Nutrition Assistance Program (SNAP).

My review of the literature yielded a number of key findings that informed my investigation into each webpage. As stated in the conclusion of chapter 2, these findings from the literature are as follows:

- Food insecurity is a growing and pervasive problem that affects millions of Americans each year
- Technical writers have an ethical obligation to reveal social welfare issues, including the lack of access to nutritious food
- Technical writers have the ability to advocate for those whose agency has been silenced
- Textual activism is a necessary part of affecting positive social change
- Food security should be viewed as a human right, and all Americans have the right to nutritional foods to sustain themselves and their families
- Literacy has a dramatic effect on an individual's ability to locate information online
- Technical writers can help ensure that web content is appropriate for the intended audience, both culturally and with regard to writing at a reading level that matches the reader's ability
- Those suffering from food insecurity are likely to be low literacy users of webpages
- Writing for low-level literacy users does not negatively affect higher level literacy users

My goal was to draw attention to the unaddressed needs of these low literacy users. Therefore, in the following pages I analyze and draw conclusions from seven of the fifteen criteria that confirm the inappropriateness of the two homepages, Nutrition.gov and Fns.usda.gov, for the anticipated audience. This reveals a role for technical

communicators who are skilled in audience analysis and user-appropriate design. Making the webpages easier to understand and use may help to expand SNAP enrollment. The importance of expanding enrollment was highlighted by the Food Research and Action Center's (FRAC) report, "A Review of Strategies to Bolster SNAP's role in Improving Nutrition as well as Food Security". FRAC emphasized the role that local markets and farmers could play in addressing regional food insecurity. Links to community resources, specific to the zip code the user resides in, could help those suffering from food insecurity locate resources in addition to those offered through the SNAP program. Currently, neither Nutrition.gov nor Fns.usda.gov presents users with links to local community resources.

An Ethical Imperative

Food insecurity reaches across our nation, directly affecting 17.5 million households (Coleman-Jensen, Gregory, and Singh 1). "Rates of food insecurity (are) substantially higher than the national average for households with incomes near or below the Federal poverty line, households with children headed by single women or single men, and Black and Hispanic households" (2). The indirect effects of food insecurity reach into the work place, schools, and social environments. Nutrition is formative and the "consequences of food insecurity are especially detrimental to the health, development, and well-being of children" ("A Review of Strategies" 5). Food insecurity is a social justice issue intersecting poverty and race and access to education.

Over a quarter century ago, Thomas P. Miller suggested the importance of expanding the technical writing narrative to include matters of social concern. More

recently, David Alan Sapp, Gerald Savage, and Kyle Mattson investigated the role of technical communicators in a global marketplace where wealth is concentrated in the hands of a few vast corporations. Their query showed the importance of applying a humanistic lens to global commerce and revealed the moral obligation technical communicators have to represent for those with little agency who are affected by unethical industry practices. Natasha Jones furthers this discussion in "Navigating Increasingly Cross-Cultural, Cross-Disciplinary, and Cross-Organizational Contexts to Support Social Justice". She demands that "technical communicators must be focused on and dedicated to promoting social justice in our communities, both local and at large" (Jones 34). With the precedent established by these scholars and others, the matter of addressing the needs of those who are suffering from food insecurity comes into view. In the following pages, I reveal opportunities for improving the homepages of Nutrition.gov and Fns.usda.gov for the anticipated audience of low-literacy users who are suffering from food insecurity. As technical communicators aware of this issue and skilled with the ability to create user-appropriate documents, we have not only the opportunity but the moral imperative to act. For, as Melody Bowdon reminds us, "because of our function as liaisons between technical and public audiences and our rhetorical expertise, technical communicators are poised to create change in our local communities and beyond" (327).

Analyzing the Research Findings

Criteria #1: Sentence length

Both websites present overly long sentences; those on Nutrition.gov are up to 36 words in length. The following sentence introduces the SNAP program:

"The Supplemental Nutrition Assistance Program (formerly the Food Stamp Program) provides a basic safety net to millions of people by providing monthly benefits to eligible low-income families that can be used to purchase food".

The sentences used on Fns.usda.gov are up to 41 words in length. Through the "School Meals" tab, I found the following sentence in a paragraph about the Healthy Hunger-Free Kids Act:

"The Healthy, Hunger-Free Kids Act allows USDA, for the first time in over 30 years, opportunity to make real reforms to the school lunch and breakfast programs by improving the critical nutrition and hunger safety net for millions of children".

As reported by web user advocate Jakob Nielsen, low literacy users work hard at reading every word in a sentence in their quest for comprehension. Nielsen explains that low literacy is not the inability to read but "having difficulties doing so" (1). In particular, low literacy users lack the ability to "scan" text. Instead of scanning, these users work their way through each sentence word by word. When sentences are overly long and complex, as the two sentences cited above are, the readability of a document therefore goes down. Strings of comma clauses interfere with reader comprehension and increase the likelihood that readers will skip sections of text. Clearly, if readers are skipping random sections of the text in a given document, they could be missing key information that may assist them in addressing their food security needs.

