HOW TO SEE A TEXT: THE WORD CLOUD PEER REVIEW

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I have difficulty in always seeing everything in reading . . . I do not always find the major points immediately. —student reflection

Word clouds are visualizations of source texts that represent word frequency, heat maps for language terrain: the more times a word is used, the bigger it appears in the word cloud. They offer a bird's eye view of a text and offer opportunities for meaning-making, and interestingly from a rhetorical perspective, an opportunity to imagine the text behind the algorithm. What questions might I have about a text from seeing its word cloud? Much like the potential meaning-making for digital humanists using the Google Books Ngram[1] viewer as a way to "see" the variance of word frequency over centuries, word clouds elegantly show patterns of meaning in ways that are easily recognizable for users, as word frequency is one (imperfect) measure of a text's themes and purposes.[2]

As a writing teacher, I was interested in the potential for word clouds to highlight a text's higher-order concerns such as purpose, especially their potential for helping students question a text *before actually reading it*, as a heuristic for peer review. To draw on a familiar figure of speech, my students often miss the forest for the trees. Too caught up in the lower level concerns like errors and formatting, students sometimes overlook their peers' mishandlings of purpose and audience. What the word cloud potentially offered was a way to see the essay at-a-glance, abstractedly as it were, with enough distance that students could see "the big picture" and provide the maximum benefit from peer review.[3]

One demonstration of the potential for word clouds to represent central themes and purpose was demonstrated by Jed Lewison, writing for *Daily Kos*, when he compared word clouds of speeches by President Barack Obama and Sarah Palin following the Tucson shooting in January of 2011(Figure 1 and 2).[4]

Figure 1: Obama's speech

Figure 2: Palin's speech

Here's Jed Lewison's analysis of Obama's and Palin's word clouds:

The word clouds show the contrast between their two approaches. They both recognized Saturday's shooting for the tragedy that it was, but the clear emphasis of President Obama's word choice was on focusing on the victims and that which unites us as a nation, whereas Palin focused on her grievances and what drives our country apart.

Clearly, a more thorough explication of the speeches would reveal different rhetorical situations for Obama and Palin (different audiences, constraints, purposes). Speaking as the President, Obama's speech served a civic purpose: extolling of the dead and wounded is in keeping with the Greek rhetorical tradition of *epitaphios.* In addition to "Gabby" and "Christina," the Arizona Senator and Christina Taylor-Green, the youngest victim of the shooting, the word "heart" figures prominently in the word cloud, which points to another purpose of the speech—consolation for the living: "Our hearts are broken by their sudden passing. Our hearts are broken–and yet, our hearts also have reason for fullness. Our hearts are full of hope and thanks for the 13 Americans who survived the shooting, including the congresswoman many of them went to see on Saturday" ("Transcript").

Palin's rhetorical situation and, thus, purposes were different. Released a few hours before Obama's speech on her Facebook page, her speech aimed to quell arguments that the Arizona shooting was indicative of polarizing political rhetoric: "Vigorous and spirited public debates during elections are among our most cherished traditions. And after the election, we shake hands and get back to work, often both sides find common ground back in D.C. and elsewhere" ("Sarah"). A more salient example illustrates word choices that led to antonymic pairs (e.g., "peaceful" and "violence," "condemn" and "agree") in the word cloud: "And we will not be stopped from celebrating the greatness of our country and our foundational freedoms by those who mock its greatness by being intolerant of differing opinion and seeking to muzzle dissent with shrill cries of imagined insults" ("Sarah").

