Flipping Library Information Literacy Sessions to Maximize Student Active Learning

Toward Articulating Effective Design and Implementation Principles

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Information literacy remains a topic of interest to *RUSQ* readers and library practitioners. Here, Ladislava Khailova looks at using a "flipped-classroom" model for teaching information literacy in academic libraries, offering some recommended practices for those interested in pursuing this model.—*Editor*

In comparison with the ACRL Standards,[1] the ACRL Framework has significantly radicalized the way information literacy is conceptualized and presented for application through instruction in higher education settings.[2] Influenced by critical theory,[3] the Framework repeatedly draws attention to the power dynamics of the information universe, making clear that information is inherently political and pointing out that while certain voices are perceived as more authoritative/privileged, other voices tend to be pushed to the margins.[4] Within that conceptual structure emphasis is on empowering the information literacy students by helping them understand these dynamics so that they can become active participants and leading agents in the information universe who simultaneously actively challenge the very system that privileges some at the expense of others.[5] Such reconceptualization of information literacy and the information-literate student calls for instruction librarians' adopting revised pedagogical models with theoretical underpinnings matching the desired result of student active, self-reflective engagement in the critical conversation. The flipped classroom teaching method, explicitly endorsed in the Framework's guidelines for faculty,[6] represents such a model.

The flipped classroom's focus on student-centered, engaged learning is reflected in its description, origin, and history of implementation. Defined as an inversion of the established lecture-followed-by-homework formula,[7] the flip asks for students to complete the lecture before a face-to-face class meeting by utilizing digital technologies, with the majority of the class time devoted to the practice of the material through carefully planned interactive activities.[8] Correspondingly, students are directly engaged in class as opposed to passively taking notes or listening to a lecturer.[9] As for its origin, the method is most frequently attributed to Jonathan Bergmann and Aaron Sams, two high school teachers who used recorded lectures in their 2006–7 chemistry classes to make more time available for hands-on lab work and to assist students who missed classes. With the innovative idea quickly gained prominence across education settings.[10] Librarians involved in information literacy instruction have not lagged behind on this educational

trend. The growing literature on the subject shows that the flip has been successfully applied to one-shot library instruction sessions as well as to semester-long undergraduate and graduate information literacy classes, with studies discussing the method's positive reception and promising learning outcomes as these directly relate to its active-learning based character.[11]

While the discussions of the method's use in library information literacy instruction sessions help the professional community understand the multiple benefits of the flip and outline possibilities for assessment, systematic, or detailed propositions regarding the method's most effective design and implementation principles in library settings are currently not available. Suggestions of this kind, when present, are often brief and limited to closing sections or scattered throughout the narrative and implied rather than stated.[12] Focusing on this gap, I attempt to outline a more coherent set of recommendations for the use of the flip in library sessions. Triggered by the challenges I experienced when teaching a one-credit undergraduate blended information literacy course at Northern Illinois University Libraries, these recommendations are both research-review-based and practice-based.

INSTITUTIONAL BACKGROUND

Northern Illinois University, classified as a *Research University with a high level of research activity* by the Carnegie Foundation for the Advancement of Teaching, currently enrolls 20,130 students. Its Libraries have established a solid cooperative relationship with the teaching colleges, delivering curriculum-related information literacy instruction to them. Until recently, these instructional efforts occurred primarily through one-shot sessions. This situation changed in the fall of 2012 with the launch of a one-credit ACRL Standards-based undergraduate pass/fail course titled Introduction to Library and Information Research (UNIV 105).[13] Staffed by the Libraries' Reference and Research department faculty, UNIV 105 originally consisted of twelve seventy-five-minute face-to-face weekly meetings. In efforts to increase enrollment, the Libraries' Administration approached me in the fall of 2013 with the request to offer the course in a blended format instead, with the weekly face-to-face instruction shortened to fifty minutes and followed by twenty-five minutes of asynchronous learning online. Turning to scholarship for viable models of such relatively unusual online/face-to-face weekly ratio, I became intrigued by the flipped classroom method: its focus on student active engagement also seemed to address colleagues' warning that the class often entailed low levels of student participation. Based on the method's rationale, I proposed a plan of preceding (instead of following) the weekly face-to-face sessions with e-lecture materials, and, on approval, first offered the flipped UNIV 105 in the spring of 2014.

