May 19th, 3:00 PM - 4:00 PM

Engaging Learners Through Self-Guided Tutorials: Flipped Information Literacy Instruction at Bryn Mawr College

Olivia Castello
Bryn Mawr College, ocastello@brynmawr.edu

Alex Pfundt
Bryn Mawr College, apfundt@brynmawr.edu

Engaging Learners Through Self-Guided Tutorials:
Flipped information literacy instruction at Bryn Mawr College

Olivia Castello and Alex Pfundt, Library & Information Technology Services, Bryn Mawr College

BRYN MAWR COLLEGE

Project Summary

From 2014-2016, Library & Information Technology Services (LITS) staff members received Mellon Curricular Development funding for "Flipping the Library Classroom at Bryn Mawr College." The goal of the project has been to improve information literacy (IL) instruction for Bryn Mawr students by exploring a pedagogical technique that has elsewhere been shown to enhance IL learning through in-class librarian instruction sessions (Arnold-Garza, 2014; Holderied 2011; Ross & Furno, 2011). We created interactive, self-guided online tutorials, using Articulate Storyline e-Learning Software, that teach basic IL skills. We made the tutorials publicly available online and also partnered with faculty members to explore a flipped model for IL instruction. An assessment study of our online tutorials and in-class instruction has shown the model to be effective at promoting student learning. As a result, the "flipped" IL instruction format, which began as a pilot project, is becoming regular practice for the Research & Instructional Services (R&IS) librarians at Bryn Mawr.
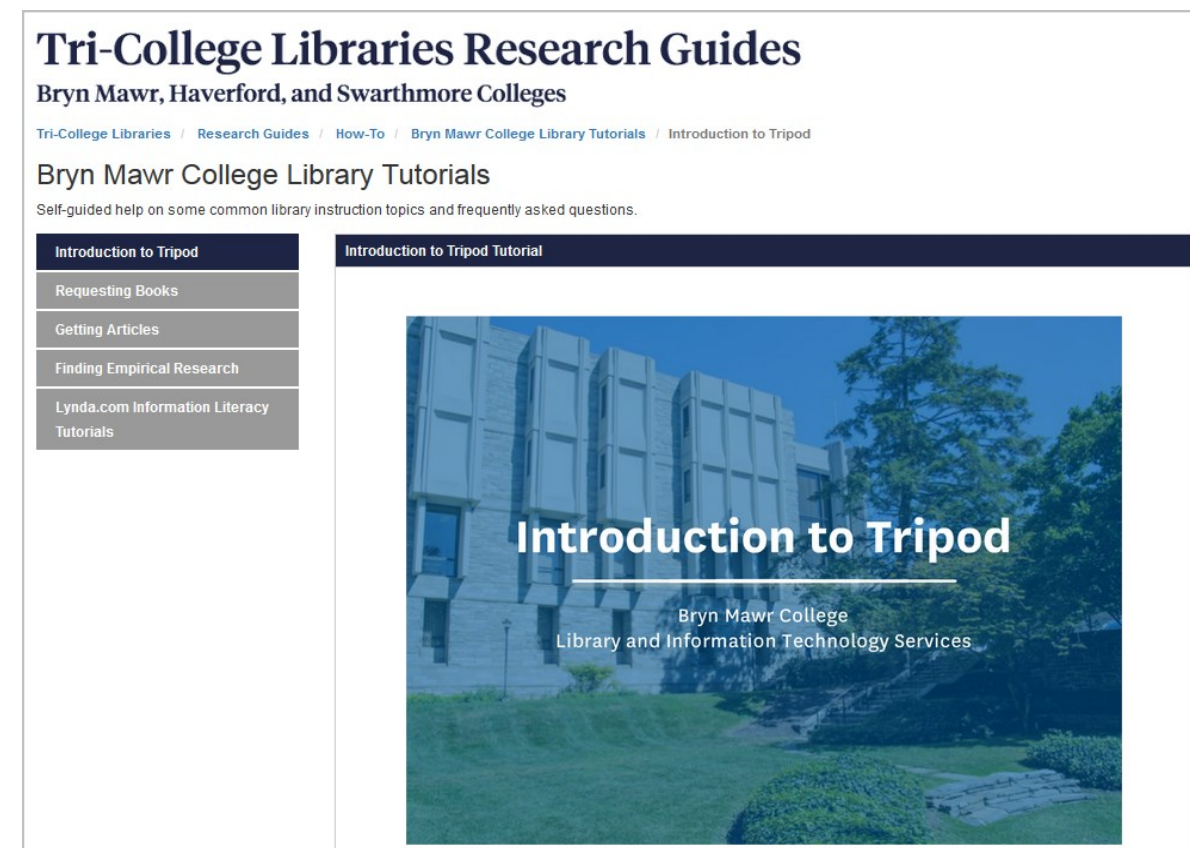
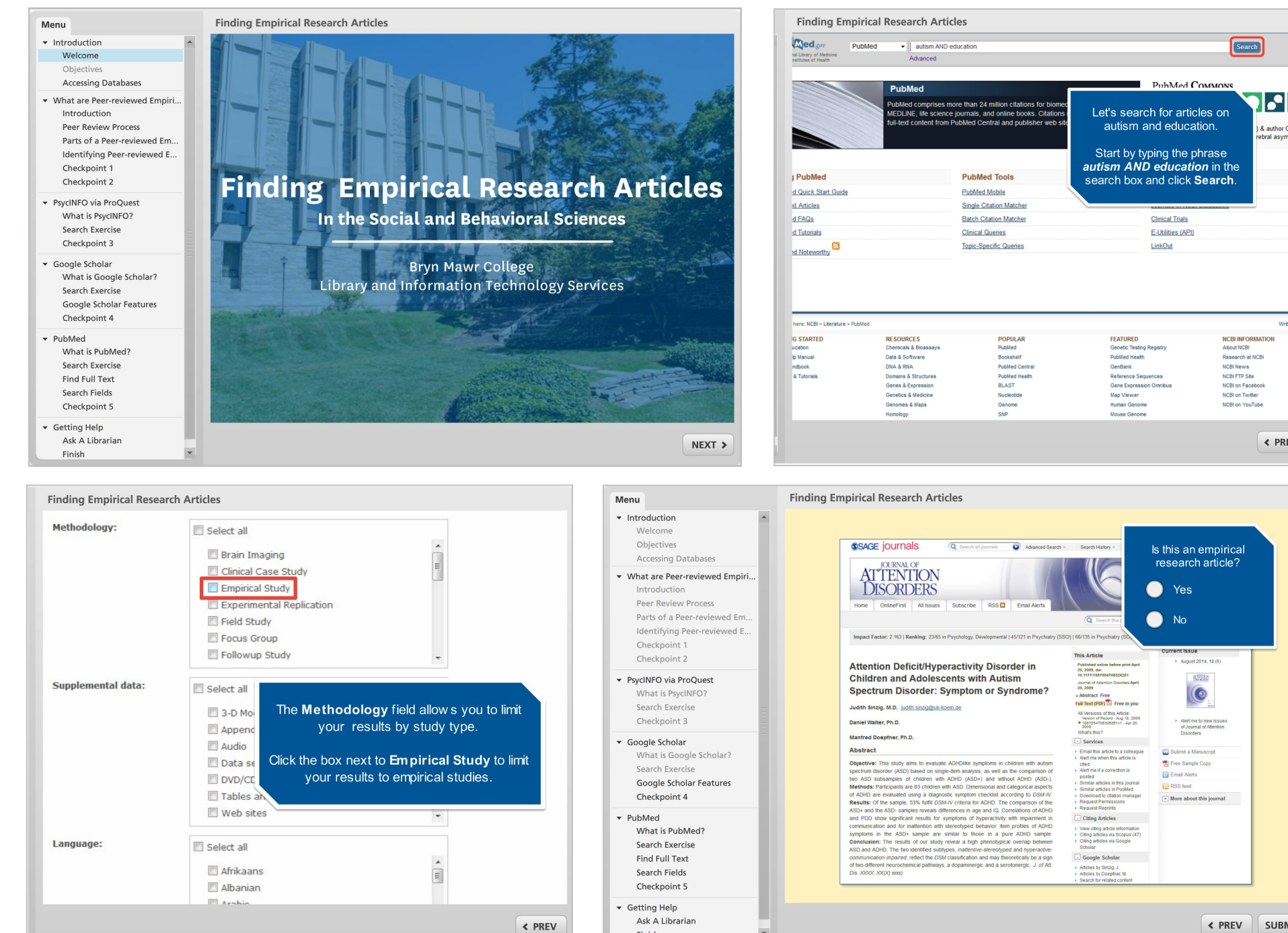Figure 1. Our tutorials are available at http://libguides.brynmawr.edu/bmclibrary-tutorials

