GEARING UP: USING TECHNOLOGY TO REINVIGORATE INSTRUCTION

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INTRODUCTION

Constructivism calls for student construction of knowledge and meaning through the interaction of experience and ideas. Information literacy sessions provide an ideal format for incorporating a constructivist approach to course design. Constructivism allows for easily accommodating various learning styles while also designing a session that incorporates teaching to learning outcomes, as suggested by the Framework for Information Literacy for Higher Education. This paper will discuss incorporating the Framework while also addressing how technology impacts both outcomes and assessment.

OVERVIEW

Constructivism in a Nutshell

Constructivism has been a topic for educational and philosophical inquiry for some time, and has been influenced by the work of Jean Piaget, Maria Montessori, John Dewey, and Jean Jacques Rousseau, among others. Cunningham and Duffy (1996) identify similarities between many constructivist theories as “1) Learning is an active process of constructing rather than acquiring knowledge, and 2) Instruction is a process of supporting that construction rather than communicating knowledge” (p. 171). In a nutshell, constructivism may be described as the idea that learning is doing (Bobish, 2011).

A constructivist classroom provides a student-centered learning environment where learners construct their own understanding and knowledge, both individually and socially, through active learning. Constructivism may be conceptualized as the inverse of the traditional, top-down transmission of knowledge from expert to novice (Deodato, 2014). Within a library setting, constructivism calls for instructors to reframe both their approach to presenting content, but also the student competencies they anticipate developing. Integrating constructivism into library sessions requires flexibility, good/strong learning outcomes, and accommodation.

Framework for Information Literacy for Higher Education

The activities presented below deal specifically with an introduction to the library for first year students. Although these don’t delve deeply into information literacy knowledge practices outlined in the ARCL Framework, the activities provide an essential entry to discussion and understanding of information literacy concepts and dispositions.

One focus for classes with first year students is to welcome students as scholars. Our undergraduate instruction emphasizes that lack of a degree does not prevent one from asking new, interesting, and thoughtful questions as a scholar within a discipline. We believe that it is our role to help students develop their own authority through their undergraduate research. In doing so, we work to infuse our classes and activities with the values represented in the ACRL Framework. Our introductory classes specifically address three frames: 1) Authority is Constructed and Contextual, 2) Scholarship as a Conversation, and 3) Searching as Strategic Exploration (Association of College & Research Libraries, 2016).

We use these classes to establish and advance the concept of student voices contributing to their chosen discipline, which requires developing an understanding of the library as a first step to that end (Authority is Constructed). We give students the opportunity to learn and develop knowledge through the community of their classmates, while highlighting that valuable contributions and breakthroughs can be made even if such models are sometimes imperfect (Scholarship as Conversation). More importantly, we push for creativity, give students room to fail, encourage taking advantage of librarian support, all while experiencing the thrill of discovering the library’s secrets on their own (Searching as Strategic Exploration).
Example Instruction Request

Most outcomes requested for first year library classes involve orienting students to the library. Although our preference is to link instruction to an assignment, many introductory courses don’t include a research component. Most orientation requests are for College Advising (COLA) courses— one-credit topic-focused courses which include ongoing academic advisement from the faculty instructor. Another orientation is built into Science, Technology, and Society (STS) 1500 courses in the School of Engineering and Applied Sciences, where an embedded library program includes an online orientation, a face-to-face orientation, and a research-focused class.

Typically, the students in these classes receive a straightforward tour which concludes with an exercise sending students into the stacks to retrieve a book. We’ve felt satisfied with these sessions, and have received positive assessment and feedback from students and faculty. However, we’ve often noticed students silently attending but not engaging until returning from the stacks exercise. After experiencing the library on their own terms, they are enthusiastic, animated, and suddenly brimming with questions unvoiced only minutes before. Embracing the core concept of constructivism—learning is doing—we set out to integrate hands-on activities that would support our pedagogical approach and improve student learning.

PUTTING IT ALL TOGETHER

Prezi

Prezi, a cloud-based presentation software, is used as a replacement for the traditional slide-based Microsoft PowerPoint. Prezi is a great tool for visual storytelling as it allows for information to be represented by images in a nonlinear fashion. For an introduction to the library and its resources, Prezi provides an engaging visual representation of physical spaces. We use Prezi to replace a walking tour of three libraries.