Criteria #6: Density of text/white space

Both Nutrition.gov and Fns.usda.gov display text-heavy homepages. At Nutrition.gov, both the left hand and right hand sidebars are filled with links that appear in random order with little white space dividing them. The main body of the page does employ use of some white space, though the page is predominantly filled with relatively small font text. At Fns.usda.gov, the white space is a pale grey color and filled with text in the form of hyperlinks. The bottom half of the homepage is divided into four columns, all of which contain only hyperlinks. There is some white space employed in the lower left hand and right hand corners of the page, but the majority of the page is dominated by text.

Low literacy users read websites in a vastly different way than users with higher literacy rates. Because the act of reading is so challenging for these users, they actively avoid areas of dense text. In "Reading and Navigational Strategies of Web Users with Lower Literacy Skills," Kathryn Summers and Michael Summers reveal findings from a usability study performed with low literacy users. The authors were surprised to find that users skipped over certain sections of text even when it was "signaled by a heading, a well chunked paragraph or a bulleted list" (7). This revealed that design strategies which ease comprehension in higher literacy users were of little use to those who read below a 10^{th} grade level. The authors noted that longer sections of text, regardless of how well formatted they were, worked against user comprehension. The use of white space, therefore, is critical for these users. Breaking up the text into small and easily digested chunks will help low literacy readers come away from the website with a better understanding of the information provided. This means that our audience of low literacy

users suffering from food insecurity will have more knowledge of where to turn for help and what steps are required to access supplemental food.

Criteria #7: Position of text on the page

Nielsen, Summers, and Summers all stress the importance of how webpages are formatted. In particular, these researchers found that low literacy users often miss text that appears in sidebars, whether on the left or right hand side of the page. Low literacy users can be expected to work hard at reading the text they find in the center of the page. Both Nutrition.gov and Fns.usda.gov employ the use of hyperlinks placed in sidebars. At Nutrition.gov, the homepage uses both the left and right hand sidebars, which makes it especially likely that our low literacy audience will miss important links and information displayed on the page. As agencies move away from hard copy documents and instead provide resources to clients online, it is critical to consider whether or not the users will be able to comprehend the text in its new format. Because users can't simply flip from page to page, like one could with a physical copy of the document, structural cues take on heightened importance. Mobrand and Spyridakis found that even users with strong literacy skills were discouraged from further reading when the labels for links were ambiguous (Mobrand and Spyridakis 57). Information about available assistance needs to be simple to access and easy to comprehend. Rearranging the placement of information users need to access supplemental food will ensure that those needs are met efficiently, thereby helping to reduce human suffering.

Criteria #8: Reading level of text

Using the free online usability testing tool at online-utility.org, I checked the reading level of several paragraphs from both Nutrition.gov and Fns.usda.gov. "The measure of readability used here is the indication of number of years of education that a person needs to be able to understand the text easily on the first reading" (online-utility.org). Below is the passage I selected for analysis from Nutrition.org:

The Us Food and Drug Administration (FDA) is requesting comments by the public as they finalize voluntary guidelines for companies that make dietary supplement claims, such as claims that help with weight loss or other health-related outcomes. Submit comments by following the instructions in the "Addresses" (link is external) section of the announcement.

Eat Healthy * Be Active Community Workshops Series Now Available in Spanish (link is external)

The United States Department of Health and Human Services' Office of Disease Prevention and Health Promotion (ODPHP) is proud to announce Consuma une alimentacion saludable * Mantengase active Talleres communitarios, the Spansh-language collection of the Eat Healthy * Be Active Community Workshop Series. Both versions are available for download here (link is external) (Nutrition.org)

Latest Update of USDA National Nutrient Database for Standard Reference Released (link is external)

The 2014 update of the United States Departments of Agriculture (link is external) (USDA) National Nutrient Database for Standard Reference, Release 27 (link is external), has been launched. Containing data for more than 8.600 food items, the database is compiled by scientists at SDA's Agricultural Research Service (ARS) Beltsville Human Nutrition Research Center (link is external)

As is likely apparent, the above passage is written for an audience with high literacy skills. The online-utility.org calculator rated this 18.98 grade level, which is equivalent to a Master's degree or higher. My testing of passages from Fns.usda.org yielded similar results. Considering that a U.S. Department of Education survey estimated that 43% of the population nationwide has difficulty reading (Nielsen 2) and that those suffering from food insecurity are likely to be among that group, presenting information at such a high reading level is intensely inappropriate for our audience.

Criteria #9: Use of graphics

Both Nutrition.gov and Fns.usda. gov employ the use of graphics on their homepages. With the exception of the image of a woman and child in the page banner at Nutrition.gov, the graphics on this site appear in the form of thumbnail size links to topics such as "Dietary Guidelines for Americans 2010" and "MyPlate SuperTracker". Both of these topics relate to nutrition planning with the assumption that users have an adequate supply of food. None of the six photo links represents emergency food access, which is important for first time viewers of the site who are suffering from food insecurity. Complex dietary guidelines are not what hungry people need, and in fact these passages are likely to be beyond their reading ability. Hungry people need to know where

in their immediate communities they can locate adequate food for themselves and their families.

