

Creation of an Online Library Instruction Course for Faculty

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Article abstract

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Creation of an Online Library Instruction Course for Faculty

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ABSTRACT

Librarians at Saskatchewan Polytechnic developed an online information literacy course, created through interdepartmental collaboration, to be completed by new faculty as part of the Adult Teaching and Learning program. Changes to the academic model coupled with mandatory assessment of program development necessitated a major revision of the introductory course, transitioning to a blended learning methodology. As part of this revision, librarians were asked to create an online course to replace some of the content that was formerly offered in face-to-face sessions. Librarians began with the creation of an instructional plan using Bloom's Taxonomy, learning outcomes, learning steps, and assessments to create an interactive introduction to research and writing. After implementation, the librarians assessed the blended learning approach. The online course content was adjusted and it continues to be reviewed and revised based on participant feedback. The overall process for the development of this online course can be used as an example to guide other librarians' online delivery of information literacy creating authentic learning experiences.

Keywords: *adult learning · blended learning · course development · online learning · polytechnics*

RÉSUMÉ

Les bibliothécaires de la Saskatchewan Polytechnic ont élaboré un cours en ligne de littératie de l'information, créé grâce à une collaboration interdépartementale, qui sera suivi par les nouvelles aux professeur.e.s dans le cadre du programme Adult Teaching and Learning (Enseignement et apprentissage pour adultes). Les changements apportés au modèle académique jumelés à l'évaluation obligatoire de l'élaboration du programme ont nécessité une révision majeure du cours d'introduction, passant à une méthodologie d'apprentissage mixte. Dans le cadre de cette révision, les bibliothécaires ont été invité.e.s à créer un cours en ligne pour remplacer une partie du contenu

qui était auparavant offert dans les séances présentiels. Les bibliothécaires ont commencé par créer un plan pédagogique utilisant la taxonomie de Bloom, les résultats d'apprentissage, les étapes d'apprentissage et les évaluations pour créer une introduction interactive à la recherche et à la rédaction. Après la mise en œuvre, les bibliothécaires ont évalué l'approche d'apprentissage mixte. Le contenu du cours en ligne a été ajusté et continue d'être étudié et révisé en fonction des commentaires des participants.e.s. Le processus global de développement de ce cours en ligne peut être utilisé comme exemple pour guider les autres bibliothécaires dans la formation en ligne sur la littératie informationnelle en créant des expériences d'apprentissage authentiques.

Mots-clés : *apprentissage en ligne · apprentissage mixte · élaboration de cours · formation des adultes · polytechniques*

A TEAM of librarians at Saskatchewan Polytechnic created an online course, *Introduction to Research and Writing*, to develop library skills for faculty as part of a larger project to provide blended learning opportunities in an internal faculty development program. To situate this project within the polytechnic context, we did an environmental scan of Canadian institutions, as well as reviewed library literature, looking for similar initiatives where faculty are students. We determined that our online course was unique in the literature, due to a poor representation of polytechnics in research discussions. We also found limited literature and research on faculty as students. This case study describes the process we followed to develop the online course, starting with creating an outline, developing the content, and assessing learning activities to determine if the course was meeting the needs of the students. Lastly, we provide a discussion of the lessons learned and the future plans for continual improvement. Overall, this project aimed to maintain our involvement and collaborative efforts across our campuses. This paper addresses the full-scale blended learning initiative within the Adult Teaching and Learning (ATL) program at Saskatchewan Polytechnic as well as the librarians' role of creating an information literacy course.

Background

The ATL program is a

9-course, 24 credit unit Advanced Certificate Program designed to develop and advance instructional and leadership skills of new and experienced faculty. The program combines the theoretical and practical aspects of teaching and learning offered in online and F2F environments. (Saskatchewan Polytechnic n.d., para. 3)

This program is offered through the Instructional and Leadership Development Centre (ILDC). Attendance in the program is mandatory for most newly hired faculty members who are 0.5 full-time equivalent or higher. Participation by contract or term

employees is at the discretion of their program head. The nine courses are university equivalent credits which can be used towards the completion of a Bachelor of Adult Education degree at the University of Fraser Valley.

Faculty's level of education varies based on the requirements of their program area, and ranges from Journey person certificates to PhD degrees. Work experience varies greatly as well. The majority of faculty in the ATL program are within their first five years of employment at Saskatchewan Polytechnic. For clarity, faculty members taking ATL will be referred to as *students* throughout the rest of this paper.