TOWARD RECOMMENDED PRACTICES FOR IMPLEMENTING THE FLIP IN LIBRARY INFORMATION LITERACY CLASSES

My experience with the flipped UNIV 105 class prompted me to draft seven practical, easy-to-follow suggestions for librarians wishing to implement the model as well. They arose organically from my attempts to find research-review-based and practice-based solutions for the challenges I encountered and found mirrored in professional literature. Where available, the recommendations are linked to received student feedback (both solicited and unsolicited) regarding the flip. The small class size of five contributed to the level of comfort with which students communicated their views and allowed time for all to be heard. Presented in detail below, the suggested practices focus on securing student and faculty buy-in, the development and/or locating of high-quality digital learning objects, the instructor's changing role in the flipped method, designing feedback mechanism(s) for pre- and in-class work, valuing equally the pre- and in-class components of instruction, fostering a sense of a learning community, and assessing the level of instructional success.

Recommended Practice 1: Securing Student and Faculty Buy-In

The first recommendation revolves around the possibility of initial student and teaching faculty resentment to the method's implementation in information literacy library sessions. According to Educause Learning Initiative, some students may feel that their tuition dollars are not wisely spent if they are assigned e-lectures potentially available to anyone. They may also not fully understand the value of the hands-on, workshop-like portion of the flipped class and not show up for it.[14] Along the same lines, in one-shot and embedded classes, teaching faculty may not always fully cooperate with the librarians' efforts to flip the information literacy sessions, especially if the librarian had previously implemented a more traditional paradigm of instructional content delivery. After all, the logistics of assigning the pre-class work to one-shot and embedded library sessions can be complicated. As Datig and Ruswick observe, while the teaching faculty they interacted with provided positive feedback on the flipped library sessions overall, it was difficult to have them distribute the e-materials to students before class.[15]

Given these recognized challenges, instruction librarians need to secure participant buy-in for the flip. This goal is more likely to be accomplished if the librarian takes the time to explain the method's theoretical underpinnings and evidence-based benefits.[16] For example, in UNIV 105 I acquainted students with the rationale for the format of the class in the opening session of the semester, making sure they understood the logic behind them being repeatedly assigned to groups during the face-to-face meetings. In settings where the librarian does not have the administrative authority over the class, literature recommends similar

discussions with the teaching faculty. The librarian needs to secure enough buy-in from the teaching faculty to have them require their students to view the e-materials and/or complete the e-activities before the information literacy session, while helping select the most feasible method of the e-material delivery.[17] The extra effort and time such lobbying for the pedagogical model entails is likely to find its reward in a more receptive flipped session audience.

Recommended Practice 2: Offering High-Quality Digital Learning Objects While Utilizing Available E-Materials

Another documented challenge concerns the instruction librarian preparing digital learning objects for the pre-class portion of the flipped session. As multiple scholars mention, the process of screen casting, editing, adding sound, compiling, and updating the e-material often seems intimidating because of the initially large amount of time it requires.[18] Correspondingly, it seems wise for a librarian to first scan the online educational world for quality e-lectures that are already available. I was very fortunate in this regard: at the time of my flipping UNIV 105, two colleagues and a graduate student assistant were simultaneously converting the course into a fully online entity, creating mini-lectures on various aspects of information literacy in the process. In addition, an NIU Libraries' tutorials taskforce I participated in a few years before teaching UNIV 105 generated a series of Camtasia and Adobe Presenter tutorials targeting the most commonly asked library research-related questions, with sample topics including locating full text, selecting an article database, using subject headings, and utilizing the online catalog. Given these institutional efforts, many e-lectures I needed for UNIV 105 already existed. As Benjes-Small and Tucker point out, there is always also the opportunity for librarians to turn to reputable open source repositories of library instructional materials, such as PRIMO, a peer-reviewed instructional materials online database (primodb.org), or ANTS, an animated tutorial sharing project (www.screencast.com/users/ants).[19] YouTube (www.youtube.com) represents another excellent resource. Students in the flipped UNIV 105 did not seem to mind when the selected e-materials made occasional references to a non-NIU institution as long as the instructional content applied to their needs. Consequently, I only had to create a handful of online digital learning objects from scratch during the entire semester, utilizing primarily PowerPoint with embedded flash-based tutorials for that purpose.

