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Abstract

Many institutions overwhelm the first year seminar with "one-shot" library instruction sessions, which are not necessarily linked to any form of assignment or assessment. So how can librarians maintain information literacy instruction throughout a student's academic career? Data collected by the Rivier University librarians showcases the ability to implement information literacy more effectively by streamlining and leveling it out over a four-year period.

Keywords: library instruction, curricular planning, faculty-librarian collaboration, academic librarians, core curriculum, information literacy, undergraduate, university, assessment, higher education, student assignments, research skills, academic achievement, library science, first-year seminars

Going Beyond the One-Shot: Spiraling Information Literacy Across Four Years

Rivier University revised its undergraduate core curriculum in 2012, adopting the theme

"Journeys of Transformation." Embracing this theme, library staff worked in collaboration with

faculty to embed information literacy throughout the core curriculum. The core has many

distinctive features, including the ways in which the curriculum--both skills and content-- spiral

through subsequent years. This enables an introduction, reinforcement, and mastery of

information literacy skills over a four-year period, and concurrently allows for assessment of

information literacy skills throughout all four years at the university.

In the first year students begin to encounter information literacy during their orientation.

This program continues through their first year seminar courses. The seminars--one in English

and one in Religious Studies--include intentional and formal instruction in specific information

sources. The librarians, in collaboration with the seminar faculty, offer this instruction. Seminar

faculty then embed information literacy skills in subsequent assignments. The seminars

culminate in the First Year (FY) Academic Symposium, during which students present an oral

argument, using a poster as visual aid. Peers, faculty, and library staff assess their oral

presentation and poster using rubrics.

The faculty and library staff have continued to build on the success of the FY curriculum

in one of the second year core courses, "Literature, Art, and the Human," which includes formal

information literacy instruction that is streamlined to ensure consistent results. This course

culminates in a virtual symposium, in which students present their work online as part of a

continuing commitment to the public demonstration of knowledge. The work presented online is

evaluated by peers, faculty, and library staff using rubrics.

Academic Year 2015-2016 marked the third year of implementation, which built on the previous two years' successes. The collaboration between faculty and library staff will continue into what will be the junior and senior year of the core experience for students. In their junior and senior year, students will complete a capstone core seminar which will include both intentional information literacy instruction and a final symposium. The final symposium will follow the same pattern as in previous years. By embedding information literacy throughout the curriculum, the library has a much better opportunity to ensure that students will become effective researchers during their time of study, and that they will leave Rivier with strong investigative competencies.

Background

Integration of information literacy into the curriculum is a process that varies wildly depending on the constraints of the institution. The program at Rivier University is characterized by the following: it is comprehensive (affecting nearly all undergraduates who are not transfer students); longitudinal (students have mandatory sessions tied to the core through their Junior year); core-integrated (the program is tied to the core curriculum rather than being embedded in the majors and divisions, though it complements the separate divisional information literacy efforts); and symposium based (the scholarly product being evaluated is a symposium poster presentation rather than a paper).

The initial implementation of the program (starting 2012) at Rivier was across the First Year curriculum. Such programs are not unusual, and have been popular in many institutions (though with varying degrees of success). This program replaced an earlier attempt at integrated instruction within Student Success course, which were aimed at teaching basic college skills and time management. Those library sessions were characterized by bored, inattentive students; the

goal of tying instruction to graded courses was to make the instruction relevant to those students. The longitudinal aspect, increasing the core to three years of mandatory classes and continuing library involvement throughout, is what distinguishes this program from most of the others evident in the literature. This niche is not currently well researched, and further exploration in this area would be useful to see if the results can be replicated.

The Program

Students at Rivier University are exposed to the library and its resources very early on in their academic career. Throughout the four-year degree period, students will receive a Freshman Orientation, Freshman Convocation, a minimum of two library instruction sessions during their freshmen year, and one more session every subsequent year. This arrangement ensures that library instruction of some kind is taking place consistently at least seven times for students throughout their studies. Currently at the upper level, students are evaluated in specific majors, depending on faculty participation. Each session has been crafted so as not to reintroduce the same databases and/or search-strategies as in previous sessions. This program was developed with a constructivist mindset: building up underlying information literacy skills by using the core curriculum to bring all undergraduates to a uniform level throughout their time at the university. The hypothesis was that this program would raise the underlying level of information literacy expertise among the students during their first two years, thus allowing for more focused instruction sessions with more advanced resources for students in upper level classes within a major.

