

DOUBLE LIVE GONZO! DOUBLE YOUR IMPACT WITH A FLIPPED CLASSROOM

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INTRODUCTION

Instruction librarians at the University of Tennessee at Chattanooga struggle with an issue common across academic library instruction programs: the time allotted for library instruction is often too short to deliver the educational punch that our students really need. When a faculty focus group outlined concepts and activities they would like us to add to instruction, we knew we were going to be in a time crunch. We decided to explore a flipped classroom approach to expand beyond the standard fifty-minute constraint.

THE FLIPPED CLASSROOM APPROACH

Flipped, inverted or reversed classrooms/education all refer to the practice of moving lecture content outside the classroom as a pre-class activity and reserving classroom time for guided discussion, active learning, practice, labs, and other practical applications of new knowledge. In essence, the flipped classroom is “a blending of direct instruction with constructivist learning” (Bergmann, Overmyer, & Willie, 2013).

The idea of moving course content outside the classroom is not new. Teachers commonly assign chapters to read before class. What probably makes the flipped classroom approach feel new is the use of technology to provide guided instruction to the students with a video lecture or an interactive tutorial. For the past decade, the National Center for Academic Transformation (NCAT) and dozens of colleges have been experimenting with flipped classroom strategies in such disciplines as math, science, English and others (Tucker, 2012).

Although the flipped classroom model is most often associated with the use of video lectures, Aaron Sams and Jonathan Bergmann maintain that “Flipped learning is not about how to use videos in your lessons. It’s about how to best use your in-class time with students” (2013, p. 16). The flipped

classroom is also not an all-or-nothing approach. Every lecture doesn’t have to be delivered via video. The goal is simply to maximize the effectiveness of face-to-face time with students.

Flipping is not about outsourcing your lectures to videos you find on TED-ed (<http://ed.ted.com>), Khan Academy (<https://www.khanacademy.org>) or elsewhere. These may not meet the specific needs of a class the way locally-produced video can. It’s really not the professional quality of the video, but instead how video is integrated into the overall course design that can make the flipped approach effective. Videos should generally be short (5-10 minutes) and cover particular concepts. Screencasting and video editing software options range from free programs like Jing, Apple iMovie or Windows Movie Maker, to high end solutions like Apple Final Cut Pro, Camtasia Studio, or Adobe Premiere.

Although there may be some initial resistance from students to a flipped classroom approach, they quickly see the advantages. With a student population that has grown up with digital devices, receiving content online feels natural. They understand digital learning. They can pause and rewind their teacher. They can repeat videos as many times as necessary, or watch the videos if they were unable to attend class.

Although a review of library literature reveals only limited discussion of flipped learning, library instruction seems ideal for flipping. Face-to-face library instruction time is generally very short. Many academic libraries are heavily invested and experienced in technology – often creating and maintaining video tutorial archives. It’s a short step from creating video tutorials for use in class or on the library website, to using those videos in pre-class activities to prepare students for highly interactive library instruction sessions.

INSTRUCTION HISTORY AND NEW DESIGN PROBLEMS

The First-Year Composition and Rhetoric program at the University of Tennessee at Chattanooga schedules at least one library session for every ENGL 1010 and ENGL 1020 class. The partnership between the Library and the First-Year Composition program has been well-received by Composition faculty due, in part, to the librarians' emphasis on active learning, a balanced use of multiple media, and sensitivity to individual instructor concerns. In May 2012, as part of the annual re-evaluation of library instruction, the library instruction team invited Composition faculty to share their thoughts by way of a focus group. Over the course of two hours, faculty covered a range of positive and negative aspects they saw in the existing library curriculum as described in Kutz (2011). Ultimately, they settled on three areas for improvement: faculty wanted library instruction to include more theoretical and conceptual content, they wanted students to internalize and learn the concepts at a deeper level, and they wanted more time in class to put concepts into practice.

Unfortunately, meeting these requests was impossible within the standard 50-minute class period. Instruction librarians began exploring curricular alternatives and it quickly became apparent that the flipped classroom model offered the best means for satisfying these requests. First, the flipped classroom addressed the need for more content by allowing additional venues for content delivery and providing multiple points of contact with students. Second, the desire for deeper learning and improved retention was addressed by using the now freed class-time for more immersive, participatory active learning. Further, pushing content to an external website resulted in content remaining accessible even after students completed library instruction. The pre-class activities also helped students come to the library session better prepared. Finally, the flipped classroom allowed the flexibility to include up to 20 minutes for putting concepts into practice with in-class search time.

With faculty input in hand, the instruction team set a series of goals for the redesign. The curriculum would need a pre-class component that combined both content delivery as well as a mechanism for putting conceptual content into practice. The curriculum would also require two or three in-class modules that encourage critical engagement with the pre-class content. Finally, a means of assessment was necessary to determine whether and to what degree students were retaining content.