Whether created from scratch or selected from existing resources, the online tutorials and lectures used in flipped classes should follow established guidelines for effective digital learning objects to maximize student learning outcomes. More specifically, it is preferable for the objects to be interactive and short, with longer lectures broken up into modules with a table of contents when needed.[20] They should also provide equal access to all learners.[21] In addition, I would recommend diversifying the types of objects used to avoid

learner fatigue, especially in semester-long flipped courses. Indeed, the UNIV 105 students mentioned around midterm that they were growing weary of the same narrative voice and organizational pattern being used across the lectures. To comply with their feedback, I began adding TED talks and e-lectures developed at other institutions to the mix. Should the instructional librarian face the necessity of having to single-handedly develop not a few, but most of the online lectures, it is important to remember that it is not required to flip all one-shots or all sessions in a given course at once. As Raths puts it, "start small."[22] There will most likely be another chance to implement the method on a wider scale later.

Recommended Practice 3: Accepting the Instructor's New In-Class Role of a Coach/Guide on the Side

Apart from creating or adopting varied and engaging digital learning objects, the instruction librarian should also be prepared to embrace his or her changing role in the classroom. The method's emphasis on active learning techniques requires the transformation of any potential sage on the stage into a guide on the side.[23] In other words, rather than attempting to control the flip's instructional narrative through lecturing, the librarian is to focus on crafting interactive exercises that prompt students to apply, evaluate, and build upon the concepts presented in the online lectures. During the actual face-to-face session, the librarian can then circulate through the classroom and observe, guide, and provide constructive feedback to students as needed.

Some may have difficulty with such seeming "relinquish[ing] [of] control and authority over the classroom."[24] Initially, I experienced that very feeling due to students taking the lead through peer activities. I was alarmed by how chaotic and noisy the classroom would suddenly become, with multiple students speaking at a given moment. However, through close observations, I realized that as long as the peer discussions stayed on task, the seeming disorganization was to be interpreted as productive. Students—especially the more introverted ones—were quick to discern the positives of such collaborative commotion as well. They repeatedly mentioned that the increased noise levels of the group setting made them feel less self-conscious, enabling them to share their views more freely. As a bonus, they never seemed to question my instructional competence based on me controlling the class less rigidly. In fact, the new role of a coach or guide is to contribute to a librarian's instructional confidence as it supports the *Framework*'s disposition of student active participation in the information universe more directly than the role of a sage, with its focus on knowledge transmission, ever could.[25]

Recommended Practice 4: Designing Incentives and Feedback Mechanism(s) for Pre-Class Work

While embracing his or her changing role in the flipped classroom environment contributes to the likelihood of an

instructional librarian's successful instructional delivery, designing appropriate incentives and feedback mechanisms is also of high importance. This rule applies especially to the pre-library component of instruction where students are asked to complete the assigned work independently. In the opening weeks of teaching the flipped UNIV 105 class, I relied primarily on student self-motivation in this area, assuming that since the digital learning objects were relatively short (not exceeding twenty minutes total), students would diligently engage with them. This practice worked for approximately the first two weeks of the semester. When informally polled in week 3 of the class, three out of the five enrolled students (60 percent) admitted they have stopped viewing all or some of the assigned learning objects upon realizing there were no explicit accountability measures in place. This choice obviously lowered their ability to participate fully in the designed group activities. Similar challenges are reported in professional literature. As Rivera mentions, "A concern about the flipped model is how one can be sure that students are watching the videos before class."[26] On a related note, Arnold-Garza cautions that some students may not want to complete work assigned outside of class.[27]