Figure 2. Screenshots from our Finding Empirical Research tutorial; Clockwise from top-left: title screen, a simulated PubMed search with text entry, simulated PsycINFO search filtering using hotspots, a checkpoint screen that tests for understanding

Tutorial Adoption and Publicity

We have publicized the tutorials to faculty members via e-mail and advertised them to students as part of our preparation for upcoming in-class instruction sessions. Several faculty at Bryn Mawr, in addition to our assessment partners, have incorporated the tutorials into their classes (Table 1).

Usage data for the publicly available tutorials indicates that this academic year (Sep 2015-May 2016):

- The tutorials have been launched in 96 unique browser sessions.
- Users' average time spent on a tutorial was just over 11 minutes.
- 94% of users viewed the Flash versions of tutorials (6% viewed the HTML5 versions).
- 70% of users were directly referred to the tutorial (probably from a link emailed to them); the remaining 30% of referrals came from the Research Guide, one of the Tri-College library websites, Google, or Bryn Mawr LITS' Ask a Librarian system.
- "Tutorials" is the one of the top search terms (#13) in our Research Guides system.

Course	Usage
ENGL 126 Workshop for Multilingual Writers	Required via Moodle
ENGL 127 Advanced Workshop for Multilingual Writers	Required via Moodle
PSYC 203 Educational Psychology	Assessment study
PSYC 231 Health Psychology	Assessment study
PSYC 284 Health Psychology Lab	Optional via Moodle
PSYC 289 Clinical Psychology Lab	Optional via website
PSYC 354 Asian American Psychology	Required via Moodle
SOWK 503 Research Informed Practice	Assessment study

Table 1. Assessment study partners and courses that used the tutorials in 2015-2016

Developing the Tutorials

We created four tutorials: *Introduction to Tripod, Requesting Books, Finding Articles, and Finding Empirical Research*. Topics covered by the tutorials include how to search Tripod, the Tri-College Libraries catalog, how to obtain materials from EZ-Borrow and InterLibrary Loan, and how to develop effective searches in PsycINFO, PubMed, and Google Scholar.