Freshman Orientation and Convocation

At orientation, freshmen are brought into the library in small groups for a scavenger hunt. They are given a preselected call number for a book in the library stacks that they must retrieve

as a team. They then bring that book back to the circulation desk, where they will ask a number

of questions (written on the call number slip provided) about library services before they can

move on to the next campus location. After this, there is a convocation day that provides a more

extensive scavenger hunt of the library. Students are asked to locate various areas of the library,

from quiet study areas to group study rooms and interlibrary loan. Each student notes

information that they receive from library staff at each location as part of his or her task. This

hands-on method introduces the students to the library in a way that is engaging, but mostly

adapts them to the library as a space. Because of this, a library quiz is embedded in their first

year course shell, which is graded by the Learning Management System (LMS). The purpose of

these activities is to cover some of the library basics before the students even begin their classes

which allows the librarians to focus more on information literacy skills rather than where items

are located in the library.

First Year Seminar Sessions

Every student at Rivier University must complete two sections of Freshman Year Seminar

(FYS): FYS English and FYS Religion as part of their requirements to graduate. FYS Religion

students' instruction is geared specifically towards encyclopedic and dictionary sources. Students

are assigned a worksheet they fill out during the instruction that includes resources for their final

paper. This worksheet is not only used as an in-class activity, but as part of their homework

grade within the course. Meanwhile, FYS English students are introduced to basic database

searching as well as encyclopedic research, their final product is an argumentative paper which is

presented at the end of the semester. This instruction serves two purposes: to teach exposition

and to supply argument points for debate. By differentiating the subject matter by course it can

be assured that all freshmen are receiving the same instruction, while not duplicating the

sessions.

Sophomore Year Seminar

Sophomores are provided information literacy through the required course, "Literature, Art

and the Human" (LAH). Once again students are provided a worksheet that the faculty member

will assess, tying the instruction session directly to an assignment. Students are introduced to a

set of databases which were not covered in FYS and search techniques are reinforced. At this

stage, the evaluation of sources is highly emphasized; sources found during the session can be

used as evidence for students' final paper and virtual presentation.

Junior Year Seminar (JYS)

Juniors are required to take one of several courses that align with the theme "Journeys of

Transformation." The topics and subject matter of the courses differ, but the information literacy

goals at the core are similar. Students in these courses review basic search techniques and are

introduced to advanced search techniques within databases relevant to the subject matter. Since

basic database searching often gets forgotten over time a review is necessary. Students then use

this skill set to research for course assignments, including an academic symposium at the end of

the semester. General sources are reinforced and mastered during these courses. Dependent on

the subject matter new resources that are topic specific are also introduced.

Upper Level Courses

Senior level courses evaluations are dependent on faculty participation. As a result, data is

collected from a variety of disciplines. At this level, the library staff teaches advanced search

techniques for students to utilize in a final assignment. This is when subject specific database

features are explained in depth, as well as advanced Boolean search techniques. Professional

websites are explored as resources, reinforcing source evaluation. By the end of this semester

students should have mastered advanced research skills.

Literature

First year library collaboration

First year library collaborations within the general curriculum are not new to academic

libraries, but they are the subject of a good amount of current research. Amrita Dhawan and

Ching-Jung Chen (2014) found that integrating their library sessions into core writing classes

was a superior approach to their previous system of integrating into college readiness courses.

Their experience showed that students found those readiness courses to be "of little value" and

engagement was lacking; by tying their bibliographic instruction to graded assignments, they

hoped to rectify that issue. Jessica Hutchings (2014), examined the embedded librarianship

model and challenges to implementing it in the Louisiana Higher Education system, noting that

the concept of attaching information literacy courses to general education (rather than divisional

courses) is a standard way to reach a broad base of students. Chris Moselen and Li Wang (2014)

pointed to similar barriers to integrating information literacy across the curriculum and reached

similar conclusions. Another model can be found from Sue Samson and Kim Granath (2004), in

which faculty members collaborated with librarians to alter their first year writing courses to

integrate information literacy concepts. These concepts were then taught to the students by the

faculty as part of the coursework, which neatly prevented any issue that might arise due to low

staffing levels at the libraries.