The transition to blended learning started with a strategic revision of the entire ATL program in order to align with an updated academic model that prompted the ILDC to review all of its courses and delivery methods in 2017. The ILDC implemented a major revision of their Introductory Institute, which is the first course of the ATL program, by moving over half of it to online delivery. As part of this revision, librarians were asked to create an online course, *Introduction to Research and Writing*, to replace content that was formerly offered in face-to-face (F2F) sessions. Beginning in October 2017, a member from ILDC worked directly with members from the Library and from Learning Services to incorporate the previous in-person instruction into a new online course under the purview of both departments. This project was also guided by an internal report on blended learning which recommended that information literacy instruction be expanded to blended classrooms, with specific mention of ATL (Ng 2017).

Prior to the creation of the online course discussed here, librarians and Learning Services instructors delivered their content in person. Librarians have been involved with ATL throughout its history delivering information literacy education about copyright, research, and citation styles. Librarians are also required to complete the ATL program after they have been hired and are often identified as a resource within the class itself. Library Services is closely tied with ILDC in a variety of ways including professional development and selection of resources, such as journal articles, videos, images, and textbooks. This ongoing relationship ensured that librarians would be instrumental partners in the transition to a blended classroom.

Academic writing and project completion are required of all students participating in ATL, yet many are not comfortable with these activities due to their backgrounds in varied educational and vocational disciplines. In order to remedy some of the concern felt by students prior to entering the Introductory Institute, the team designed the online course to be completed in advance of their first official class. *Introduction to Research and Writing* covers research, writing, and referencing components, preparing students to write an academic paper and in turn successfully complete the program. Moving the instruction of *Introduction to Research and Writing* to

a blended model began with a discussion of curriculum needs with our team member from the ILDC. From this conversation we were able to create an instructional plan that was comprised of the newly identified learning outcomes sequenced to follow the steps taken in a typical research cycle, such as identifying the information need, choosing resources, evaluating results, and synthesizing the information. The learning objective classification system, Bloom's taxonomy (Saskatchewan Polytechnic 2006), was used to guide both the creation and design of the course, from learning outcomes and steps, to the assessments used to evaluate students. The course benefited from consistent input from team members and instructional designers, as well as from the subject matter experts. Course development also included assessment pieces that we used to evaluate student progress and learning. A plan for implementation and sustainability was created to guide librarian work beyond the pilot project phase of course development.

Environmental Scan

In order to frame this case study, we carried out an environmental scan as well as a literature review. We identified 13 institutional members of Polytechnics Canada (Polytechnics Canada, n.d.), excluding Quebec. We conducted an environmental scan of their teaching and learning centres, as well as their library staff's involvement in faculty training. The scan included an examination of institutional webpages, followed by direct communication with librarians via email, and, in a few cases, phone calls. We sought to gather details about involvement in faculty instruction, as well as the content, length, and delivery method of instruction.

The scan revealed that these institutions are involved to varying degrees in providing instructional education for faculty. The majority of the institutions have professional development activities for their faculty that include orientations and some course work. Three institutions specifically offer the Instructional Skills Workshop (ISW), which is a three-day workshop that includes effective teaching strategies and the development of skills through mini-lessons (Instructional Skills Workshop Network n.d.). Eight of the institutions have mandatory programs, many noting that the program is a condition of employment and/or is required to be completed within a certain time frame.

Library staff are often involved in this work, most commonly offering sessions on copyright and/or academic integrity. The program at Saskatchewan Polytechnic is unique in its inclusion of library and research training in both the face-to-face (F2F) and online courses. Also, the program is comparatively longer and more academically extensive than those at the majority of polytechnics scanned. Personal communications, received in October 2019 as part of the environmental scan, remind

us that collaboration between departments on campus can often be tenuous and it is important to persistently build relationships with external departments in order to ensure continued involvement within their programs. A few librarians reported in the environmental scan that their involvement with teaching and learning centre programs was on an as-needed basis where they would offer sessions or information at the request of coordinators or faculty. Other librarians reported not being involved in formal faculty training offered through their teaching and learning centres. The ILDC at Saskatchewan Polytechnic appears to be an exception in that it involves many faculty supports on campus and continues to foster close ties with Library Services.

Literature Review

For the purpose of our paper, we consider blended learning to be any course or module with an online and F2F component. We see blended learning as the “thoughtful fusion of F2F and online learning experiences ... such that the strengths of each are blended into a unique learning experience” (Garrison and Vaughan 2008, 5; as cited in Vine, Chiappetta-Swanson, Maclachlan, Brodeur and Bagg 2016, 2). A literature review was conducted with a focus on best practices for teaching information literacy skills in a blended learning environment. In addition, we reviewed journal articles that either commented on the current state of assessment within online information literacy classes or the most effective method of assessing student learning in an online environment. The library literature provided a solid foundation for our creation of the online library course, facilitating design, implementation, and assessment decisions.