Example Prezi: http://prezi.com/py1x6nywtnkv/?utm_campaign=share&utm_medium=copy&rc=ex0share

Our traditional session provides a constructivist approach—we walk first year students into three library spaces. Students construct knowledge as they interact with spaces and explore services and resources. A walking tour of the library is engaging and effective during the beginning of fall semester, however it becomes less effective as the library gets busier and as new students become more self-conscious of being identified as outsiders/newcomers. Students have reported that the tour singles them out as new students, and we witnessed first year students disengaging when surrounded by upperclassman.

Using Prezi to explore the same spaces and resources allows students to experience new spaces without causing them discomfort or embarrassment. This approach also still allows us to identify preconceptions, and then guide discussion in order to explore those areas. Relying on a visual representation of space offers students a way to explore the library and its resources without feeling singled out. Consequently, students may be more inclined to engage with fellow students and the instructor.

Informal assessment techniques are recommended when using Prezi to replace a traditional tour. Instructors use formative assessment techniques to determine pre-existing knowledge and conceptions. This takes two forms—instructors may ask students to name a library space where a specific activity may occur (e.g., If you wanted to render a digital image into a printable 3-D model, where would you go?) then display a visual representation of that space; or instructors may display an image of a space and ask how the space could be used (e.g., What are five things you know about the digital media lab?).

Although Prezi offers an alternative to traditional PowerPoint slides, information must still be structured and presented which may possibly prevent students from forming their own interpretation and meaning.

ThingLink

ThingLink is a tool designed to increase interactivity and engagement by embedding dynamic content—videos, images, sound recordings, links to social media and traditional media outlets—within a static image. As a platform for learning, ThingLink provides accommodation for various learning styles and point-of-need instruction. Students construct (or correct) knowledge by reading or watching, then applying on their own.

Example ThingLink: https://www.thinglink.com/scene/780161198271234048

Through ThingLink, students create their own knowledge of library tools and resources and it is intended to replace classroom instruction. We use ThingLink to replace instruction related to using and navigating catalog and databases interfaces. First year students are comfortable navigating web-based resources and have an innate sense of how to click through an interface to locate content. Instead of spending class time transferring our knowledge, ThingLink allows for mediated instruction that may occur in or outside of the classroom and helps to fill gaps in knowledge. We embed ThingLink scenes into our LibGuides, which allows students to construct their own knowledge and skills as they use and explore library resources.

Built in statistics are provided by ThingLink, including the number of views, clicks, and time spent on each scene, as well as the number of views, clicks, and hovers for each tag. When embedded in LibGuide, guide metrics can also be used to determine usage. Because ThingLink is used to supplement or replace classroom instruction, assessing student learning also relies on methods that occur outside of the classroom.
ThingLink includes several drawbacks. The platform is offered on a freemium model—the free level includes fluctuating levels of access to available features. Because it is a commercial tool used primarily for sales and advertisement, it may be too easy to access distracting commercial materials. Additionally, use of ThingLink requires a bit of a learning curve and time investment, including, but not limited to: 1) creating and manipulating images, 2) creating, editing, and uploading video content, and 3) regular maintenance of images, text, and video.

ThingLink improves a traditional approach to library instruction by removing the point-and-click method of demonstrating tools and resources. Instead of spending class time training students on how to use different interfaces, an instructor can provide students with ThingLinks created to help them at their point-of-need. Students enter a library classroom with varying levels of comfort and knowledge regarding library tools and resources; ThingLink allows students to develop skills and knowledge at their own pace. As a tool, ThingLink supplements a constructivist approach by allowing students to build knowledge in and outside the library classroom.

TypeForm

TypeForm is online software used to create dynamic forms for collecting information from users. The software is easy to use, and includes many features intended to increase response rates by keeping users engaged through the use of a variety of types of questions as well as the addition of images and video.

In many online orientations, the survey platform limits the format. Students are expected to either demonstrate knowledge based on predetermined expectations or to immediately reiterate what they have read only minutes before. In avoiding that approach and instead using TypeForm as an introduction to the library, students experience a fun and lighter alternative introduction to the library.

Example of survey available at: [https://maggienunley.typeform.com/to/w0xeQC](https://maggienunley.typeform.com/to/w0xeQC)

Traditionally, all first year engineering students are required to attend face-to-face orientations held outside of class time. TypeForm can be used to supplement orientations, helping to reduce the required workload. Students report that they find the UVa Library system incredibly daunting. As one student shared, “I’ve stepped foot inside a UVA library once and immediately left because it scared me.” Requiring students in their second week of studies to come to an unfamiliar library outside of class, join a random group of students, and spend 50 minutes with a librarian they’ve never met is a stressful request. Students now complete a TypeForm survey which supplements introduction to the library and, perhaps more importantly, the librarian.