Fortunately, the issue can be resolved relatively easily by providing specific incentives for students to prepare for class. In one-shot or embedded library sessions, the instruction librarian may again need to solicit the assistance of the teaching faculty to complete this step. There are multiple options for developing built-in incentives or feedback mechanisms for assigned e-work. For instance, Kim et al., writing outside of the library instruction context, discuss the use of quizzes, mandatory annotations for viewed lectures, and graded e-discussions.[28] Bishop and Verleger confirm that instituting such measures as a required pre-class quiz on the online lecture content is "touted as a highly successful practice."[29] Indeed, once I troubleshot by assigning low-stake pop-quizzes and/or short Blackboard discussion forum responses to the e-material, student preparation rates increased substantially. For example, in week 4, 80 percent of students passed such a pop-quiz; in week 7, the number rose to 100 percent. The employed measures carried the important added benefit of helping me gather additional information on how well the students understood the e-lectures. In fact, especially as far as the discussion forums are concerned, I generally designed the prompts with the goal of learning which concepts they found particularly challenging—a practice endorsed by Johnson et al.[30] The value of developing meaningful incentives and feedback mechanisms for the pre-class portion of the flipped information literacy sessions is thus multifaceted.

Recommended Practice 5: Assigning Equal Importance to In-Class and Pre-Class Components of the Flipped Session

Given the level of commitment the pre-class component of the flipped class requires, with its time-consuming e-lectures and built-in incentive and feedback mechanism, it may be tempting for the instruction librarian to underestimate the significance of thoroughly preparing for the in-class meeting as well. As Raths mentions, focusing too much on the online lecture tends to be a "big misconception" of the flip.[31] The instructor's revised role of a coach/guide on the side can contribute to that misconception. Occasionally, after struggling considerably with developing an online lecture from scratch for the upcoming week, I thought of perhaps not spending as much time on designing the face-to-face session since I did not have to stand on the podium lecturing. However, as Bishop and Verleger remind us, for the flip to really work, the in-class activities cannot be underestimated and need to be carefully based on student-centered learning theories. In their words, "the pedagogical theory used to design the in-class experience may ultimately be the determining factor in the success (or failure) of the flipped classroom."[32] In addition, according to Kim et al., it is imperative to clearly link what is happening in class to what students viewed before class and to provide students with feedback on how they are doing.[33]

With these recommendations in mind, I designed the in-class exercises so that they would prompt the UNIV 105 students to directly and actively build on the digital lectures. For instance, students were asked to apply the information from a tutorial on the difference between keyword-based and subject headings–based searching to their group's topic search in Academic Search Complete. By listening to the group conversations, I would formatively assess students' progress and immediately provide feedback as needed. Each peer activity was also followed by a formal debriefing with the entire class, with the students and me commenting on the findings of the individual groups. The need to pay as close an attention to the design of the in-class component as to the pre-class component can initially make flipping seem like a daunting task. As I mentioned earlier, should an instruction librarian experience that feeling, it is probably better to flip on a smaller scale than to underplay the importance of either element.

Recommended Practice 6: Building a Strong Sense of a Learning Community

Since much of the in-class portion of the flipped information literacy sessions is structured around peer or group activities, librarians also need to help students build a supportive and balanced community that encourages them to learn effectively together. As Kim et al. document, working in groups seems to pose a challenge to many students, given the complexity of group dynamics, codependence regarding grades, and varied levels of participation. As they add, instructors thus need to be prepared to facilitate and guide student collaboration.[34] In the flipped UNIV 105 class, the challenges generally associated with group work were further intensified by two specific factors. First, the small class size of five students translated into the necessity to divide students into two groups only. Second, since three of the enrolled students

were close friends and displayed a strong preference for always forming a group together, they potentially shunned other classmates. To address these issues, I insisted on students varying the composition of their groups from week to week, using "icebreaker" activities throughout the semester to encourage their bonding with peers less familiar to them. In addition, I had the class collectively establish an unwritten protocol for ethical group work, including such guidelines as encouraging everyone to speak, respecting each other's opinion, and dividing work equally. In my role of a guide on the side, I then carefully monitored the independent group work for any breaches of the agreed-upon code of conduct, prompting students to remediate the situation as needed. By the semester's midterm, students appeared comfortable with one other, sharing opinions relatively freely. In one-shot and/or embedded sessions where the instruction librarian does not have the luxury of spending an extensive amount of time with the students to get to know them well, troubleshooting the potentially dysfunctional group dynamics may prove more challenging, but should still be attempted, perhaps with the help of the teaching faculty. The intellectual success of the flipped sessions depends on such interventions as it is largely connected to the students' bonding and collaborating well.