Online Learning

For the review of online learning, we relied on past research that was conducted by one of this paper’s authors. Maddison, Doi, Lucky and Kumaran (2017) conducted an extensive literature review on online teaching, focusing on collaboration with key stakeholders, learning outcomes, types of technology to create and host learning objects, assessments, as well as the advantages and disadvantages for students and instructors of this learning environment. The key takeaways from this chapter include “collaborate with library or external colleagues; provide clear learning objectives and outcomes that are measurable; consider the length, pace and ease of use of the tutorial; consider the type of technology used; incorporate active learning techniques; and finally, determine the scalability of the project” (32-33). To further support these takeaways, the recommendations made by Maddison (2013) illustrate the importance of librarians developing strong relationships with faculty in order to meet their curriculum needs.

Flexibility for students is often mentioned as a benefit of online learning, but some learners struggle to manage their time effectively and, as a result, their engagement and levels of motivation can suffer (Maddison et al. 2017). To mitigate a lack of independent learning skills, Maddison (2013) recommends that “instruction should be offered at the point of need and be specific to the course wherever possible in order to add value and meaning for the student” (274), while being mindful that not every course is an appropriate choice for online learning. The author reminds us that despite the lack of F2F interactions, active learning options can be incorporated, as “online students are often expected to continuously participate in discussion boards and chat sessions, resulting in active ways to learn and experience the information being shared” (275).

In fact, students often want both interactive online course material that is available any time and collaborative F2F classes because each method offers its own unique educational experiences (Lindorff and McKeown 2013). Zhang, Goodman and Xie (2015) find that the self-paced nature of online learning is valued by students as allowing them greater flexibility. Tsai (2015) illustrates that the majority of students performed better when their online learning was partially directed by a facilitator monitoring their progress through the course material such as following up on student progress using data available through the learning management system (LMS) and designing collaborative discussions.

Blended Learning

Historically, the majority of library instruction sessions are one-shot sessions that are often not long enough to cover all aspects of information literacy. By blending sessions, “it is possible to offer relatively comprehensive information literacy instruction in the course of a single classroom seminar if the seminar is supplemented by online materials” (Peter, Leichner, Mayer, and Krampen 2017, 1127). Chan (2014) also found the blend between online and F2F learning led to student success. In addition, blended learning provides librarians with an “opportunity to develop their roles as educators, building skills in areas such as educational design, development, and innovation” (Schulte, Tiffen, Edwards, Abbott and Luca 2018, 686). Online course development reinforces instructional design principles and alternative methods of engaging with students. F2F classes allow librarians to further support students through skill development and one-on-one assistance. Both of these scenarios help librarians to become trusted experts who guide the research process in a way that is not possible using online learning alone.

Waha and Davis (2014) provide practical advice for transitioning teaching to a blended learning environment. They suggest that “approaches to teaching must

be rethought for the online environment. Online learning can provide a level of flexibility that is not found in a classroom environment, while face-to-face interaction provides the social interaction that is important for learning” (174). Course content must be specifically designed for online teaching, as students indicate “a preference for short, concise learning materials” (Waha and Davis 2014, 176). They recommend that technology be used with a purpose and that students should not be expected to learn multiple tools in order to be successful. The recommendation includes limiting group work, choosing concise communication by using one channel for messages (i.e., email or text messages, not both), and finally minimizing anxiety by being present in the course. This is further supported by Maddison (2013) recommending that “instructors should be selective in the adoption and integration of technology into classroom activities, ensuring that the technology assists in the effective facilitation of the learning process and does not distract from it” (275).

Flexibility and self-pacing are positive aspects of blended learning, however, there are potential challenges that need to be addressed during course development. One such challenge was identified by Tang and Chaw (2016) who suggest that “for blended learning to be successful, there is a need for students to be digitally literate” (62). For struggling students, an online learning environment can compound educational issues, such as the need for independent study. This challenge could be mitigated by intuitive course design or creating an opportunity for students to develop their digital skills. Blended learning can also have a beneficial effect where a “positive student attitude and high digital literacy can improve self-efficacy, which in turn contributes positively to such online behaviours as peer engagement, LMS interaction, and convener interaction” (Tang and Chaw 2016, 63). Instructors who understand the benefits and challenges of blended learning can create high quality courses because they have the flexibility to decide what content is suited to each learning environment (Mirriahi et al. 2015). This echoes other research that states “blended learning is often referred to as the ‘best of both worlds’” (Vine et al. 2016, 1).

Blended instruction can also be used to educate faculty. Mirriahi, Alonzo, McIntyre, Kligyte and Fox (2015) directly focus their study on faculty as students, one of the few articles we could identify that does so. The authors created an online module that would provide faculty with an opportunity to learn in the same environment as their students, thus allowing them to develop better instructional strategies in their own courses. Their project addressed the relatively “limited use of educational technology in higher education” (5) by modelling online pedagogy and best practices. One such strategy incorporates “highly interactive group discussions and collaborate learning activities” during class time “while tasks requiring reflection and conceptualisation are completed outside class time” (9). Faculty who took part in

this course gained firsthand knowledge of how to improve the design of their online course.