The TypeForm platform, combined with friendly, approachable content assesses prior knowledge, builds familiarity, and shifts perceptions of the library from a serious academic space to one that is welcoming and friendly. The TypeForm’s focus is not on requiring students to demonstrate knowledge of the library, but to instead share their personal experience with libraries and librarians. As a result of the tone and choice of imagery, the TypeForm content begins to alter student expectations, while also collecting information that drives the content presented during in-person orientations.

Tracking use and results, and creating a report of responses is built into the platform, although text mining analysis is recommended. Long form responses provide the best insight into preexisting knowledge, and having a predetermined assessment plan of n-gram text analysis for larger groups is heavily encouraged. We found that students were surprisingly willing to share information about themselves and their previous experiences (both good and bad) and often wrote much longer responses than we anticipated. This resulted in a rich source of information about the first year student’s view and understanding of the library in a way that multiple choice would never be able to provide.

Padlet

Padlet is a multimedia, freeform wiki that allows anyone with the URL to add a variety of formatted content to a single space, simultaneously, and through any internet capable device (Padlet, 2016). As a platform, Padlet provides the ability to allow students to explore library spaces without direct faculty or librarian oversight. Padlet increases the constructivist nature of our sessions, while still providing methods for oversight and communication if students need support.

Example of Padlets:
- [http://padlet.com/mn3fa/Werewolf](http://padlet.com/mn3fa/Werewolf),
- [http://padlet.com/mn3fa/tommie](http://padlet.com/mn3fa/tommie),
- [http://padlet.com/mn3fa/Werewolf](http://padlet.com/mn3fa/Werewolf)

In order to replace librarian-mediated interactions with library spaces, specifically a walking tour, Padlet is used to both document student work, and to provide supervision and communication. For this activity, students are placed into teams and provided a series of clues guiding them through library spaces. The clues are tasks, requiring students to acquire new skills in order to locate items or locations. Resolved clues/tasks must be documented by posting photographs to the team Padlet. Students are encouraged to style the photographs and are offered a bonus for creativity, which was an element later added in response to student competitiveness.

This activity isn’t preceded by instruction. Instead of communicating knowledge, we support students as they construct their own. Students learn about spaces or skills (like finding a book in the catalog, then locating it in the stacks) by completing tasks. Students are expected to explore library spaces more organically, with the support of their peers, and without the limitations of a set tour format. Students proceed at their own pace, and they must figure out how to discover the library resources and acquire support for accomplishing tasks.
This activity takes a considerable amount of time to complete and we have found that it can consume an entire 75 minute class. The activity also hinges on student’s willingness to participate and engage with the activity. Having faculty buy-in and support is vital but, once students leave the room, we have little to no power over what they actually spend the class doing.

Informal assessment is required while using Padlet in the classroom, but both formative and summative assessment methods may be used. Sharing is facilitated by projecting and scrolling through portions of each team’s Padlet responses. While showing spaces they discovered, students are asked about the discovery process either by describing (e.g., “So where did you go to find the Declaration of Independence?”) or by demonstrating the process (e.g., “Can you show everyone how you found your book using the catalog?”). Using Padlet facilitates a constructivist approach, and supports formative assessment of student learning while simultaneously allowing the opportunity for summative assessment at the end of the activity.

CONCLUSION

We have found that technology has a solid pedagogical basis for thoughtfully engaging students in a constructivist library classroom. Use of the tools discussed above facilitates placing students in learning environments where social negotiation and shared responsibility drive knowledge construction. These tools require active participation and discussion from both students and instructor. An instructor cannot simply rely on the tool to provide the elements necessary for student-centered instruction; there is a responsibility to reframe and re-contextualize the content presented in a traditional session. Additionally, instructors must take responsibility for creating an environment in which students feel comfortable sharing pre-existing conceptions and constructing new knowledge together.

Our strong recommendation is to use only one tool at a time, or per session. Oversaturating a session with technology and/or tools does not facilitate constructivism. Tools need to be paired thoughtfully with carefully examined activities and strong learning outcomes. Using a tool should enhance student construction of knowledge, and should not simply replace traditional knowledge transmission from instructor to students. The level of constructivist engagement should be reflected in the choice of tool and the paired activity. Padlet allows for a social constructivist approach, while Prezi and ThingLink provide a more mediated but somewhat constructivist experience. Tools incorporated into a constructivist library classroom should allow an instructor to take on a new role—as students learn by doing, the instructor provides supervision, guidance, and focus. Pairing a tool and activity properly will make balancing one’s authority and knowledge with a hands-off approach much easier.

REFERENCES