Seeing the word clouds of the speeches *before actually* reading the transcripts affected my readings of them in a similar way that my reading of an article is affected by textual features like titles and subheadings. *Before actually reading*, then, is a catchphrase for something more theoretical: word clouds can function as schema, cognitive abstractions that aid in reading comprehension and could be incorporated into peer review to focus peer reviewers' attention on high order concerns. Using the representation of the texts, readers can hypothesize patterns of thought based on antithetical words (as I did in the Palin word cloud), infer connections about key figures or institutions that appear in the word cloud, and ask questions about what they need to find out to understand a text (depending on prior knowledge of the subject). In "How We Really Comprehend Nonfiction," Thomas Newkirk uses the adverb "really" to interrogate genre differences between fiction and nonfiction to show instructional strategies using narrative schema to foster comprehension. While his article focuses on using narrative as the normative schema to help students comprehend nonfiction texts, his foci ("Looking for Trouble," "Identifying the Players," "Attending to Patterns of Thought," and "Engaging With the Teller") locate the possibilities for word clouds. In the context of peer review, word clouds point to meaning-making categories; the "actual" reading becomes an exercise of testing the word cloud hypothesis, the results of which reveal higher-order (meaning) concerns in student texts.

In the rest of this essay, I describe an instructional strategy using word clouds as a peer review heuristic to improve student critiques of early drafts at the higher-order concern level, a strategy aimed at active reading to focus student attention on purpose and formative comments rather than focusing on lower-order concerns like sentence construction or errors in usage. After describing the guided practice, I report briefly on the results from students when asked to work with word clouds independently, and make recommendations for teachers who would like to experiment with word clouds for instructional purposes.

Word Cloud Peer Review: Take 1

Students in the second course of a two-sequence composition course were asked to write a rhetorical analysis (Figure 3) on either Martin Luther King, Jr.'s "Letter From Birmingham Jail" or Brendan Lorber's "Why Occupy Wall Street Has Already Won: A Report From the Trenches", an anti-manifesto published at the height of the Occupy Wall Street movement.[5]

Essay #1 Rhetorical Analysis

For this assignment, you will write a 3-5 page rhetorical analysis of either Martin Luther King Jr.'s "Letter From Birmingham Jail" or Brenden Lorber's "Why Occupy Wall Street Has Already Won: A Poet's Report From the Trenches."

What is a rhetorical analysis?

Simply, a rhetorical analysis analyzes effects. Consider Aristotle's definition of rhetoric: "The ability, in each particular case, to recognize the available means of persuasion." In other words, rhetoric is a skill we use to unify others and to build consensus. When you perform a rhetorical analysis, you discuss how a rhetor achieves certain effects (think of "effects" in the same way it's used in the term "special effects"). For example, you may consider word choice, different appeals the rhetor used, imagery (to name only a few). How did these elements work to unify others and build consensus?

Figure 3: Rhetorical Analysis Assignment Prompt

At random, I selected three student papers to upload on Wordle's application website.[6] Student #1 essay produced the word cloud in Figure 4.

Figure 4: Student Essay #1 word cloud

With the image of the word cloud projected, the class was able to "see" that Student #1's essay addressed MLK's "Letter from Birmingham Jail." In response to the most frequent words highlighted by the word cloud, we brainstormed to produce questions that a peer reviewer should have as s/he reads Student #1's essay, with the following results:

- Has the writer focused on the person of Martin Luther King rather than the text to be analyzed in the essay?
- Could the discussion of the letter include genre constraints? Could the discussion of the letter genre advance the essay's central thesis if the writer did not discuss the conventions of letter-writing?

Students were quick to point out that it "looked like" the essay addressed the assignment prompt because the words "audience" and "letter" figured prominently in the word cloud. With these

questions and predictions in mind, we read the full text of the essay.

The essay's thesis argued that King's rhetorical effectiveness was a result of addressing his primary audience directly and positioning himself as an insider, a fellow clergyman, as well as addressing his secondary audience, what one source called the "'eavesdropping' black audience" (Leff and Utley). However, the essay did not remain focused on the thesis throughout. For example, on page two of the essay, the writer mentions *pathos*, followed by a lengthy direct quote:

> Martin Luther King uses Pathos approach by giving vivid descriptions of brutality in which he and other have regretfully seen. In paragraph 14 of "letter to Birmingham" Martin Luther King ramble on about the pain of segregation and the brutality he has witnessed. Part of what he says is "when you have seen vicious mobs lynch your mothers and fathers at will and drown your sisters and brothers at whim; when you have seen hate filled policemen curse, kick and even kill your black brothers and sister; when you see the vast majority of your twenty million Negro brothers and sisters; when you see the vast majority of your twenty million Negro brothers smothering in an airtight cage of poverty in the midst of an affluent society . . . . "