Assessment

Assessment is a critical element in determining the success of student learning through online instruction. Ritterbush (2014) notes that academic libraries are expanding their services to online and distance students to meet the diverse needs of these populations, yet there is a “scarcity of library research on outcomes assessment” (29), with the majority of libraries relying on pre- and post-testing to assess learning. Librarians typically track participation in instructional sessions and student satisfaction rates, but this information fails to illuminate student learning and comprehension. Lockhart (2015) supports this argument by stating that while “assessment of student learning is a focus area” within many academic institutions, research “indicates that traditional library assessment data does not demonstrate the impact that the library has on student learning” (20). Ritterbush (2014) concludes, “libraries have developed online tutorials and research guides, although distance learners reported meager interest in or use of these instructional tools” (34), with many faculty members assuming that students know how to use the library and/or technology. In cases such as these, it is challenging for the librarian to assess knowledge while encouraging active participation in information literacy sessions.

Arora, Evans, Gardener, Gulbrandsen and Riley (2015) authored a blended learning faculty development program that incorporated quizzes and discussions. Their goal was to “create an online community of active and engaged learners” (Arora et al. 2015, 239). The researchers noted the assessment activities “layered the learning experience—helped to generate and sustain student interest and enthusiasm for the course material to fashion a vibrant community of active learners in the process of meaning- and knowledge-making” (241). Perhaps their most compelling statement is that the “students saw the online classroom as an active learning space, not just a repository for materials or a place to take quizzes” (Arora et al. 2015, 248). The key to a successful blended learning project is the “purposefully integrated assessment, both formative and summative, into the actual design of the course” (249), thus evaluating student learning. This research is supported by other studies which suggest that built-in assessment plans assist students in self-evaluation and assist course designers in determining instructional effectiveness (Zhang, Goodman, and Xie 2014; Mune et al. 2015).

Despite the evidence on online and blended learning, as well as assessment, we discovered limited research focusing on faculty participating in an instructional skills training program in a blended learning environment, as well as a lack of

literature on polytechnic learning environments. The online course creation below is a unique addition to the current discourse on blended learning.

The literature review is supplemented by our own learning in ATL courses. Throughout the creation of this course, we were also students in the Program Design course and the Evaluation course. The Program Design course focuses on the design and development of curriculum, through the creation of learning outcomes, instructional strategies and student assessments (Saskatchewan Polytechnic 2018a). The Evaluation course targets strategies for planning and designing assessment tools to evaluate student learning in adult education environments (Saskatchewan Polytechnic 2018b). Much of our online course design was guided by these courses, and many of the ATL assignments we submitted contributed to the creation of our online course.

Aims

The literature review provided foundational knowledge which complemented the teaching materials that we received in the Program Design and Evaluation courses. Both aided in the design and implementation of the blended *Introduction to Research and Writing* course.

The main objectives of the course redesign were to:

1. Transition content that was previously taught F2F to a blended learning environment for ATL students.
2. Use Bloom's Taxonomy to guide the creation of learning outcomes, and learning steps while ensuring that assessments evaluate students at the appropriate level.

Our aims in this case study are to describe how we carried out the creation of the online course content. After the initial course redesign, it transitioned from a pilot project to an integrated library course in the ATL program. Based on lessons learned, we created a sustainability model that will allow for continual evaluation and revision of the course.

Course Design

We supported the revision of coursework into *Introduction to Research and Writing* by designing, creating, and maintaining learning materials in our Learning Management System (LMS) for the use of ATL students at all levels, using the principles of blended learning. The team of librarians and faculty in Learning Services were tasked with reviewing content that was previously offered F2F within the program and then analyzing what content could feasibly be offered in an online learning environment. The goals of this new course included:

- Collaborate with ILDC to ensure student success throughout the research process
- Assist students in identifying key library resources for ATL and within their teaching/research
- Create learning objects and library tutorials for the use of ATL students
- Facilitate instruction so that students are able to successfully cite and reference using APA citation style
- Instruct students on how to format their research papers using APA

Proposed Changes

Library sessions that were previously offered F2F in the Introductory Institute included an introduction to library services and resources, American Psychological Association (APA) style conventions (including formatting academic papers, in-text citations, and referencing), academic integrity, and copyright considerations. These sessions were offered throughout the three-week Introductory Institute and accounted for approximately six hours of instruction. The switch in learning environments created an opportunity to review learning outcomes and increased the variety of types, as well as the amount of information that would be provided to students.

