Changing it Up: Using Word Clouds Instead of Linear Text to Elicit Critical Thinking in Online Discussions

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Introduction

- Critical Thinking
  - "Cultivating students' critical thinking skills is a major goal of American higher education" (Roth, 2010).
- Engagement
  - Active involvement in learning
  - Positively related to gains in critical thinking (Tsui, 2002)
- Rise of fully online and mixed-mode/hybrid courses
  - Core challenge is to provide formats that give students opportunities to practice and demonstrate critical thinking skills (Joyner, 2012)
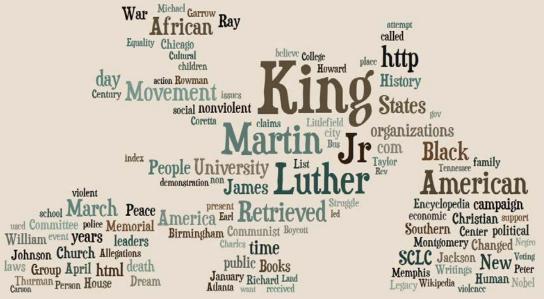 - Mixed results with online discussions

What is a Word Cloud?

- Visual representation of text
- The size of words is determined by the frequency
- Popular sites: Wordle; Tagxedo

men health freedom big hard bless faith build whether history may winter life path

future today task long people common Americans last meet man economy come play

year nations America new often blood government also crisis generation things time across schools lower

take old prosperity moment calls question restore women nation world generations must oath greater power make answer meaning lines

forward knowledge understand ideals peace work far spirit short less words let day never now courage end small father God brave rather

duties seek journey wealth know carried hope force jobs country

planet just many

following FBI Education
government way
Albany conspiracy Abernathy article
magazine Vietnam Justice community
WWW Freedom man
letter Leadership killed
United org
racial pp
Rustin
Press Poor Scott
Washington
National
ISBN
white Prize Association Race
reports Act President
assassination John
protests Georgia Project rights
activists resistance
Conference Power speech Party
Lyndon Kennedy civil Ralph
Clayborne site end
Alabama
life

War Michael Garrow Ray
African
Equality Chicago attempt called
Cultural believe College place http
day children History
Century action Rowman Howard
Movement issues States gov
social nonviolent
Coretta claims Littlefield organizations
King city Jr com Black family
index Bus Taylor Tennessee
People University List Rev
demonstration non James Luther American
violent
March Peace present Struggle Encyclopedia campaign
school America Earl Retrieved led economic Christian support
used Committee police Memorial Birmingham Communist Boycott Southern Center political
William event years Charles Montgomery Changed Negro
Johnson Church Allegations time SCLC Jackson New Voting
laws Group April html death public Books Memphis Writings Human Peter
Thurman Person House Dream January Richard Land Legacy Wikipedia violence Nobel
Carson Atlanta want received

Word Clouds

- Strengths
  - Get a sense for the general themes
  - Make connections between concepts, ideas, and key terms
  - Less preconceived notions about the original text
- Considerations
  - Lose the context
  - Word choice

Research Purpose and Participants

- Previous study suggests gains in critical thinking and meaningful interaction using word clouds in online discussions (see Joyner, 2012).
- Effect of word clouds on critical thinking and engagement in online discussions
  - ANT3610 – Language and Culture, Fall 2013, UCF
  - Undergraduate
  - Mixed-mode or "blended" format
  - 62 participants (71% of class)

Procedure

- Assignment: Group Discussion 5 (online)
  - Discussions worth 40% of grade
- 12 groups, 5-8 students each
- Identical discussion prompt
  - Analyze two speeches
  - Groups 1-6 experienced speeches as linear text
  - Groups 7-12 experienced speeches as word clouds

Prompt

- Two speeches written at different points in history, no names included
- First post (due Wednesday)
  - Who wrote them? When? Why?
  - Compare the texts to each other.
- Second post (due Friday)
  - Go back to course content – how might this inform your analysis of the speeches?
- Third post (due Friday)
  - Pick someone in your group who has a different interpretation and respond to them.

Linear Text

Speech #1: Susan B. Anthony

Friends and fellow citizens, I stand before you tonight under indictment for the alleged crime of having voted at the last presidential election, without having a lawful right to vote. It shall be my work this evening to prove to you that in thus voting, I not only committed no crime, but, instead, simply exercised my citizen's rights, guaranteed to me and all United States citizens by the National Constitution, beyond the power of any state to deny.

Speech #2: John Lewis

We march today for jobs and freedom, but we have nothing to be proud of, for hundreds and thousands of our brothers are not here. They have no money for their transportation, for they are receiving starvation wages, or no wages at all. In good conscience, we cannot support wholeheartedly the administration's civil rights bill, for it is too little and too late.