There are drawbacks to core-integrated instruction as well: Amy VanScoy and Megan

Oakleaf (2008) pointed out that "tiered" programs, which teach basic skills in the first year, and

more advanced skills such as peer-reviewed articles in the second belie the fact that freshmen are

often required to use such "advanced" resources over the course of their initial year. VanScoy

and Oakleaf specifically contrasted core-integrated programs against discipline-integrated

programs, though they do not address the possibility of doing both as a possible solution. This of

course brings up the issue of manpower, an issue that Hutchings (2014) pointed out as a limit to

the growth of information literacy collaborations. In an ideal situation where those personnel are

available, it is possible to teach broadly generalizable skills as well as discipline-specific

advanced skills without too much overlap. The other distinction that VanScoy and Oakleaf did

not address is the difference between applied information literacy skills (finding a peer-reviewed

journal) and the broader skill set (critical thinking about information, figuring out which sources

are necessary and how to find them). In that context, the fact that a program may not teach the

specific how-to skill is less relevant than the broader progress of a student in information

literacy. Still, their critique illustrates the importance of targeting instruction to address specific

student needs while still keeping one eye on the bigger picture.

Faculty outreach

Faculty outreach was a crucial part of integrating information literacy into the core

curriculum. Jessica Hutchings (2014), pointed to the need to use accreditation as leverage to

promote information literacy, arguing that the concept is poorly understood by faculty and needs

to be sold to them before full curricular integration can be achieved. Chris Moselen and Li Wang

(2014) pointed to similar barriers to integrating information literacy across the curriculum. In

particular, they argued that librarians need subject matter knowledge in order to convince faculty

to integrate IL concepts into their coursework. (p. 118.) At Central Queensland University in

Australia, Debbie Orr, Margaret Appleton, and Margie Wallin (2001) worked with faculty to

create a framework detailing the responsibilities of faculty and librarians for imparting

information literacy skills to the student body. This allowed them both to educate the faculty on

information literacy concepts as well as creating an effective tool for inserting information

literacy into the curriculum at any point. The downside to this approach is that it did not create

the underlying scaffolding for a constructivist approach, but rather created a toolbox that

individual divisions could use for building their own programs. They also found that it was a

somewhat clumsy tool for certain departments because it focused on basic skills and did not

necessarily provide the framework for more advanced instruction on a divisional level. (2001, p.

461). Nevertheless, it proved to be a popular outreach model and showed the utility of a broad

plan for information literacy that clearly delineates expectations. Li Wang (2011) also looked at

a longitudinal model, though she focused her interest on the process of development rather than

the end result. Her model for building an integrated information literacy program cited the need

for inclusion of all stakeholders in the planning process, which in turn allowed for a

comprehensive transformation of the curriculum across several years. This model is easier to

adopt for smaller institutions, since the number of stakeholders increases dramatically when

looking at the core curriculum as a whole. Across all of these articles, the main constant was that

faculty outreach was a necessary part of any core-integrated instructional program.

Method

Data Collection-Assessment

Assessment of student final products is done with librarian created rubrics (See Figures

1A and 1B). The symposium rubric (Figure 1A) was based on the work done by the Association

of American Colleges & Universities' Information Literacy VALUE rubric.; the VALUE rubrics

were created with faculty and assessment experts from across the United States. The librarians

matched the VALUE rubric to the assignment, resulting in the Information Literacy Assessment

Rubric for presentations/symposiums (Figure 1A). The rubric used for research papers (Figure 1B) was created much earlier and based on the ACRL Standards & Guidelines for Information Literacy. This rubric differs in the number of standards it covers because it is used by faculty who are subject specialist able to best evaluate Standard 4 and Standard 5.

Before the assessment of presentations/symposiums, the librarians involved conduct a norming session with the rubrics to make sure their scoring is consistent. The rubrics are loaded into the university's survey software; each standard was placed in the software as a multiple choice question with a 0-4 scale as the possible responses. A comments area was included in the survey for the librarians to indicate the reason(s) for any of the given scores outside of the predetermined benchmark. Since the Information Literacy Assessment Rubric for presentations/symposiums (Figure 1A) is used as a four-year assessment tool the benchmarks are as follows: 2 (4-point scale) for first year students at the end of Spring term, 2.5-3 (4-point scale) for Literature Art and the Human students (sophomore year), 3-3.5 (4-point scale) for Junior Year Seminar, 3.5-4 (4-point scale) for Seniors.

Freshman Orientation and Convocation

All first year students participate in a first year online course, a Canvas (Learning Management System) course that they are introduced to by the Information Technology Department (IT) during Convocation Day. The information literacy assessment quiz is embedded into this course, and it is set to be completed during their required training with IT. The quiz asks various information-literacy questions, and is graded automatically by the LMS. The quiz was created by the library staff with a perfect score representing an information literate graduate of the university. The students' grades are retrieved by librarians as baseline information for the

incoming class, and a "failing" grade is expected as most students have not had any information literacy skills introduced to them.