Students determined that this paragraph didn't fit. Rather than focusing on the numerous surface-level errors, students identified the disruption in the development of the essay's thesis. In terms of the questions produced in response to the word cloud heuristic, the paragraph seemed like it came out of left field for them. Nowhere else in the essay was the issue of *pathos* addressed. The paragraph also cleared up the mystery of the King's name appearing in full on the word cloud: in every reference to King, the student had used his full name.

In the class's collaborative "reader report" to Student #1's essay, we identified the central thesis and suggested the author

revise it to strengthen its focus on the letter's primary and secondary audiences. We asked the author to consider that some of the paragraphs did not address the thesis directly, specifically mentioning the paragraph addressing *pathos*. Further, we asked the writer to revisit extended quotes to determine if they were justified in their length. Finally, we suggested using King's full name in the first mention and "King" in subsequent mentions. With the aid of the word cloud to shape our questions before reading the text, the class remained at the "bird's eye" view and challenged the essay's purpose, focus, and organizational structure rather than proofreading for error.

The full text of the essay draft revealed a struggling student writer. I suspect, though I didn't share this with the class, that the extended quotes were used as stopgap measures to meet the length requirement. It was the kind of essay that I remember from my first years of teaching that would stop me in my grading tracks, asking myself, *where do I begin?* Even with training in a process-oriented discipline, it was difficult to ignore what others may deem as marring errors on the sentence level. But you can only see the macro-level of the text with the word cloud, which limited our feedback to those things we could see or imagine. The word cloud suggested a focus and led the class (and me) to questions about the strongest element in the essay, its ideas.

Together, we repeated the word cloud (Figure 5) for another essay as a form of guided practice. The word cloud produced by the essay highlighted its problems with unity. Students identified elements that suggested the student may not have followed the directions in the prompt: "Birmingham," "Luther," "King," and "letter" as well as "Lorber," "Occupy," "Wall," and "Street." Students also noticed the word "movement" in the word cloud. Trying to imagine why the word would have been used so frequently, I prompted the class to consider whether the essay may have analyzed the social movement addressed in the text rather than the text itself.

Figure 5: Student Essay #2 word cloud

In other words, did the writer focus on the issues surrounding Occupy Wall Street rather than Lorber's article? In our class discussions prior to drafting, students tended to blur the two. Whereas segregation as a social issue for them was a clear injustice, the issues surrounding Occupy Wall (OWS) Street were more complicated. Some students openly and forcefully challenged the movement's motives and needed some redirecting to keep them focused on the text we were analyzing. The class formulated the following questions before reading the essay:

- Does the essay analyze one of the two source texts as directed in the prompt?
- Did the writer focus on the analysis of a text or was the analysis focused on the social movement that the primary source addressed?

As we read the full text of Student Essay #2, the class recognized that the writer compared and contrasted the two source texts rather than analyzing one. The idea the writer returned to throughout the essay was the difference between

King's and Lorber's approaches. While King appealed to the values of the ministers and addressed them respectfully, Lorber's language was aggressive and inflammatory. As we predicted, the essay shifted its critique from the Lorber article to the OWS movement more generally. In the "reader report" to the essay writer, we pointed out that s/he needs to choose one primary source to analyze in order to fulfill the requirements of the assignment. If s/he chooses to focus on "Letter from Birmingham Jail," there was a good basis for developing an analysis featuring King's *ethos*. If s/he chooses to analyze Lorber's article, we asked the writer to focus on the rhetorical effects of the text and how Lorber achieves those effects rather than addressing the OWS movement.

