

Kickstarting Research: Using a Concept Cloud to Formulate Effective Searches

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Brainstorm your search. Now think through it again and refine it. Now type some words in a box. Did you find something useful? That's the challenge we routinely put to first year students in one-shot instruction sessions held in English Composition classes at the University of Virginia. This article will address how we engaged our students and gave them more powerful research skills by transforming rote lecture and basic discovery exercises into a tool that teaches them a technique to generate spot-on results for their first college paper.

Students can quickly flounder as they struggle to meet university-level expectations and internalize new ideas such as source evaluation and peer-reviewed articles. As Sonia Bodi (2009) notes, research for undergraduates "is often a difficult and daunting process" (p. 109). Though motivated and capable, students sometimes stumble when faced with their first paper. For example, obstacles often include selecting a topic and conducting thorough research prior to submitting their paper. In addition, faculty members have high expectations based on their knowledge and experience with scholarly research including a passion for their particular subject area that their students don't always share (Bodi, 2009). We have witnessed all of these types of disconnects firsthand. While planning library instruction sessions, faculty routinely told us that students, particularly in the fall semester of their first year, didn't understand how to find scholarly information beyond basic web searching. They also noted that students struggled with formulating effective searches and, as a result, had difficulty turning in well-researched works.

One of the objectives of our instruction session at the University of Virginia is to teach research skills that students can use throughout their academic careers. To begin addressing this, we investigated, through observation followed by discussion amongst the instruction team, the ways students internalize information and participate in class. We observed that some students responded positively to lecture-based, PowerPoint-heavy presentations by appearing attentive, answering questions posed to the entire class and successfully retrieving information after watching a demonstration. Meanwhile, other students appeared to tune out after several minutes and got lost when trying to replicate a search or develop an individual search. In classes where we incorporated active learning through a self-directed research exercise, we saw that more students were able to design efficient and productive searches related to a specific topic. Active learning has long been an important tenet of student engagement and is not only appealing to students but also furthers intellectual development (Bonwell & Eison, 1991).

In addition to incorporating more active learning elements in our instruction, we also investigated how best to teach the thought process behind building a research question and beginning to search. Using ourselves as models, we realized that we begin addressing a research problem by considering the requirements and articulating a topic and argument. From there, we mentally brainstorm ideas that surround and develop the topic and then narrow those ideas to form a preliminary search. As experienced researchers, we can nimbly move between sets of ideas and a search strategy. Scholars are able to do this while steeped in knowledge of their own discipline and with the recognition that good research can take time and may need to be approached from several different angles. Undergraduates, however, can become lost in this complex process (Bodi, 2009). In fact, as some instruction librarians have found, even brainstorming a chosen topic perplexes students new to research (Westbrock, 2009).

A Five Step Thinking Tool

With the challenges of delivery and scholarly experience in mind, we developed a five step Thinking Tool (see Image 1 on page 10) designed to help students begin the research process in class with the direction of a librarian or faculty member, then continue it later independently. With its series of steps, the Thinking Tool illustrates the significance of each part of the research process while also serving as a written record. If it is necessary to make refinements, students can easily refer back to any point of the exercise and begin again, a process that undergraduates sometimes struggle to understand (Bodi, 2009). Recalling the importance of interactivity and students' affinity for a hands-on learning experience (Bonwell & Eison, 1991), we approached each class with a visual presentation, an idea with which to demonstrate the process and the Thinking Tool. We expected this package to engage the greatest number of students and lead them to a search that would result in several valuable resources.

The first two steps ask students to restate the objective of the assignment and how they plan to meet it. We found it particularly useful to walk through step one aloud, and instructors used that as an opportunity to clarify any questions about paper length or scope. Frequently, instructors elaborated on their particular resource requirements, such as type of publication and number of sources. The response from students was overwhelmingly positive. Students who found the research process a murky and hit or miss endeavor, began to see it as a clearly articulated process that is flexible and produces satisfying results. One student said, "It's so easy!" After they sailed through the first two steps, we intro-

duced the students to the Concept Cloud.

The Concept Cloud, much like Westbrook's organized brainstorm (2009), is a technique to encourage students to jot down words and ideas associated with a topic. In early versions of this exercise we asked the class to brainstorm out loud using a generic topic while we noted ideas on a whiteboard. However, we observed that not every student was engaged in the process, either from a lack of ideas or reluctance to speak publicly in front of classmates. Using the Concept Cloud space in the Thinking Tool (step three), each student had a defined area to generate ideas around a topic relevant to them. The Cloud includes brainstorming prompts such as places, dates and synonyms. We encouraged students to soar with their thinking, even to the point of adjusting their initial research idea. It quickly became clear that the Cloud forced them to flex their new research muscles and consider many different angles for their research topic, something that students latched on to as a critical part of getting started.