First Year Seminar

As freshmen, students present their findings from FYS: English at a symposium at the end of the semester. These face-to-face symposium presentations are attended by fellow students, faculty, administrators, and library staff. During the in-person symposiums, students give a five-minute presentation on their findings and field questions from a small audience including both faculty and students. The library staff divides their poster session attendance so that a large grading sample can be taken at each event, the librarian scores the student's presentation against the information literacy assessment rubric (Figure 1A) which was entered onto the university's survey software to assess the posters in real time using IPads.

Sophomore Year Seminar

As sophomores, students present their work in a virtual symposium. These virtual presentations are viewed asynchronously by faculty, fellow students, and library staff, as saved PowerPoint presentations. The presentations are randomly assigned within a pool of librarians, who score them using the same information literacy rubric (Figure 1A) which was entered onto the university's survey software to assess the virtual presentations.

Junior Year Seminar

As Juniors, students present their findings at a face-to-face symposium much like they did in their freshmen year. The symposiums are attended by fellow students, faculty, administrators, and library staff. Students give a five-minute presentation on their findings and field questions, and each assigned librarian scores the student's presentation against the information literacy assessment rubric. The library staff divides their poster session attendance

so that a large grading sample can be taken at each event, the librarian scores the student's

presentation against the same information literacy assessment rubric (Figure 1A) which was

entered onto the university's survey software to assess the posters in real time using IPads.

Upper Level Courses

Since some upper level students do not present not all scores can hold the same weight

against those collected at previous levels. Those faculty members not requiring a presentation

provide librarians with a sample of student papers, a paper scoring rubric (Figure 1B) for every

student completed by the faculty member, and signed consent forms. Each student paper is read

by the faculty member and graded as usual as well as with the information literacy rubric which

is not incorporated into the student's grade for the course. Having student papers on hand is

useful for the library's evaluation of information literacy since not all senior level courses offer

use of presentations as a means for assessment.

Results

Overall the implementation of extended, embedded information literacy has been a

success. Significant growth in the evaluation of sources was seen between grade levels,

indicating an increase in sustained information literacy skill levels over time. In Appendix A:

Convocation day quizzes are shown in Figure 2. FYS results are broken out by Information

Literacy Standard, and are found in Figures 3A, 3B, and 3C. LAH results are shown for all

Standards in Figure 4. The progress for the Class of 2017 from year one to year two is charted in

Figure 5, while all scores for the Class of 2017 are charted in Figure 6.

When this information literacy program was designed, the librarians placed a 2.0 (on a 4-

point scale) as the benchmark average score. Based on the results of the first symposium

attended, specific changes were made to the information literacy program including a larger

emphasis on evaluating sources. Due to the changes in the information literacy program overall improvements were seen including a .43 increase (on a 4-point scale) in the average score for the standard "Determine the nature and extent of information needed" as well as a significant drop in the percentage of students receiving 0s and 1s over the course of 4 semesters (see Fig. 3A). Over the same amount of time there was also a statistically significant increase of .40 and a drop in the percentage of students receiving 0s and 1s for "Critically evaluate information and its sources" (Fig. 3C). The improvement seems to indicate that the programmatic changes were making a difference especially with the increased efforts in regards to critical evaluation. Since the scores for "Access the needed information effectively and efficiently" (Fig. 3B) were reaching the intended benchmark, no changes were made to increase the scores and they remained effectively flat, spiking in 2014 and then going back down to 2.03.

Looking on the cohort level (Fig. 5., and Fig. 6.), there was overall improvement year over year. On the first two metrics, the improvement was not substantial from one year to the next for the first two standards (- .03 and + .09 respectively) The current hypothesis for the incremental change for those standards is that the library sessions in the second year focused primarily on evaluating the biases of sources and comparing various types of sources, which emphasizes the third standard. Another reason is that since scores were at the benchmark, less attention was paid to them during the library sessions in favor of raising the third standard that had historically been below the target level. That standard, "Critically evaluate information and its sources," did see a more substantial increase of + .4, likely reflecting the increased attention.

Despite this increase, the LAH scores were not at the ideal benchmark of 2.5 – 3 in any category. There are several possible reasons for this; firstly, it may reflect the gradual learning process of the students, who in many cases are still absorbing the concepts they were introduced

to in the two FYS sessions. Second, the LAH classes were less structured and professors were full time faculty; this meant that the librarians had less influence in shaping the assigned topics and assignments than in the rigorously structured FYS sessions, which in turn meant that Information Literacy was not as thoroughly embedded. Thirdly, it was discovered after the fact that some freshman were allowed to take both LAH and FYS in the spring at the same time, despite the fact that the course was intended for sophomores. This was clarified to advisors and corrected so that it would not happen again in the future, but the potential remained for the recorded scores to have been skewed downward. Finally, there is the possibility that the instructional framework was not optimized to the format of the LAH course; that framework would need to be revisited and evaluated to see if the instruction could be approached differently.