FLIPPING OUR INSTRUCTION

Faculty requests guided our decisions on which aspects of the instruction session to teach outside of class and which to teach in class but we acknowledged that a logical continuity also dictated an order of how to present information. For example, we thought that a demonstration on database design and use would be less helpful if it occurred before

students even thought about their topics or generated key words. In the end, librarians developed four activities to guide students: two brief video lectures on iterative searching and topic perspectives, a worksheet encouraging students to consider specific search strategies and develop keywords before class, a clicker activity introducing students to the library and research process, and two database demonstrations – one led by the librarian and one led by the students.

Pre-Class Module

In 2010-2011, we implemented a pre-class topic/keyword worksheet (Kutz, 2011). To address the need for students to understand concepts related to searching and approaching a research question, we created two video lectures and developed a new worksheet to work in tandem as a 20-30 minute pre-library assignment. All pre-class content was presented on a single web page (<http://blog.lib.utc.edu/instruction/engl1010/>) for easy access. The first video discusses the intuitive search process of researching products online with the intent to purchase a new camera. The librarian discusses how he may start with one string of search terms such as “camera reviews” but, through the process of learning more about cameras, tries several more specific search terms such as certain types of cameras, price ranges, features, model comparisons, and more in order to demonstrate search iterations based on how a student's search terms may change as he or she learns more about a research topic. After the three-minute discussion, the librarian directs students to the first part of the worksheet (see Appendix A). Here, students try three different search iterations related to their topics using an Internet search engine. For each search, students write down the exact search terms entered and brief summaries of the types of results each search retrieves on the first page of results.

Next, students view a second video in which the librarian suggests ways in which students may begin to think about their topics in a broad sense and identify related perspectives and keywords. Using a sample topic of “texting while driving” the librarian offers three different perspectives: a legal perspective, a parental perspective, and the perspectives of auto and cell phone manufacturers. This demonstrates how students may consider a topic in a holistic way that avoids pro/con, yes/no, or good/bad binaries and posits the types of search terms needed to retrieve different types of information related to the topic. Returning to the worksheet, the second activity asks students to consider their research topics and fill in at least three perspectives or stakeholders. Next to each perspective, students fill in keywords that they think will help them find more information about that perspective. This process reinforces the iterative nature of searching and requires students to think critically about the “big picture” issues related to their topics. In addition, this module encourages students to arrive at their library instruction session with keywords that relate to several perspectives of their topic rather than one or two keywords and a list of synonyms – or nothing at all.

In-Class Modules

Although discussions of the flipped classroom strategy tend to focus on out-of-class activities, the advantage we prize is the ability to make classroom instruction more relevant by engaging topics in greater detail. Once students arrive to class, librarians divide the session into three activities: discussion of the nature of academic research and how the library meets students' research needs, explanation of database design and demonstration of basic database manipulation, and time for students to begin researching with librarian and instructor help.

The instruction session begins with a discussion of academic research and library services aided by the use of conceptual imagery and clickers. Librarians run a slide show presentation (see Appendix B) that presents three questions to students: "What's in Google?", "What's in the Library?", and "What is Research?" For each question, students choose one of three images corresponding to popular conceptions. Answers are totaled and presented on screen. Next, librarians present opposing images and concepts that promote discussion (see Table 1 for an example). Librarians designed the presentation and discussion to focus on broad issues related to how we access information, how we approach academic research, and how academic libraries provide access and services to help students with research.

**Table 1: Sample Question and Discussion:
"What's in Google?"**

Image 1	Image 2	Discussion points
Busy wayfinder of questions (e.g. who? what? where? etc.)	Tip of iceberg sticking out of ocean – tiny compared to the enormous amount that's underwater.	Google may be our default for questions, but is there information that it's not good at finding?
Busy crowd of people	Screen shot from the movie <i>Dumb and Dumber</i>	Who provides the information you find online?
Neon sign in restaurant window reads "extremely fast delivery"	Coin slot for pay meter	Is all information retrieved by Google free and easily available?

After the clicker activity, librarians direct students to the library databases. Using a multisubject database such as Wilson's OmniFile Full Text Mega Edition or Gale's Academic OneFile, librarians demonstrate general database design and common functions found in most library databases. First, librarians enter a sample search and explain how to combine terms using the advanced search function; typically this involves terms volunteered from students' worksheets. Next, using the search results, librarians discuss how the results screen displays information, as well as common ways to filter results by date, subject, and source type. Librarians then select an individual article in order to show students how the database presents article-level information including bibliographic information, abstract, and related subject terms as well as how to find full text.

After demonstrating how to search, refine results, and get a full-text article, librarians direct students to another multi-subject database with a different interface and repeat the process with students leading the way. This activity addresses faculty concerns of retention and deeper understanding by providing repetition for students, allowing students to apply their pre-class work, and by demonstrating shared commonalities rather than disparate details.