Learning outcomes for the *Introduction to Research and Writing* course include: “Identify Information Need,” “Construct a Research Strategy,” “Evaluate Information,” and “Apply APA Style Conventions.” The new course improves on previous content by including separate learning outcomes for academic integrity and copyright considerations, resulting in five learning outcomes and requiring approximately three hours of learning time.

Course materials include detailed explanations, recorded in-house presentations (using Camtasia and Screencast-O-Matic), YouTube videos, and learning activities, as well as assessments. An example of a learning activity in this course is the formation of a search strategy that demonstrates an understanding of finding keywords, identifying synonyms, and searching for resources. Students have an opportunity to practice these research skills throughout the entire ATL program because academic papers are assigned in the majority of the classes. Academic papers require research and writing skills (including citations and references), as well as an awareness of academic integrity. The copyright component is practiced each time an instructor works with teaching or research materials from external sources. How they share these resources is based on their knowledge of fair dealing and other copyright considerations, as applied in an online learning environment.

Instructional Plan

As previously mentioned, there are five separate learning outcomes, each with a minimum of three learning steps. Learning steps were assessed based on their learning domain and level using an internal institutional document describing Bloom's taxonomy (Saskatchewan Polytechnic, 2006). Bloom's taxonomy is comprised of three learning domains: cognitive, psychomotor, and affective, and is significant because it "helped [educators] understand how to enhance and improve instructional delivery by aligning learning objectives with student assessments and by enhancing the learning goals for students in terms of cognitive complexity" (Lasley 2016, para. 5). The critical piece of the Taxonomy is that instructors evaluate students at the same (or lower) level than the instruction. For example, if an instructor disseminates basic demographic information about students in Canada, it would be ill-advised to then expect students to "conceptualize the issues surrounding online learning and the lack of stable Internet in Northern Canada." For this course, all learning outcomes land within the cognitive domain since the objective is to develop skills in using and evaluating information. The complexity of the learning outcomes increases with each step as illustrated in the image below. As an example, the "evaluation of resources" falls in the highest level because students are expected to select and assess appropriate resources based on their information need. Choosing taxonomy verbs can be as simple as thinking about the words you are using to describe the activity and then determining the appropriate level to teach and assess that skill.

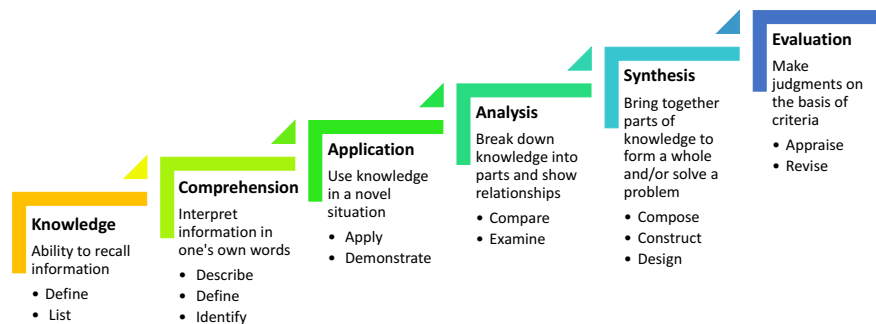


FIGURE 1 Bloom's Taxonomy (Adapted from Saskatchewan Polytechnic, 2006, used with permission)

The five learning outcomes that were part of the initial pilot of this project and their respective learning domains are included in the table below. The learning steps identify the Bloom's taxonomy level that was used in each learning outcome, with terms italicized for clarity. Take, for example, "I.I *Communicate* why students and researchers seek information." To assess learning in this step, students would be

expected to communicate why and how researchers find information, in other words, researchers seek information to back up the theories that they are presenting in their paper.

	Learning Step Description	Domain	Level	Learning Activities & Resources used for this step
LO#1	Identify Information Need			Cognitive Domain 2: Comprehension
	1.1 – <i>Communicate</i> why students and researchers seek information	C	2	This section includes written descriptions outlining why we seek information, and how we determine the best resource that will fulfill the information need.
	1.2 – <i>Describe</i> information need	C	2	Students will complete a discussion post that queries the methods that are used to communicate information in the field of education.
	1.3 – <i>Recognise</i> how different sources of information are communicated	C	2	This step includes written descriptions along with graphical representations of primary, secondary, and tertiary sources.
	1.4 – <i>Identify</i> different types of information	C	2	Students will be asked to complete a quiz that summarizes the learning activities for this outcome. Questions will review information seeking behaviour and the different sources of information.
LO#2	Construct a Research Strategy			Cognitive Domain 5: Synthesis
	2.1 – <i>Use</i> appropriate database(s) for search	C	3	A video outlines the digital resources that are available at the Library and provides helpful hints for students so that they can search efficiently and effectively.
	2.2 – <i>Identify</i> keywords, potential synonyms, subject terms and Boolean operators	C	2	A handout, video and written descriptions aid students in the creation of a search strategy that can be used for their research.
	2.3 – <i>Compose</i> and test search strategy	C	5	A sample worksheet is provided for students to use when creating a search string. Students will be asked to provide their search string and the rationale for their strategy in a discussion post.
	2.4 – <i>Demonstrate</i> completing a request for external resources	C	3	A video outlining how to search a library database, as well as screenshots of a results screen and document preview page, are provided to students. These examples assist them in their discovery of the research process and demonstrate how to effectively search for information.

