Rhonda Huisman, Willie Miller, and Jessica Trinoskey

We've Wordled, have you?

Digital images in the library classroom

Connecting with students in the classroom is a goal that unites all educators; librarians particularly face this challenge during one-shot instruction sessions. Studies suggest that the current generation of traditional college students, often referred to as Millennials, can be engaged through visual stimulation and creative, active learning strategies. Librarians at Indiana University–Purdue University, Indianapolis (IUPUI) University Library have incorporated the creation and use of word clouds to transform their methods of instruction, assessment, and marketing in an academic library setting.

What is Wordle?

Developed by Jonathan Feinberg in 2008, Wordle (www.wordle.net) is a free online tool that creates colorful, creative, and customizable word clouds from text entered into its JavaScript-based generator. Users have the option to alter colors, fonts, languages, and the arrangement of the word cloud. Any words or phrases repeated will display larger than others; the more repetitions, the larger the word or phrase appears. We have used Wordles generated from student feedback, library policies, and even song lyrics to add zest to event promotions, presentations, and class sessions. It has also been used in various other library applications, including outreach and publicity (i.e., t-shirts).

Author Jonathan Feinberg writes, "But where Wordle shines is in the creation of communicative artifacts. People who use Wordle feel as though they have created something, that the created thing succeeds in representing something meaningful,

Word cloud generated during a library tours for the Journalism FYS courses. Students were asked to give five words to describe their high school library, and following the tour, five words to describe IUPUI Library. This word cloud describes the IUPUI Library.

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and that it accurately reflects or intensifies the source text."[1]

Visual literacy and metaphor

"Visual Literacy empowers individuals to participate fully in a visual culture."[2]

Wordle and other word-cloud generator tools put the onus of interpretation, understanding, and integration of these visual representations on the creator as well as the viewer. In using Wordle in our classrooms at IUPUI, it became apparent that not only was it fun, but it allowed students to create a visual illustration of library instruction (and outcomes) through key words and phrases. The ACRL/IRIG recently adopted new Visual Literacy Standards,[3] which are described as "a set of abilities that enables an individual to effectively find, interpret, evaluate, use, and create images and visual media."[4] Word clouds are just one simple way to visually characterize elements of library instruction.

Ways we use it

Instruction

Assessing library services is no easy feat, particularly library instruction. Often, librarians want a simple and fast method to evaluate student learning and the impact of instruction. Substituting a traditional one-minute paper[5] is one way in which librarians can offer a form of assessment during the library instruction session to get immediate feedback from students. However, Wordle allows a modification to this widely used technique, which uses the simplicity of short answer questions and engages students as creators of a digital image. Elizabeth Choinski and Michelle Emanuel[6] describe their struggles in modifying a one-minute paper exercise to adequately assess their one-shot library instruction sessions, through more traditional quantitative results, which they reported to align nicely with ACRL-defined outcomes. Our experiences were more of a subjective or qualitative nature—we recognized engagement and understanding through participation, completion, and creativity rather than through scores or standards.

Willie Miller, assistant librarian and liaison to the IUPUI schools of Informatics and Journalism uses Wordle to gauge the lasting messages from library tours in First-Year Experience classes. Before the tour begins, he has each student write five words on a note card that describe opinions of their former high school library. After the tour, he has the students use five words to describe IUPUI University Library. The note card descriptions are anonymous to encourage students to write honest five-word descriptions without fear of judgment.

Typically, Wordles describing the high school library display words like "small," "quiet," and "books" in large fonts; in some unfortunate cases words like "scary," "never used," and "strict librarian" rise to prominence in the image. When describing the UIPUI University Library, in contrast, the words "big," "helpful," "resourceful," "high-tech," and "awesome" are presented in large fonts.

Assessment and engagement

Rhonda Huisman, assistant librarian, liaison to the School of Education/Center for Teaching and Learning at IUPUI, started using Wordle in 2009 as a participation exercise, through the use of note cards. Students are given note cards upon entering the computer lab or classroom, which have specific words (i.e., "databases" or "interlibrary loan") written on them. Throughout the instructional session, the students are responsible for taking notes about their particular category—a few key words or phrases is all that is necessary. Upon the conclusion of the instruction, Huisman asks for feedback based on the students' notes, which are recorded in the Wordle site on the computer at the front of the class.