Word Cloud Peer Review: Take 2

In the subsequent semester, I redesigned the exercise for an introductory writing course. I wanted to see what kinds of questions students could produce independently after working together as a class to generate questions using word clouds. I also was curious about the results of the word cloud peer review on an essay assignment in which students were free to choose their own topics. Specifically, students were writing essays in the surprise-reversal form described in our textbook.[7] A closed-form style, the surprise-reversal essay resolves tension between what readers think they know about a topic and what they don't know, a common strategy in both popular and academic writing. After working through several word clouds together to generate questions, I asked the students to come up with questions for the following word cloud (Figure 6), working independently:
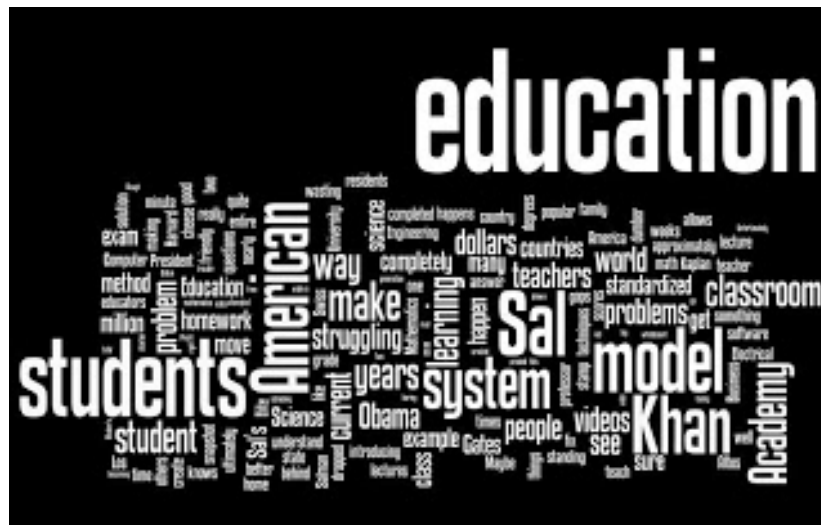
Figure 6: Informative Essay Word Cloud #1

Some of the questions students wrote:

- "I think the subject is concerned with Americans education, but what is the surprise?"
- "How does government fit in with education and learning which seems to be the main point?"
- "What is the main topic that the writer is trying to inform the reader on? I say this because there are a lot of big words, so it's not clear."
- "What is the actual focus of the essay?"

It seemed clear to the students that the essay would be about education, but the words they overlooked were interesting: they glossed over the words that had the highest dimension of lexical specificity that would have/should have given rise to questions, words such as "Khan," "Academy," and (a bit smaller) "videos." Also interesting in the student comments were the numerous questions that pointed to multiple high frequency words ("big words") which suggested a lack of focus, as the class observed in the examples. However, in this word cloud, the high frequency

words were clearly related—education, American, students—whereas the connections were less apparent in other word clouds. Other students asked questions based on the text that they imagined would have created the word cloud and how that text may or may not fulfill the requirements of the assignment. For example, the questions about how the text may or may not be surprising reflected the expectation for a "surprise reversal," one technique the textbook described to create informative tension.

The text of the essay had problems. While the primary focus was Khan Academy's educational model, it strayed from its focus when the writer introduced a critique of the current American system and President Obama's proposed educational reforms. Also, the essay fell into a journalistic mode that shifted the focus from the Academy's innovation to the personal biography of its founder, Sal Khan (the reason why the first name figures prominently in the word cloud). After reading the drafts, students' comments (also generated independently) pointed out that it "does inform, but the author is jumping all over the place with information," that the "ideas are all over the place and unorganized." In another reader's comments, the writer was directed to "focus more on the main idea rather than branching off into sub ideas of the government. If you can stay/stick to one idea and elaborate more on it the reader will have a better understanding." In these and other comments, students responded to the draft as though it were a visual field with branches or scattered pinpoints. Are these kinds of comments limited to the word cloud strategy? On one hand, formative feedback in the form of directives (especially from students) sometimes approach revision through arrangement as a matter of convention—moving, switching—as was Eudora Welty's revision strategy that resembled putting together a dress pattern.[8] However, the word cloud strategy seems to encourage visual metaphors for revision.