LO#3	Evaluate Information	Cognitive Domain 6: Evaluation		
	3.1 – <i>Choose</i> appropriate resources based on review of materials	C	6	A handout, video content and written descriptions aid students in the evaluation process. Discussion of both website and journal article evaluation is included in this section.
	3.2 – <i>Revise</i> search strategy as required	C	6	Demonstrate a search strategy revision based on search results.
	3.3 – <i>Analyse</i> and critically appraise articles, capturing key messages from the resources	C	4	Written description, as well as graphic representation of how to read an academic article for relevancy, content, methodology and conclusions. Students will examine one method of critically appraising an article. Students will be prompted to discuss the peer review process, listing three tips for evaluating information.
	3.4 – <i>Select</i> resources and synthesise information to be used in your assignment	C	6	Written description of material selection.
LO#4	Writing (under the purview of Learning Services)	N/A		
LO#5	Apply APA Style Conventions	Cognitive Domain 3: Application		
	5.1 – <i>Employ</i> APA style to format paper	C	3	Sample paper demonstrating the format of an APA paper, with examples of running head, title page, headings, a variety of in-text citations and a reference list.
	5.2 – <i>Express</i> in-text citations for direct quotes and paraphrasing	C	2	Written description of employing in-text citations in your paper from both direct quotations and paraphrased content.
	5.3 – <i>Apply</i> and <i>practice</i> APA reference conventions	C	3	Students will complete a quiz that asks them to identify different formats and create a proper reference based on the information given.

TABLE I Learning Outcomes & Learning Steps for *Introduction to Research and Writing*.

Sequencing Scheme

Each learning outcome follows the same format, beginning with information provision through written explanation and video presentations, followed by a learning activity and an assessment. Assessments are conducted in the form of discussion posts, as well as multiple-choice quizzes that review key components of the learning outcome.

Learning outcome #1 introduces students to the library, its services, and the information environment. Students are first exposed to the theoretical question of why researchers seek information, and then the various forms of scholarly communication are investigated. Discussion of scholarly publications, as well as primary, secondary, and tertiary sources, provides a foundation for the next step, which details the research process. Students require a level of understanding of *what* and *why* before they can move into the mechanics of the research process.

Steps in the remaining learning outcomes follow a typical research pattern, which involves discovery, implementation, evaluation, and dissemination of information. The research process is cyclical, and students may need to return to a step repeatedly until the task is completed effectively and relevant search results are found. Learning materials are presented in this order to follow the cycle by starting with familiar tasks and then moving towards the more complex.

Introduction to Research and Writing uses a learning-related sequence in that there are “identifiable prerequisites a learner must master before demonstrating a more complex task” (Morrison et al. 2013, 124). This course relies on students’ familiarity with basic search techniques, such as using Google or other similar search engines. The instruction uses techniques to expand students’ knowledge by “begin[ning] with the most familiar information and then progress[ing] to the most remote” (Morrison et al. 2013, 125). Learners are engaged in the course materials by inclusion of “topics or tasks that will create the most learner interest” (Morrison et al. 2013, 125), such as developing a research strategy on a topic of personal interest.

Assessment

Students have the opportunity to participate in quizzes and discussion posts that are applicable to each learning outcome with assigned grades that should motivate student learning (Worth 2014). Students can use these activities to personally reflect on their progress throughout the course, as well as seek assistance in areas that are unclear.

Students are asked to respond to discussion posts at approximately the mid-way point of each learning outcome to assess if the learning objectives have been met.

The discussion posts also give students a chance to apply their learning to their own experiences. Instructors and librarians need to be present in the online class and follow up when necessary, in order to determine if students are experiencing access issues or are confused about the content. We have found that checking participant activity twice a week seems to be an adequate amount. Librarians can provide a supporting role in the learning activities by actively participating in the discussion boards. Students are more likely to engage in a conversation if they feel that there is someone reviewing and responding to their posts. For example, one discussion post asks students to provide a search strategy along with their rationale. We provided suggestions for other search terms that could be used, databases that could be consulted, or filters that could be applied.