In looking at the 2017 cohort from their baseline evaluation on Convocation Day to the end of the second year (Fig. 6.) one can see a significant increase from the baseline. When the overall rubric scores are converted to a 100-point score (for comparison to the convocation quiz). The conversion was conducted by taking the overall combined rubric score for all three standards (1-12 points), dividing that number by the total available score (12), and multiplying it by 100 (number of total points earned/total available points x 100). The combination of the three separate scores makes the measurement comparable to the convocation quiz, which covered a wide range of information literacy topics. With two years of instruction the students' scores rose an average of ten points in relation to information literacy. Though the difference between the FYS Spring Symposium and LAH scores was minimal there was still overall growth in information literacy knowledge over that two-year span.

Program Alterations

The data shows that embedding information literacy throughout the core curriculum was effective in increasing performance on the Information Literacy Standards among the first year students, and shows some possibilities for the second year. However, there were several discoveries made during the early stages of implementation that necessitated fine tuning of some practices. Changes that were made include:

- After spring of 2013 assessment, library instruction was embedded into the First-Year Seminar.

- Peer-reviewed sources were taken out of the first year of the core curriculum.

- The number and types of sources taught were updated to better fit curricular needs.

- During the summer of 2014 the rubric was updated to its current form, with three standards instead of five.

These changes reflected a need to focus more closely on skills taught directly in Library Instruction rather than skills that depended more heavily on Professors and the Writing Center. The evaluation of sources became a key component of both FYS Religion and FYS English both in the library instruction session and throughout the assignments. FYS Religion focused on the proper use of websites as well as library resources. In order to eliminate error, librarians met before each final exam period (during which the symposiums took place) to normalize sample results. The increase in collaboration produced much more accurate results, though the program remains imperfect in its current state.

Conclusions

While the information literacy program at Rivier University was successful in creating a streamlined, lateral structure for the student population, there were and continue to be flaws that will need a solution in the future. The first is that the LAH intervention was not as successful as

the initial FYS interventions. Further study is required, initially by following the students further within the program to see if the progress would be made up in later years, then making programmatic alterations as necessary.

Another area that needs to be addressed is the inclusion and updating of transfer students, who without starting out freshman year are often lacking in the necessary skillset and thereby skew the data. Currently they are integrated into the program at the level where they join the university, but there are no specialized efforts to reach out to them due to lack of institutional tracking. Staff turnover is also a major issue, as different librarians will likely evaluate in different ways, and the team that started this program is no longer in place at the university. This calls into question the future of the program, as it was handed over to new staff over a short period and the continuation in its present form might be jeopardized. To combat this, the librarians involved wrote out documentation for the program, and were able to cross train new staff before they left Rivier University.

Varying staffing levels also raise the issue of sampling sizes; the sample pool is dependent on the number of librarians available who have been normed, and when those librarians decrease in number the fluctuation in the n levels can skew results. There have been discussions about recruiting more librarians on staff to join in the evaluation, which would broaden the sampling size and reduce the likelihood of turnover impacting the program in a major way. There was also some push back by adjunct faculty, many of whom were not keen on having their curriculum dictated to them even if they could see the benefit. However, strong support from full time faculty and administration, coupled with a strong support for the core curriculum, makes this a diplomatic issue on a case by case basis rather than a systemic problem.

Individual concerns are addressed primarily by faculty members who are also administering the program, which frees the librarians to concentrate on the instruction sections and assessment.

All in all, there is no one perfect system, and changes could certainly be made to increase scores in future measurements. It was made clear in each session that there were varied interpretations of presented data among the evaluating librarians, and the institution of regular norming sessions was implemented to solve this. Working collaboratively with faculty was also vital in the success of the program, particularly with the department heads, who had the ability to ensure that all students would be included in this process. Without faculty investment, it would be very difficult to provide streamlined library instruction throughout the students' academic careers. Working together with faculty to create an assignment relevant to the students was an effective way to keep them engaged and absorbing the necessary information. The program will continue to be modified and calibrated, but the data collected to date indicate that implementing structured, leveled library instruction tied to the core curriculum can improve overall information literacy competency within a given cohort of students.

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