Speech 1: Susan B. Anthony

Speech 2: John Lewis

Word Cloud – Text List

Speech #1: Susan B. Anthony

- State: 3
- Vote: 2
- Men: 1
- Crime: 2
- Republican: 1
- Male: 2
- Citizen: 2
- Aristocracy: 2
- Women: 7

Speech #2: John Lewis

- Must: 11
- Party: 8
- Danville: 2
- Black: 3
- Bill: 7
- Rights: 2
- Government: 5
- Freedom: 5
- Political: 6

Data Sources

- Discussion transcripts
- Survey (19 items, 5-point Likert)
  - Engagement
    - "I enjoyed doing this assignment."
  - Critical thinking
    - "This assignment encouraged me to think outside of the box."
  - Logistics
    - "The assignment instructions were clear."
  - Interaction
    - "This assignment promoted interactions with my classmates."
  - Open-ended comments

Survey Findings

- For both critical thinking and engagement, the word cloud group had higher scores ("agree") than the linear group.

- Engagement and critical thinking were positively correlated (.632).

- Word cloud group also had higher scores for interaction items than the linear group.

General Feedback

- Mostly positive feedback for both conditions
  - "Way better than the previous assignments. More exciting." (linear)
  - "I liked how this assignment was different than all the rest of the ones and I found it interesting." (linear)
  - "It was a creative and fun assignment." (linear)
  - "It is nice to change it up once in awhile." (linear)
  - "This assignment was great!!! I absolutely loved it!" (word cloud)

Not Knowing Authors

- "Not knowing the authors helped keep me focused on the speeches themselves." (linear)
- "I found myself not feeling as interested in who the author was, as I was in trying to figure out the intentions and tone of the speeches based on the word choices." (word cloud)
- "While it was a mini-mystery, it allowed us to still apply the themes and concepts we learned about in class." (word cloud)
- "I don't think that made me think differently than I usually do; I was simply analyzing a text without a name." (linear)

Word Cloud: Critical Thinking

- "The format is one I've never seen before, and it is innovative and fosters new ways of thinking."

- "The thing I liked most was how it forced me to think more objectively."

- "[Word clouds] force you to look at words and derive meaning instead of just reading an entire sentence and taking it for what it is."

- "I was able to use more of my creativity and look at things more in depth than I would for a regular assignment."

Linear: Expectations

- "It should explicitly say that one specific guess is not required and that approximations are accepted."

- "I would recommend this discussion, with very specific feedback about what's expected though. It's hard for a student to perform up to what's expected of them."

- "I thought having to write two responses was a little excessive."

Linear: Interaction

- "I feel as though most students will just type anything to get credit."

- "I do not enjoy having to comment on a peer's post about 'how they think' especially when we have to reply to someone who had a 'different interpretation.' I'd rather analyze my own post after class."

- "I did not like how I was to respond to a classmates response that was different because everyone said the same thing."

Word Cloud: Interaction

- "It was the most engaged I had been in any discussion because I found it interesting to see what cue words were most important for my peers."

- "I was most interested in seeing the difference in interpretation between my ideas of the speeches and those of my fellow classmates."

- "I pride myself on adding little details of thoughts that my classmates did not."

- "I would have liked to talk about it in class and hear everyone's ideas."

Transcript Analysis

- Iterative process: codes evolve, refine each round
  - Articulating thought process
  - Citing relevant evidence to support claim
  - Relating prior knowledge to task
  - Relating prior beliefs to task
  - Integration
  - Application
  - Reflection
  - Critical interaction with peers
  - Tone
  - Engagement
- 50% of the discussions coded

Discussion Comparison

Linear

- Prior knowledge/beliefs
- Reference the plot/quotations
- Use content to further *strengthen* their point
- Interaction: I agree; restatement

Word Cloud

- Prior knowledge/beliefs
- More articulating thought process and providing evidence for claims
- Use content to further *explore* their point
- Interaction: critique; reflection
- **More interesting for us to read!**

Implications

- Select a word cloud when...
  - The focus is thinking "big picture"
  - The process is more important than the "right" answer
  - Gauging prior knowledge and current beliefs is important
  - You want them to explore with peers
- Considerations
  - Explain what a word cloud is and why it is being used
  - Be very clear with instructions
  - The nature of the discussion prompt
  - Attempt to avoid misinterpretation
  - Follow up

References

- Joyner, F. (2012). Increasing student interaction and the development of critical thinking in asynchronous threaded discussions. *Journal of Teaching and Learning with Technology, 1*(1), 35-41.

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Questions?

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