Multiple-choice, true/false, and matching quizzes include information from every learning step within each learning outcome and give students a chance to practice and apply what they have learned. Students are given two attempts to pass each quiz with a score of 80% or higher. According to Morrison et al. (2013), “multiple-choice items can be written at all levels of Bloom’s Taxonomy” and “can more easily test higher-order learning including conceptual reasoning” (281). Quizzes are an effective self-assessment tool giving students instant feedback on their learning (Domun and Bahadur 2014; Lodge, Kennedy, and Hattie 2018).

Assessments in this course are student-centred self-evaluations that are varied and designed to move students through the content by reflection, testing, and the application of skills (Worth 2014). Discussion posts and quizzes are matched with each learning outcome, so that the information being evaluated directly correlates with the information that was shared. The assessments allow students to demonstrate their digital and information literacy skills by providing evidence of their ability to create a search strategy, evaluate their results, synthesize the data, and then apply APA style conventions. This is a highly effective form of assessment since students are able to adjust their approach and improve their work while they are in the midst of learning (Domun and Bahadur 2014).

Since the initial offering of the pilot online course, we were students in Evaluation, an ATL course on performing evaluation and assessment. One of our assignments tasked us with the creation of a final exam. We used this opportunity to create a comprehensive test bank for *Introduction to Research and Writing*. An optional pre-assessment quiz uses this test bank for students who wish to seek an exemption from the course based on their previous research experience.

Requirements for Online Course Development

We were required to have advanced technical skills such as using HTML to effectively design a course in an LMS. The course includes embedded videos, PowerPoint

presentations, documents, and online quizzes. For this project, we used Camtasia and Screencast-O-Matic to create video content using audio/video equipment. All other technical supports were available through the Information Technology Systems department at Saskatchewan Polytechnic.

Time and personnel are key factors when determining workload and project deadlines. This project was given eight months to complete, thus “having a number of individuals who can be available at the right time to provide essential training or facilitation is essential if product implementation has a short time frame” (Morrison et al. 2013, p. 379). Librarians were assigned the task and given a portion of their work time to complete the project. We relied on technical expertise from faculty in the learning technology department and instructional designers when the level of our experience was surpassed by what needed to be accomplished in the online learning platform.

Implementation

The first iteration of the course was offered as a pilot, during which the online portion was available to approximately 21 students registered in the ATL Introductory Institute program. This program was offered in both Saskatoon and Regina in August of 2018. Librarians facilitated in-person sessions during the pilot project which allowed us to evaluate the success of moving to a blended learning framework.

Within the online course, 86% (n=18) of the students in the pilot visited the course. A snapshot of participation in the class reveals that close to half (n=10) of students completed the online course, engaged in discussions, and achieved passing grades on the quizzes. Nine percent (n=2) of students completed half of the course, while the remaining participants only visited the welcome page of the course. We speculate that these students opened the course, reviewed the content and made a decision to not continue based on their prior research skills. Lack of time or motivation may have also been a factor.

Of the participants who completed the online course, we observed that the discussion posts were high quality and thoughtful, such as one discussion question that asked how information was communicated. Responses went well past standard examples and included methods of communication beyond journal articles and books. These same students passed the majority of the online quizzes.

An effort was made to survey students immediately following the class and then again after six months (Appendix 1). Due to limited responses to both surveys, quantitative results are not representative. The four respondents that completed the survey all indicated that they had visited the course and thought it was helpful in

completing their ATL assignments. All respondents reported feeling more confident with finding and evaluating information. The citation portion of the course was rated as extremely helpful, although respondents' comfort level with documenting their resources varied from somewhat to extremely confident. Some of the qualitative feedback referred to the value of learning research and referencing skills, calling the class "a very necessary component of the ATL." One participant focused on the benefit of having the follow-up F2F class to expand on the topics within the online course while another stated that she referred "back to it periodically!!" We also heard an expressed interest in having the online course available in other courses outside of the ATL program, which we have welcomed by encouraging instructors to import *Introduction to Research and Writing* learning outcomes into their own courses.

Anecdotally, we believe that engagement rates increased when the ATL course instructor put specific information about our online course into their correspondence with students. Rates seemed to fall when the instructor only recommended that the online course be completed prior to F2F sessions, which may explain why some students in the pilot only visited the welcome page of the course.

As this course was designed specifically for faculty as student learners, the option for self-registration in the course within the LMS was made available to all faculty and staff across the institution, thereby allowing greater access to the learning materials. As of August 2019, this course saw an additional 16 participants who had self-registered, with 62% visiting two or more pages in the module, informally viewing only what was necessary to them. As of June 2020, there are 99 students registered in the course. We can also manually register participants if necessary. Students in the ATL program are provided with instructions on how to register, and course enrollment is monitored to ensure that students who are part of the program have access.