Another option for this type of activity is to have each student (or small groups) create their own Wordles and share with the rest of the class through a library Web site, course management system, or posted in a social networking site like Facebook. In both of these cases, Wordle serves as a

tool for engagement in the instruction as an active-learning strategy, as well as a quick check for understanding exercise.

Yet, the importance of the Wordles is not necessarily the words used: the significance of it is really to capture the opinions and emotions of that moment. The thought-provoking images also afford openings to

UIPUI Librarians Rhonda Huisman, Willie Miller, and Jessica Trinoskey wore t-shirts during student orientation week with a Wordle of the library's mission statement.

start conversations with students, faculty, and librarians about library services and relationships. In a subsequent class on using library resources for research, Miller starts a discussion on the value of the library with the Wordle images. He is able to point to the students' feelings about past libraries juxtaposed to the moment the students were introduced to the UIPUI Library to facilitate a discussion around their expectations of an academic library.

Huisman uses student-created Wordles to compare to a Wordle that was created using the ACRL information literacy standards, and looks for commonalities in words, phrases, or ideas, and often shows this to students as well, to generate discussion about the words they didn't include, and why. In both cases, students are immediately drawn into the session upon seeing their words reflected through this eye-catching graphic. Through

the creation of word clouds, students can take an active role in information literacy instruction and assessment, by recalling the most important aspects of the library resources and lasting messages of an instructional session.

Miller, Huisman, and other librarians who have adapted Wordle in their instruction sessions find that students rarely protest about this type of activity—it's fun!

Marketing (t-shirts, posters, presentations)

Wordles are posted in the site's online gallery; however, these images are certified under a Creative Commons Attribution license, so content can be printed, displayed, or freely shared for other uses. The University Library's Community Outreach Group used a Wordle of the library's mission statement on a t-shirt during new student orientation week. The giveaway with the affective image of the mission with the words "inform," "resources," "transform," "community," and "connect" highlighted was a hit with students who can be seen wearing it around campus.

Word clouds are also a popular trend in scholarship and media. Wordles have been used at many recent conferences in librarianship and beyond on posters and digital presentations. ABC News created word clouds from the 2011 State of the Union address to illustrate the significant words and themes of President Obama's message.[7] The repetition-triggered font sizing makes a speaker's key words visually clear.

Wordle whoops!

Jessica Trinoskey, assistant librarian, liaison to the IUPUI Kelley School of Business, described the following scenario from an instructional session. She decided to integrate

Wordle into an activity designed to replace a traditional library tour. Students worked individually and each was given a note card indicating the library floor he or she would visit. They were instructed to write down at least five services and/or resources that they discovered on their assigned floor.

When they returned to the computer classroom, Trinoskey grouped students according to assigned floor. The groups were then asked to type the observation lists into Wordle.

"My plan was to wow students with a visual representation of the highlights of each library floor, and then have them describe the resources they encountered," she said. "In a Wordle cloud, repeated words and phrases display larger than others. I assumed that standout services would emerge based on the number of students who noted them. I also thought that among the three to four students assigned to each floor, a fairly comprehensive list of resources and services would develop. "

Trinoskey noted that the student typing seemed to take forever. "I could practically hear crickets chirp and see tumbleweeds blow by as I clicked 'go' and revealed the first Wordle. It was riddled with spelling inconsistencies, so standout services did not emerge. I tried to recover by having the second group read me their observations while I typed. There was still no acknowledgement of the displayed giant word cloud. By group three, I had ditched Wordle completely, and nobody seemed to notice."

She admitted that she may have expected Wordle to carry a poorly planned activity. She also questioned the notion that just hearing about services in the library would benefit students as much as experiencing them firsthand.

Trinoskey said she also neglected to introduce students to Wordle or to tell them why

she was having them do the activity in that way. "Had they known what to expect, they may have demonstrated more interest in the Wordles and been more willing to engage in discussion based on what they saw. There is also a time/place/crowd for new instructional activities, and that perhaps this just wasn't the time/place/crowd for Wordle."