Figure 3. Tutorial screen simulating Google Scholar search

Each tutorial takes between 5-10 minutes to complete and is driven by user interactions to navigate the tutorial screens (Figure 2). Interaction techniques that we employ include simulated online searching and navigation (Figure 3), clickable hotspot screens (Figure 4), and "checkpoint" question screens with answer feedback (Figure 5). Our tutorials are deployed on two platforms. Any tutorial can be embedded as a SCORM package in Moodle. This allows tracking of student engagement with the tutorial and makes it possible to link tutorials to the Moodle gradebook. We have also made the tutorials publicly available online (Figure 1).
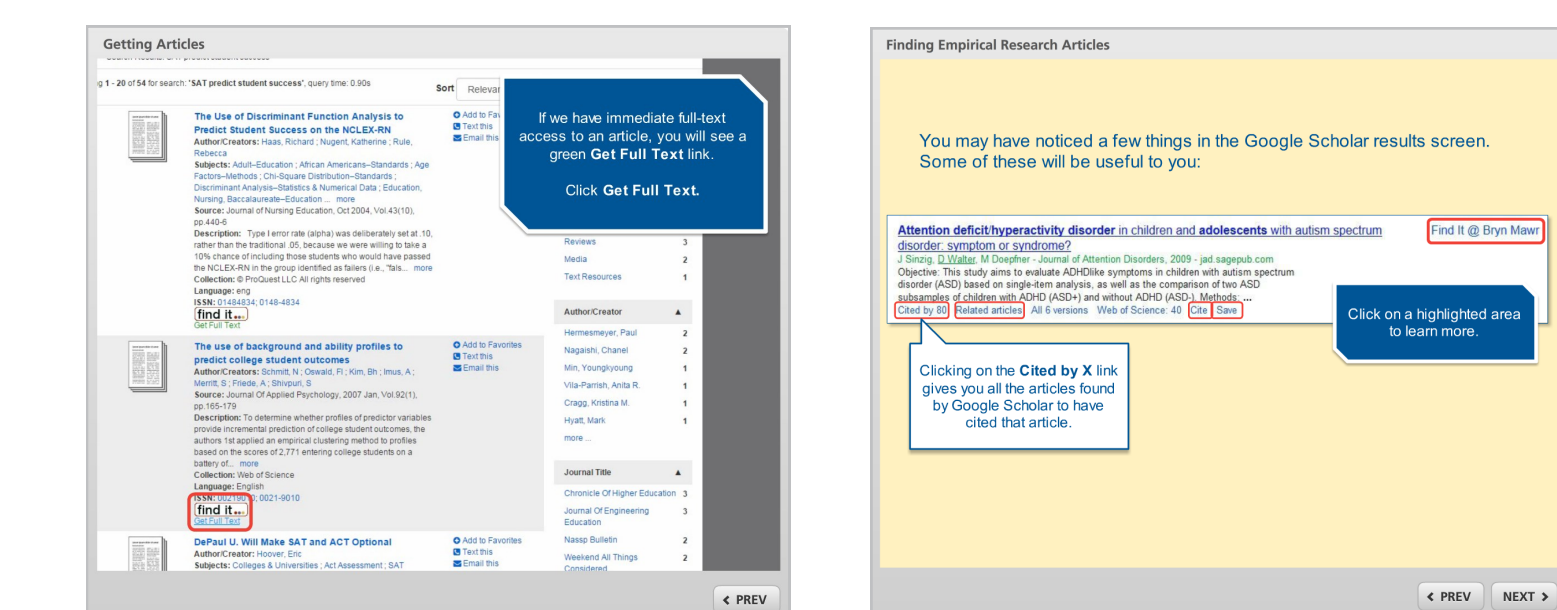
Figure 4. Two different types tutorial screens featuring clickable "hotspots"

After the initial tutorial development, we conducted brief User Experience (UX) that resulted in numerous small modifications, including: moving to a higher contrast color scheme, re-wording some checkpoint screens, splitting one longer tutorial into two shorter ones, creating HTML5 versions of the tutorials, and making other aesthetic changes. Our hope is that students will find it useful to be able to complete the tutorials at their own pace, on their own schedule, and as many times as needed to feel confident about the material.

Figure 5. A tutorial "checkpoint" screen with answer feedback

Redesigning Instruction

Asking students to complete the tutorials in advance of our in-class sessions has allowed us to maximize the in-person class time for brief, one-shot instruction. The R&IS librarians use different active learning techniques tailored for particular classes. Since establishing the tutorials as a resource for flipping portions of the basic instruction, we have been able to take more time to experiment with game-based, peer-learning, group discussion, and other interactive pedagogical techniques.

Figure 6. One-shot IL instruction at Bryn Mawr College

2014-2016 Assessment Study

We conducted an assessment study of our flipped instruction model over two academic years, in partnership with three classes in the Department of Psychology and Graduate School of Social Work and Social Research (Castello & Pfundt 2016). The study had three components (Figure 7):

Tutorials: Participants were asked to complete several tutorials in advance of class and we gathered Moodle data on their tutorial activity.

In-class session: Participants experienced an interactive, in-person instruction session led by a librarian where they got to practice their IL skills and ask questions.