Recommended Practice 7: Assessing the Overall Level of Instructional Success

Last, but not least, it is advisable to assess the flipped information literacy session/class to determine what worked and what should be modified in the future. Multiple evaluative models, both quantitative and qualitative, are available for the instruction librarian to choose from. When flipping the UNIV 105, I used two formal assessment instruments: course evaluations and a rubric for a semester-long annotated bibliography assignment, designed in cooperation with the NIU Libraries' Reference and Research department. These instruments demonstrated that the flipped information literacy class was generally positively received and resulted in students possessing a Passing command of the material covered. More specifically, the course evaluation questions asking students to rate their satisfaction with the course and with me as the instructor on a Likert scale ranging from strongly agree to strongly disagree never dropped below the level of "mildly agree," except for a question asking if the class was assigned the right number of credit hours—two out of five students strongly disagreed. Likewise, the annotated bibliography rubric confirmed that, at the semester's end, all five students could locate enough diversified materials on their topic, cite them accurately (with minor errors), and evaluate them in terms of currency, authority, and relevance.

Unfortunately, since the formal assessment tools I used were designed for general departmental use before the UNIV 105 class being flipped, they did not relate to the method per se. In that regard I relied primarily on gathering spontaneous oral feedback from students throughout the semester, trying to determine what they perceived as contributing to their learning and what they saw as benefiting from revision in terms of the flip. Library scholarship provides multiple examples of formalizing such assessment of student perceptions as a factor in learning. Researchers report on successfully using satisfaction surveys, often distributed to students as well as to the teaching faculty when relevant, for that purpose.[35] Other studies move beyond the level of student and faculty satisfaction to quantitatively assess student performance as a direct result of the flip. For example, Brooks compares student learning outcomes of a flipped one-shot undergraduate information literacy session with those of a non-flipped session.[36] Rivera applies the same method of comparison to two versions (flipped and traditional) of a seven-week undergraduate Library Competency Workshop course.[37] As librarians continue to experiment with implementing the flip in their information literacy classes, the instruments for the method's assessment will undoubtedly further evolve. After all, as Arnold-Garza observes, the area of direct measurement of student learning outcomes in library instruction sessions is still in need of growth.[38]

LIMITATIONS

While the presented set of recommendations arose directly from my attempts to find solutions for the perceived and documented challenges I encountered while implementing the flip in a library information literacy course, a more systematic investigation is necessary to establish an authoritative set of best practices for the field. For instance, the offered recommendations present the opportunity for a follow-up research study analyzing the extent to which the librarians' acceptance or non-acceptance of their revised instructional role of a guide on the side possibly influences the instructional success of the flipped session(s). Furthermore, the small class size in the UNIV 105 flipped class limits the general applicability of the proposed recommendations. Replications on a wider scale are necessary.

CONCLUSION

As librarians continue to experiment with the flipped method as a pedagogical model that significantly departs from established practice by directly upholding the theoretical underpinnings of the new ACRL Framework,[39] they are likely to encounter challenges. The presented set of recommendations is intended to make such innovation easier, with specific attention given to securing student and teaching faculty buy-in, developing or adopting high-quality digital learning objects, embracing instructor new role of the guide on the side, valuing equally the pre- and in-class components of instruction, fostering a sense of a learning community, and assessing the level of instructional success of the flipped

session. Moving forward, further research is necessary to systematically test the provided recommendations and to articulate the finer differences in desired practices for applying the flip in one-shots, embedded sessions, and semester-long information literacy classes.

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