The final portion of the instruction session involves active searching. By now, students have thought critically about their research topic, generated a variety of keywords, discussed how academic libraries provide information different from Internet search engines, and learned and applied basic search mechanics in two library databases. Librarians and instructors monitor classroom activity and provide help as needed. Most students search successfully and leave class with articles to review for their assignments. If they have trouble generating keywords or manipulating library databases, librarians are available to help on the spot. Some students realize they need to revise their research topic and can work with their instructors.

OUTCOMES

Our instruction redesign addressed these goals:

- Help students arrive at library instruction better prepared, with a well-considered research question, an examination of perspectives, and better search terms.
- Provide increased theoretical and conceptual content.
- Help students internalize and learn concepts at a deeper level.
- Provide more individual search time for students to put concepts into practice.

Students benefited from multiple exposures to instructional concepts (via video and in person) and arrived to class with a head start on their research question, perspectives and search strategies. This flipped classroom approach also provided the extra in-class time needed to provide more intellectual and conceptual content and more independent search time. In addition, videos produced for the pre-class module contribute to an ongoing archive, and are available for review or for students who missed the instruction session.

To determine whether the flipped classroom was effective, students were given a pre-test approximately one week before their library session as a part of the pre-class module. Students were tested again approximately three weeks after visiting the library (Table 2). Each test was a 14-question SurveyMonkey questionnaire with four demographic questions, one four-part Likert scale question focusing on student confidence about basic research skills, eight multiple choice questions covering basic research skills, and one open-ended question seeking student opinions about library research. Each test was designed to take no more than 20 minutes. Overall, students reported a 31% increase in confidence using library

databases, and a 16% increase in confidence evaluating websites. Increased student confidence in finding books and getting help from librarians was not statistically significant, however, on average, these tasks were rated “easy” on both the pre-test and post-test. Students also showed significant improvement in the ability to choose appropriate keywords and the ability to use the library’s full text link resolver, and moderate improvement in all other areas. Given the lack of longitudinal data, it is impossible to determine how the flipped classroom compares to a traditional classroom, however, the data does show that the flipped classroom is capable of yielding improvement and thus is a viable option.

Though longitudinal data is currently unavailable, more qualitative reactions indicate that the flipped model is worth continuing. Composition faculty were pleased with this flipped classroom approach and felt that the videos helped students visualize the process while the worksheet was very helpful in getting the whole research process started. Library instructors have observed both Composition faculty and students using the pre-class module for other courses and assignments.

Library instructors liked the modularity and potential for short videos to be repackaged for other courses and needs. We felt that the pre-class module helped us jumpstart the research conversation in class. By the time they arrived for class, students had already been working with their research question and had a context for their library session.

CONCLUSIONS

The flipped classroom is a viable and valuable method of library instructional design. When students begin library instruction in a pre-class module, they arrive for a face-to-face class already engaged with the research process. The flipped classroom model opens space in the classroom for discussion and active learning. It provides greater modularity and flexibility, and it fosters multiple points of contact with students. We have definitely added the flipped classroom model to our playlist.

REFERENCES

- Bergmann, J., Overmyer, J., & Willie, B. (2013). The flipped class: what it is and what it is not. Retrieved from <http://www.thedailyriff.com/articles/the-flipped-class-conversation-689.php>
- Bergmann, J., & Sams, A. (2012). *Flip your classroom : Reach every student in every class every day*. Eugene, OR.; Alexandria, Va.: International Society for Technology in Education ; ASCD.
- Berrett, D. (2012). How ‘flipping’ the classroom can improve the traditional lecture. *The Chronicle of Higher Education*, 58(25).
- Brunsell, E., & Horejsi, M. (2013a). A flipped classroom in action. *The Science Teacher*, 80(2), 8.
- Brunsell, E., & Horejsi, M. (2013b). Flipping your classroom in one "take". *Science Teacher*, 80(3), 8.
- Bull, G., Ferster, B., & Kjellstrom, W. (2012). Inventing the flipped classroom. *Learning & Leading with Technology*, 40(1), 10-11.
- Durley, C. (2012). Biology teacher's flipped classroom: 'A simple thing, but it's so powerful.'. *Education Canada*, 52(5), 13.
- Fulton, K. (2012). Upside down and inside out: Flip your classroom to improve student learning. *Learning & Leading with Technology*, 39(8), 12-17.
- Goodwin, B., & Miller, K. (2013). Evidence on flipped classrooms is still coming in. *Educational Leadership*, 70(6), 78-80.
- Gullen, K., & Zimmerman, H. (2013). Saving time with technology. *Educational Leadership*, 70(6), 63-66.
- Hertz, M. B. (2012, July 10). The flipped classroom: Pro and con. [Blog]. Retrieved from <http://www.edutopia.org/blog/flipped-classroom-pro-and-con-mary-beth-hertz>
- Kutz, B. S. (2011). "Gun control" is not a research question. Paper presented at the LOEX Annual Conference 2011: Fiesta de Excelencia: Celebrating Excellence in Library Instruction, Fort Worth, TX.
- Ladner, B., Beagle, D., Steele, J. R., & Steele, L. (2004). Rethinking online instruction. *Reference & User Services Quarterly*, 43(4), 329-337.
- McNulty, R. (2013). Old flames and new beacons: The luminosity of online learning. *Techniques: Connecting Education & Careers*, 88(1), 40-43.