Trinoskey says she would use Wordle in future instruction; however, she would be more intentional. "I would show Wordle to students before having them use it. I would also encourage students to create their own Wordles, allowing them to be creative in the use of different fonts and colors."

Trinoskey's experience is not unique to educators when they feel like a lesson "bombed," and she exhibited a thoughtful, reflective reaction that allowed all of the librarians to learn from her experience, and to think about possible "best practices" when using a visual tool or word cloud generator like Wordle.

What's next

On one hand, Wordle is fun, easy-to-use, and free, which has instant appeal for users of all ages and tech skill levels. On the other, Wordle and other tag-cloud display programs, such as Tagul or Tagxedo, have become a visual medium for expression, instruction, and creativity for which a "participatory culture" has emerged.[8]

From January to September 2008, more than 600,000 Wordles had been created. The count is now in the millions, and more are created every day in classrooms and libraries across the country.

Wordle is flexible in tailoring font, colors, and layout, but the next generation of word-cloud generators includes the addition of hyperlinks and customized shapes/forma-

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> **Ways to Wordle well**
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> 1. Become familiar with its formatting and technological quirks.
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> 2. Allow for time during instruction and thoughtfully plan for its use.
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> 3. Carefully explain to students the purpose of using this tool and its value.
>
> 4. Be prepared for unexpected results and be flexible.
>
> 5. Remember that visual imagery can be powerful, and have fun.

tions. With these advanced features, there are additional technical skills or adaptations for users, but there are also added possibilities for instruction, engagement, marketing, and information literacy applications.[9]

The prospects of using tools such as Wordle, Tagxedo, or other word cloud generators weren't initially apparent in instruction. We were willing to be creative, innovative, and with a little planning, it became a fun and engaging alternative to traditional assessment activities especially when instructional time was limited. Wordle offers a "big bang for your buck" when used in inspired, resourceful ways.

Notes

1. Jonathan Feinberg, "Wordle," *In Beautiful Visualization,* eds. Julie Steele and Noah Iliinsky (Sebastopol, CA: O'Reilly, 2010).

2. ACRL/IRIG Visual Literacy Standards: http://acrlvislitstandards.wordpress.com /category/vl-definition/.

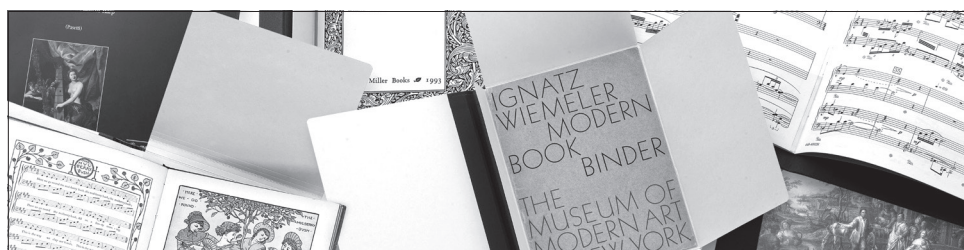3. http://acrlvislitstandards.wordpress. com/.

4. Ibid.

5. Thomas A. Angelo and Patricia K. Cross, *Classroom Assessment Techniques: A Handbook for College Teachers* (San Francisco: Jossey-Bass, 1993).

6. Elizabeth Choinski and Michelle Emanuel, "The One-Minute Paper and the One-Hour Class: Outcomes Assessment for One-Shot Library Instruction," *Reference Services Review,* 34 no 1 (2006): 148–155.

7. See http://abcnews.go.com/Politics/State _of_the_Union/slideshow/president-obama -speeches-presidency-word-clouds-12749168.

8. Fernanda B. Viegas, Martin Wattenberg, and Jonathan Feinberg, "Participatory visualization with Wordle," *IEEE Transactions on Visualization and Computer Graphics,* 15 no. 6 (2009): 1137–1146.

9. Tagexdo: http://www.tagxedo.com/, Tagul: http://tagul.com/, Word Cram: http:// wordcram.org/. 𝄞