The last word cloud (Figure 7) example did reveal some limitations of the strategy for generating good questions.

Figure 7: Informative Essay Word Cloud #2

Here's a sample of student questions:

- "Are you persuading the reader or informing them? Because of the words 'abuse' and 'problem.'"
- "Who has the focus, the patient or the nurses?"
- "What's this essay about—receiving care or being abused?"
- "Do the problems that occur in a nursing home need to be addressed more? As well as the staff?"

The first question demonstrates rhetorical knowledge, an important outcome for first-year writing courses, and also suggests that the persuasive aim as a dominant mode in academic writing shapes students' expectations about texts. From the student's perspective, having only seen the word cloud and being most familiar with the persuasive aim in academic writing, "abuse" and "problem" signaled a persuasive mode. So entrenched in the language of argument are some students that when asked to write in an unfamiliar mode, they fall into the persuasive mode by default; it was surprising to see that this default mode also influences students' expectations of texts they read.

The full text of the student essay revealed that indeed, the student writer had written a persuasive essay, one that relied exclusively on first-person experience afforded from the writer's position as a nurse's aid in a nursing home. The essay lacked a clear organizational plan and lacked cited sources, which students pointed out in their formative comments. One student directed the writer to "focus more on facts than on your own personal experience." Another student pointed to the modes of discourse: "In your revision you need to make it more informative and not persuasive. The personal experiences shouldn't be added." A representative example of feedback opens with issues of purpose and closes with suggestions to strengthen organization: "In your revision, you should have more facts with sources because you're trying to inform and you shouldn't state what you think you know because it sounds more opinionated than informative towards the audience. Also, you should stay on topic the whole time."

The questions aimed at guessing the content of the essay, or to guess what the "surprise-reversal" might be in the source text, revealed a limitation of the strategy. Instead of generating questions on the rhetorical level, students generated questions about content, which don't offer much as a heuristic for revision feedback. After all, those questions would be answered by *actually reading* the essay. It's difficult to say for sure why students went for the content questions, although the "surprise-reversal" form sets up an almost irresistible urge for students to guess what the surprise might be. Also, in the surprise-reversal prompt, students could pick their own topics. When students were writing in response to the rhetorical analysis prompt with shared readings (content knowledge), the word cloud peer review questions were less likely to address the content of the source text and more likely to focus on the source essay's likelihood of effectiveness. The benefits of the exercise seem to be maximized when students are writing about the same or similar topics.

Discussion and Conclusion

In a general sense, the results of the word cloud peer review as an instructional strategy partially confirmed what has been suggested by previous studies, that peer review is improved with more training (using multiple methods) and practice (Brammer and Rees). But the word cloud peer review also revealed that first-year writing students are only months removed from being secondary learners struggling with comprehension and benefitting from previewing strategies endorsed by curriculum coordinators with elementary English Language Arts (ELA) specializations. It wasn't just that students had misunderstood the aims of peer review by focusing on surface-level proofreading, but more importantly, as struggling readers, they needed help understanding the main ideas of their peers' texts in order to assess the higher-order concerns. Cognitively, the word cloud provided students with prior knowledge of the text before reading it, a co-text from which students predicted subject matter and main ideas and that later led to discussions of content after "actually reading" the drafts.

Some of the questions generated by students suggest that the word cloud functioned for them somewhat like an MRI or other medical imaging technology whose purpose is diagnosis. Viewing the word cloud as a representation of the live text, students hypothesized about potential problems, especially questions that highlighted dissonances (government and education, abuse and care), as if the ultimate question for them was *what might be* wrong *in this text*? When students drew logical conclusions about the text's focus from related words, they questioned aspects of the essay that could not be represented by the word cloud, for example the "surprise reversal" mode required for the informative essay. Less obviously, the visual context of the word cloud extended to the comments some students offered toward revision of the drafts, especially comments toward organization ("jumping all over the place," "branching off into sub ideas," etc.), suggesting that students may be more comfortable assessing what they can "see" rather than what they can interpret from reading.