While students worked on their own Concept Clouds, we also invited them to share with the class the topics they had chosen and to solicit help from their classmates. Brainstorming became both individual and collaborative; when students needed help they volunteered their topic and the instructor and class were able to contribute more keywords. At first, we expected this verbal interaction to fail given the students' earlier reluctance to volunteer. However, students appeared to be motivated by the prospect of on-the-spot help from the instructor and the class on their specific topic. As we untangled each issue, we observed students writing more quickly, filling their own Concept Clouds with words and ideas sparked by the general discussion. Thus, most students had 10-20 words when we moved to step four (choosing a few groups of words that go together) and step five (picking 2 to 4 keywords for a search).

As we led the students through the exercise, we monitored their progress and noted their level of participation. Faculty members typically became very engaged with helping students fill their Concept Clouds and identifying the primary search terms that would move them to steps four and five. Once students identified their starting search terms, they spent about 15 minutes searching on their own for resources appropriate to their subject, particularly books and peer-reviewed articles. Since the search process had immediate application to their work, students were focused on using the time to find relevant resources. Once they concluded the five steps of the tool, students considered the viability of their search terms and, if necessary, refined the search starting from an earlier step. In this way the tool is cyclical and can be used repeatedly until student settle on a solid research approach. We noted that students walked away from the library instruction session with at least one excellent resource that they could use in their paper and, in the form of the Thinking Tool, a new research strategy that

could be reviewed, modified and repeated in the future.

The Tool and the Cloud: What Worked

When we dissected what worked about the Thinking Tool and the Concept Cloud, we realized that using a pre-designed, explicit tool made a significant difference in how students internalized the research process. A few observations led to this determination. In instruction sessions that occurred prior to the creation of this tool, we typically guided students verbally through the refining of a topic and identifying search terms. However, we noticed that few students participated when asked to brainstorm, students frequently got lost, and they didn't write anything down or stopped after one or two words. Once we eliminated certain barriers, such as the simple (giving students a piece of paper so that they had something to write on) as well as the more complex (once students had the Thinking Tool, we didn't have to rely on students basically memorizing a series of detailed verbal instructions), students seemed to search more confidently and more successfully.

We found that the Thinking Tool works for students with different skill levels: it allowed experts to surge ahead and non-experts to understand what goes into beginning research and formulating a search. Brainstorming via the Concept Cloud became concrete and personal and the spacing of each step automatically gave students an idea of how much focus and time to invest. The Cloud has been used at the University of Virginia successfully with more than 1000 students and has met with positive feedback from both students and faculty. Faculty report that the quality of students' research improved and that students struggled less with topics that were too narrow or too broad. One faculty member commented, "I have found in the past that library instruction sessions always get students *thinking* about their topics but not actually *working* with their topics. The Concept Cloud allows for them to begin working and to leave the library session with a few products in hand" (H. Mock, personal communication, December 9, 2011). Not only is the Thinking Tool proven to introduce expert research skills to new students in a way that should allow them to replicate it throughout their academic career, it is also easily incorporated into an effective and interactive library instruction session.

References

- Bodi, S. (2002). How Do We Bridge the Gap between What We Teach and What They Do? Some Thoughts on the Place of Questions in the Process of Research. *Journal Of Academic Librarianship*, 28(3), 109.
- Bonwell, C. C. and J. A. Eison (1991). Active learning: Creating excitement in the classroom, *ERIC Clearinghouse on Higher Education*, Document No. ED 340 272.
- Westbrock, T. (2009). Sparking a brainstorm: Getting students organized. *LOEX Quarterly*, 36(2), 8-10.

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Image 1: Thinking Tool

Thinking Tool: Choosing a Topic and Search Terms

1 **What is your assignment?**

How long is your paper? How many sources do you need? What kind?

2 **What do you want to write about?**


This doesn't have to be your final choice of topic. It's a place to start.

3

Synonyms?
Words experts use?

Concept Cloud
Write down anything related to your main idea. Anything! Everything!
(Use Wikipedia for help here).

People?
Kinds of people?



Main Idea from Box 2


Places?

Dates?

4 **Keywords:**
Choose a few groups of words that might go together.

5 **Your search terms:**
2-4 keywords.

Remember: Add or subtract keywords to get different results. Pick different ones! Start with a new main idea!



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To download a full-size copy of the Thinking Tool (pdf), click on <http://bit.ly/13jBgHx>