Sams, A., & Bergmann, J. (2013). Flip your students' learning. *Educational Leadership*, 70(6), 16-20.

Tucker, B. (2012). The flipped classroom: Online instruction at home frees class time for learning. *Education Next*, 12(1), 82-83.

Valenza, J. K. (2012). The flipping librarian. *Teacher Librarian*, 40(2), 22-23.

Table 2: Pre- and Post-Class ENGL1010 Test Questions and Results

Pre-Class Survey: n=900

Post-Class Survey: n=136

	PRETEST AVG	POSTTEST AVG	% IMPROVEMENT AFTER LIBRARY INSTRUCTION
(Questions 1. – 4. established basic demographic information and are not included.)			
5. How easy do you find the following tasks? *			
a) Find a book in the library	2.78	2.83	2%
b) Download an article from a library database	2.66	3.48	31%
c) Determine if a website is trustworthy	2.80	3.26	16%
d) Get help from a librarian	3.54	3.74	6%
6. Picking keywords	41.1%	54.5%	33%
7. Changing search strategy	38.3%	45.5%	19%
8. Def. of 'peer-reviewed'	53.2%	60.3%	13%
9. Analyzing search results: How many articles?	47.7%	55.5%	16%
10. Analyzing search results: Filter by format	38.6%	48.7%	26%
11. Analyzing search results: Sorting	66.4%	68.1%	3%
12. Analyzing search results: GetIt @ UTC	26.1%	70.9%	172%
13. Subject headings	64.5%	65.8%	2%
* Scored on a scale from 1-4: 1=really hard, 2=kind of hard, 3=kind of easy, 4=really easy			

APPENDIX A

PRE-CLASS ENGL 1010 WORKSHEET



ENGL 1010 LIBRARY WORKSHEET

PT 1— SEARCH TERMS

1. Google your topic a few times, using different keywords.
2. Under “Terms” (see right) enter the words you used to search .
3. Under “Results” describe the first page of search results (ignore paid or sponsored results).

TERMS

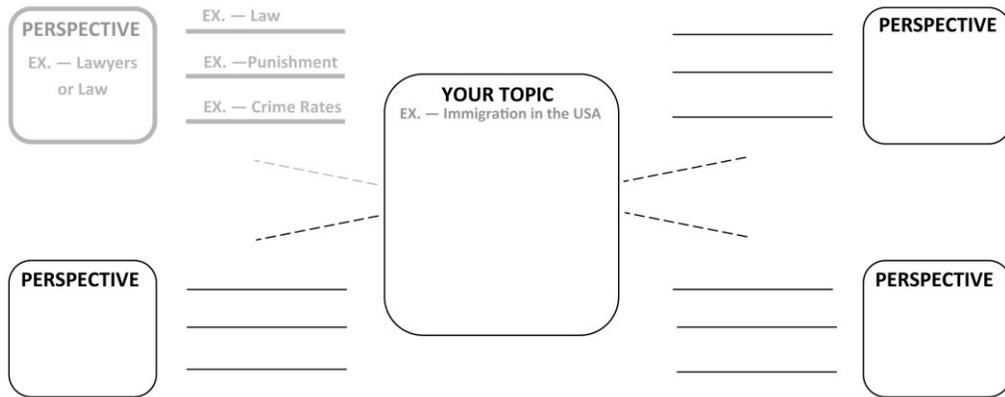
- EX. — Immigration
-
-
-

RESULTS

- EX. — U.S. government websites; news about immigration issues; Wikipedia; lawyer’s website
-
-
-

PT 2— CONCEPT MAP

1. Write your topic in the middle.
2. Brainstorm different perspectives on your topic and write them in the smaller boxes.
3. In the lines next to the smaller boxes, write search terms you would use to find more info on each Perspective.



PT 3— MORE SEARCH TERMS

1. Using your new search terms, Google your topic again.
2. Describe these new results.

REVISED TERMS

-
-
-

NEW RESULTS

-
-
-

INSTRUCTOR:

EMAIL: ask-a-librarian@utc.edu

CALL: 423-425-4510

IM: utcref

APPENDIX B

CONCEPTUAL IMAGES USED IN CLICKER ACTIVITY