Figure 7. Moodle screenshot of the three study components

IL quizzes: Participants were asked to complete IL quizzes composed of questions based on the ARCL Information Literacy Competency Standards for Higher Education (Figure 8).

The data we collected revealed interesting, statistically significant patterns:

Figure 8. Info literacy quiz questions based on ACRL standards

- In 2014-2015, students who completed all tutorials tended to score higher on an IL quiz than those who did not engage with any tutorials.
- In 2015-2016, students IL quiz scores improved, relative to their pre-tutorial baseline scores, after they experienced the tutorials and in-class instruction session.
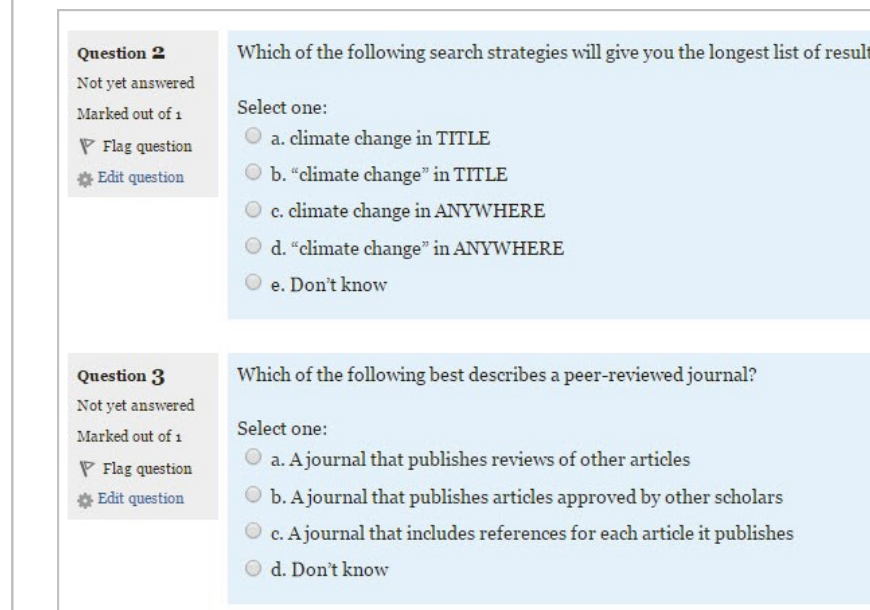
While we cannot be absolutely certain observed patterns were caused exclusively by the tutorials and in-class instruction, the results suggest that our flipped instruction model has a learning benefit for at least some students.

Future Directions

The goal of the Flipping the Library Classroom project has been to explore a pedagogical technique with the potential to improve student learning and IL skills, particularly those taught through in-class, librarian-led instruction sessions. We have had a positive experience developing and deploying the new online tutorials, and two years of assessment data has indicated that our model of flipped IL instruction has a learning benefit for Bryn Mawr students. Our project has also pointed to new directions for our outreach and teaching:

- Exploring accessibility improvements in Articulate Storyline version 2.
- Adding screencast how-to videos, as well as third-party IL modules and how-to documentation to our menu of IL resources where appropriate.
- Continuing periodic UX testing of our tutorials.
- Publicizing successful faculty tutorial usage and partnerships.
- Framing tutorials as an IL resource for courses, whether or not they involve librarian-led instruction.

Selected References

Arnold-Garza, S. (2014). The flipped classroom: Assessing an innovative teaching model for effective and engaging library instruction. *College & Research Libraries News, 75*(1), 10–13. http://crln.acrl.org/content/75/1/10.full

Castello, O. G., & Pfundt, A. (2016, May). *Flipping the library classroom at Bryn Mawr pilot project: Internal report.* Bryn Mawr College LITS. Unpublished report.

Holderied, A. C. (2011). Instructional design for the active: Employing interactive technologies and active learning exercises to enhance library instruction. *Journal of Information Literacy, 5*(1), 23–32. doi:10.11645/5.1.1519

Ross, A., & Furno, C. (2011). Active learning in the library instruction environment: An exploratory study. *Portal: Libraries and the Academy, 11*(4), 953–970. doi:10.1353/pla.2011.0039