Hashtag Analysis Lesson Plan
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The purpose of this activity is to familiarize students with text mining and prepare them to conduct their own social media research. Students will learn to use basic text mining tools and apply these tools in the context of rhetorical analysis of Twitter discourse. After completing the activity, students will be better prepared to compare and contrast conversations online and evaluate different social media sources.

Approximate time: One hour

Learning Objectives

Following the activity, students will be able to:

- Set up basic text mining technology including the Google Drive TAGS tool and Voyant Tools
- Use text mining tools to build corpuses of tweets and conduct basic analysis
- Compare and contrast social media sources and evaluate their rhetoric and credibility

Prerequisites

Prior to the activity, students will need to:

- Have access to a desktop or notebook computer with internet access (tools may be difficult to use on other types of devices)
- Have access to a Gmail and Twitter account (students will not need to post any information for this activity and may opt to use "throwaway" information to sign up for accounts)
- Have a basic understanding of Google Drive and Twitter

Procedure

Introduction (10 minutes)

What is text mining?

- Text mining is a type of data mining specifically focused on text-based data
- Data mining refers to the computer-assisted collection and analysis of large bodies of data
- Many tools exist for the collection and analysis of data from various sources
- Data about you is mined every day by government agencies, corporations, and websites
- Discuss: Can you think of any websites or other tools you use that may be mining your data? How do you feel about these sites using your data?

Ethics of text mining

- Remember that when we study text online, we are also studying other people
- You should not use or share information from text mining for targeting or harassing users
- You should respect the rights of users who have chosen to remain anonymous

- The practice of maliciously revealing anonymous users based on their data is called "doxing," and is not allowed in many online communities
- Keep these points in mind as we approach our own social media research

Text mining and analysis activity (35 minutes)

To prepare

- Have technology ready and a web browser open
- Sign out of all of your Google accounts except the one you will use for the activity
- Sign into the Twitter account you will use for this activity
- Check to see that students have followed all of these instructions, as not following directions could cause problems later during the activity
- Consider placing students in groups to help one another with technology and to facilitate in-class discussion

Plan for activity

- Set up TAGS in your Google Drive
- Determine a keyword and build an archive
- Use Voyant Tools to analyze trends
- Review steps and make sure students are prepared to proceed

Set up TAGS

- TAGS is a free tool that works through Google Drive using Google Sheets
- Make sure students are only signed into only one Google account
- Access the TAGS website at tags.hawksey.info to copy a TAGS sheet for the activity

Build an archive

- Discuss some current events and consider possible research topics
- Help students determine a keyword centered on a controversial topic
- Work with students to ensure keywords are appropriate for the activity and any future assignments
- Connect the TAGS sheet to Twitter in the TAGS menu and follow step-by-step instructions to access Twitter Application Programming Interface (API)
- Enter the keyword in the appropriate box on the TAGS settings page, and select Run from the TAGS menu to begin building an archive (this may take a few minutes)

Analyze trends

- Navigate to the "Archive" page in the TAGS sheet once the archive has been built
- The tweet text in the "text" column can be copied and pasted into different tools for analysis

- Review shortcuts like ctrl+C and ctrl+V to copy and paste
- Use the Voyant Tools website at www.voyant-tools.org to conduct initial analysis
- Explore features like term frequencies and the wordcloud generator with students
- Encourage students to work together on analysis and compare findings in small groups

Class discussion (15 minutes)

Questions to Consider

- What are the most frequent words used by tweeters discussing your keyword?
- Why do you think these terms are relevant to the topic you selected?
- What terms were unexpected or surprising? Based on the original text, can you infer any connections between unexpected terms and your keyword?
- Encourage students to think about rhetorical concepts, such as different rhetorical appeals, and how these relate to the credibility of claims in tweets—are claims being supported by credible evidence? If not, could they still be convincing? To whom? Why?

Digging deeper

- What links and images are being shared? How do they relate to your topic? Voyant Tools will show links and images as URLS strings of characters that students can look up
- Who are the most frequent participants in your Twitter conversation? Who is associated with these accounts? In the TAGS menu, students can add "Summary" and "Dashboard" sheets with more information about the corpus. TAGS will show frequent tweeters, and students can visit their Twitter feeds to learn more about who they are
- Connect these methods of analysis to concepts like visual rhetoric, use of citations, and ethos and ethical appeals

Keep exploring

- TAGS can be set to automatically run every hour in the "TAGS" menu—students can build an extended archive to track conversations over time
- Students can export data from Voyant Tools to design their own visuals, graphs, and multimodal compositions using the different tool window menus
- The TAGS explorer and searchable archive are available if students make their TAGS Google Sheet public
- There are other types of text and data mining tools to experiment with like R and text mining libraries for programming languages including Java and Python for more advanced classes

Questions