At Fns.usda.gov, which is the page linked to from the first of the hyperlinks presented in the body text at Nutrition. gov, the graphics are somewhat better. At the top of the page, there is a large scrolling slideshow with photos of people and food in various settings. The link "A Harvest of Recipes with USDA Foods" may be of use to our audience; though the need for users to click on the "pause" button to stop the slideshow from scrolling may present a taxing challenge.

In their investigation into user comprehension and browsing behaviors, Mobrand and Spyridakis highlighted the need for online content to be more intuitive and for structure that limits the potential for user cognitive overload. Though they were not studying low literacy users specifically, their inquiry yielded results that can inform our creation of webpages that better serve these users. Noting the strain placed on readers when content transitions from hard copy to virtual text, they remind us that "hypertext readers must divert some of their cognitive resources from comprehension to activities such as scrolling, clicking on navigational buttons, setting page size or even adjusting resolution or brightness of the screen" (Mobrand and Spyridakis 42). When we combine these tasks with the understanding that reading itself can be difficult for low literacy users, the need to include graphics to enhance user comprehension is clear. Kathryn Summers and Michael Summers made several recommendations for addressing the needs of low literacy users. Of particular relevance, they suggest using simple graphics to explain complex topics (Summers and Summers 7). Simple graphics that attract user attention and direct users to essential information about available food assistance will

streamline the research process for these users and help those who are hungry gain access to food more quickly.

Criteria #10: Use of "bread crumb" trail

The use of navigational aids such as "next" and "back" buttons can help all users find their way around a given webpage. Mobrand and Spyridakis suggest that "doubling up" on these signals makes navigation easier (57). One example of doubling up would be using both a bread crumb trail, that shows users the path they have taken to arrive at the current page, and "next" and "back" buttons. This would give users multiple ways to move back and forth through the online document, re-visiting sections as needed.

There is no bread crumb trail in use at Nutrition.gov. This makes it difficult to identify where within the site you are. Once users have landed on pages linked to from the homepage, they have only the back button on their computer browser for returning to the previous page. Fns.usda. gov is far more user friendly. A bread crumb trail appears to orient users to where they are within the site. For example, users can go from the homepage, to applying for assistance, to receiving SNAP benefits, and the bread crumb trail shows them each page they have stopped at along the way. This helps users avoid getting lost within the site. Simplifying access to information about food assistance resources through a logical and easily traced path within the websites will limit user frustration and help those suffering from food insecurity to locate supplemental food more quickly.

Criteria #13: Scrolling requirements

The Nutrition.gov homepage is exceedingly long and requires users to scroll through multiple computer screens to reach the bottom of the page. Fns.usda.gov is slightly better, requiring users to scroll down to a second page to access all the information at the bottom of the homepage. Like dense text, long pages that require scrolling are inappropriate for a low literacy audience. Summers and Summers identified such presentation as one of the web formats most likely to trigger low literacy users to skip text (7). Scrolling through text requires both physical and cognitive ability. From Nielsen, we know that low literacy users tend to "plow" though text, reading word by word. These users lack the ability to scan through text and multiple scrolled pages. This can make the task of reading an entire homepage daunting, especially when the homepage is seemingly endless. The harder these webpages are to read and follow, the longer it will take for those suffering from food insecurity to gain access to the help they need. Critical information needs to be easy to find and act on; this will help to limit the number of people who go hungry and shorten the length of time each of those food insecure users

Future Research Opportunities

When I began researching a potential role for technical communicators to help those suffering from food insecurity, I was surprised to discover a dearth of articles in technical communication journals that were in any way related to food access. The articles I did find were from journals such as *Public Administration Quarterly*, *American Journal of Agriculture Economics*, *Social Indicators Research*, *Journal of Rural Studies*,

and *Applied Economic Perspectives and Policy*. A great deal has been said about food insecurity, barriers to access, and the need for food-related education and outreach, but until now the conversation hasn't reached the Technical Communication community. My sincere hope is that this project will inspire interest and further research by technical communication scholars into ways in which information about nutritious food can reach those who are in desperate need of assistance. The role for technical communicators is but one of many that need to be filled in order to adequately address, and ultimately solve, this serious social welfare issue that affects so many Americans. This issue deserves and demands an interdisciplinary response. The potential research questions are endless, but the following is a short list of topics that I believe deserve further inquiry:

- Redesign of key webpages with the explicit goal of keeping users on the page by removing skipping triggers
- Expanding the role of food stamps
- Helping people qualify for assistance
- Development of a public awareness campaign regarding food insecurity
- Ways to build community involvement
- Food production education

I believe that across disciplines we have the collective knowledge and skills to bring about lasting positive change. Food insecurity in the U.S. is a problem we can solve together.

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