For teachers who may be interested in replicating this pedagogical strategy, I have a few suggestions. First, consider reading Stephanie Harvey and Anne Goudvis's *Strategies That Work: Teaching Comprehension for Understanding and Engagement*, especially the strategy lessons addressing questioning and visualizing. Also helpful is Ellin Olver Keene and Susan Zimmermann's *Mosaic of Thought: The Power of Comprehension Strategy Instruction*. Although the books are written for elementary English/Language Arts teachers, they offer helpful ways of thinking about the cognitive processes behind active reading, the kind of reading that leads to better comprehension, and for the purposes of peer review, better feedback. Second, have a conversation with your students about their general experiences and expectations about peer review generally. Students are as frustrated as instructors about the practice, and my students were interested to experiment with new approaches that could offer more beneficial feedback than they had received in the past. In addition to the conversation about peer review, I also showed the class MIT's video "No One Writes Alone: Peer Review in the Classroom, A Guide for Students."[9] In under seven minutes, the video argues the benefits of peer review by giving students a theoretical understanding of writing as a social act, as well as showing students what good peer review looks and sounds like.

Working with student writers is challenging. Early on, as a young writing teacher (that is, graduate student), I remember the feeling of relief at having looked at the course calendar to discover that an upcoming class would be devoted to peer review. Finally, I thought, no class prep! And I wondered why students didn't seem engaged in the work of reading the work of their peers and offering substantive comments on them? And generally, students will tell you that their experiences with peer review have been less than ideal, for reasons ranging from unevenness in writing ability among students in a class, to the lack of clear guidelines or examples of feedback, and even the sense that peer review was, in their parlance, "busy work" that lacked real meaning or value. Now, peer review days are the days I can count on moving around

the most— monitoring students' questions and feedback, offering suggestions, prodding students along. The payback is worth it: gradually students become effective readers, reviewers, and listeners. The word cloud peer review isn't a cure-all for peer review gone bad, but it did re-invigorate the practice by opening up discussion about revision and reading that may not have happened without the apparatus of the word cloud and by challenging us *to see* peer review as meaningful and important to the writing process.

Notes

[1] See (http://books.google.com/ngrams/) for Google Books Ngram.

[2] For more information on information visualization, see Madeleine Sorapure's "Information Visualization, Web 2.0, and the Teaching of Writing."

[3] The author would like to thank Joseph Janangelo and William Vande Kopple for their thoughtful comments and feedback on earlier drafts of this article, as well as Lauren Lewis and Cindy Boney, early childhood reading curriculum specialists, for their guidance in preparing this manuscript.

[4] See (http://www.dailykos.com/story/2011/01/13/936039-A-word-cloud-comparison-of-President-Obama-s-and-Sarah-Palin-s-messages) for Jed Lewison's word clouds.

[5] For Brendan Lorber's "Why Occupy Wall Street Has Already Won: A Poet's Report from the Trenches," see (http://therumpus.net/2011/11/why-occupy-wall-street-has-already-won-a-poets-report-from-the-trenches/).

[6] Wordle is one of many word cloud generators. To create a word cloud on the Wordle site (www.wordle.net), copy the source text and paste it into the provided text box. Since Wordle does not allow you to save the word clouds, you will take a screenshot of the word cloud. To take a screenshot on a PC, use the "Prnt Scrn" key. For Macs, use the Capture function.

[7] The textbook used for this course is Ramage, Bean, and Johnson's *The Allyn & Bacon Guide to Writing*, brief 6th ed.

[8]From *The Paris Review*, Eudora Welty, "The Art of Fiction No. 47": "I revise with scissors and pins. Pasting is slow, and you can't undo it, but with pins you can move things from anywhere to anywhere, and that's what I really love doing—putting things in their best and proper place, revealing things at the time when they matter most. Often I shift things from the very beginning to the very end. Small things—one fact, one word—but things important to me."

[9]See (http://video.mit.edu/watch/no-one-writes-alone-peer-review-in-the-classroom-a-guide-for-students-8336/) for MIT's video "No One Writes Alone: Peer Review in the Classroom, A Guide for Students."

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