A major component of the pilot was to determine the effectiveness of each assessment and the students' comprehension of course material. Instruction was delivered using a conversational tone that is easy to understand and follow, including videos, written descriptions, and images. The pilot was an excellent opportunity to observe how students navigated through the course and to identify any issues pertaining to course design. Over the summer months of the initial pilot, one of the librarians was contacted by several participants who noted technical issues and/or mistakes in the course content. Those errors were immediately addressed.

Lessons Learned

Over the course of this pilot project, we identified several tasks that required a change of focus or direction. They are included below for the benefit of librarians

tackling similar projects. Technological change caused a few challenges during the creation of the online course. One of the technological platforms for a portion of the content was discontinued with very little notice. Several videos in the course needed to be updated as a result. A second technological issue occurred when the Library's website interface changed during this time. This too resulted in videos needing to be recreated or edited to reflect the updated layout and/or content. It is hoped that the sustainability plan will mitigate similar changes when they occur in the future.

We learned the importance of building extra time into the project. Support from internal institutional departments varied based on their workload and staff availability. In some instances, course development was slowed as we waited for videos to be migrated to our internal database. If a contingency plan is in place at the start of course development, these wait times will not affect the overall completion of the project.

We noted the importance of contacting internal experts early in the development of course materials. The development of quizzes was completed quickly after a faculty trainer in Learning Technology demonstrated an easy method for creating questions. By consulting with experts, our time was better used in creating interactive learning objects.

A sustainability plan was created in response to a lesson learned during the creation of the course, for the ongoing maintenance of the course. This maintenance plan includes a list of technological changes that are forthcoming, such as updating some of the video content to reflect changes to Saskatchewan Polytechnic Library's website and the upcoming transition to APA 7. Another segment of the sustainability plan is removing and deleting old content from the course and library digital storage once new learning objects have been created and updated. Tasks continue to be added to the maintenance plan, which has resulted in an ongoing schedule that will facilitate expeditious revisions.

Finally, students enter ATL with a variety of perspectives, and some are reluctant to complete library sessions in addition to other required courses, so special care was given to connect content to actual assignments that the students are expected to complete within the program. An ILDC instructor noted that there is a need to ensure that students fully participate in the class, which requires vigilant monitoring of the online course, an ongoing task as we continue to respond to discussion posts. The instructor has also anecdotally stated that there is recognizable correlation between completion of *Introduction to Research and Writing* and the submission of higher quality research papers. Ongoing assessment of quizzes and student surveys will continue to be part of the course.

Future Implementations

Many instructors at academic institutions, including Saskatchewan Polytechnic, were asked to quickly transition F2F learning environments to online options due to the global spread of COVID-19 in the spring of 2020. Instructors faced the immediate challenge of learning how to teach online, create online learning materials, and incorporate resources (library or online) to supplement curriculum, along with taking into consideration the surrounding copyright compliance issues. Discussions with senior leadership within our institution resulted in academic services being called upon to provide support in all of these areas. It was quite a relief for many in library services to know that high quality information was already available within *Introduction to Research and Writing* for ATL. We were able to quickly respond with instructions for self-registration of faculty who wished to view/use the materials and we also encouraged them to copy course pages to be used as a library resource.

This emergent and continually evolving situation reminds educators that students may be prone to feelings of “loneliness and isolation, lack of motivation, poor communication, [and] fear of online communication” (Waha & Davis 2014, 172). Going forward, we need to consider that constant communication and being present in the online class can help to mitigate these factors. Discussion boards and other opportunities to interact permit students to learn from one another, to engage in thoughtful discourse and allow everyone the chance to participate.

Conclusion

This work reveals the importance of collaboration between librarians and instructors in the ILDC in supporting professional development activities. We have found success in further developing this relationship through the revision of *Introduction to Research and Writing* since we continue to be viewed as an integral partner in delivering faculty instructional training.

Revising the course began with the request from ILDC instructors to transition to online delivery in order to fulfill the strategic directions of Saskatchewan Polytechnic. This led to the creation of an instructional plan that was comprised of newly identified learning outcomes sequenced to follow a typical research cycle. Course development also included assessment pieces that both instructors and librarians can use to evaluate student progress and learning. The pilot implementation was successful, since it included assessment measures that indicated the online course is fulfilling its purpose. Lastly, in order to maintain the course, a sustainability plan was created based on the lessons learned throughout course development. By applying a process of learning outcomes, learning steps, and assessments, we were able to integrate online library instruction successfully into

a learning environment specifically designed to meet the needs of faculty as both students and as educators.

This paper fills a gap in the literature by providing an example of how faculty instructional training programs can incorporate library skills regardless of instructional delivery method. We also noted the lack of literature on library information literacy in a polytechnic learning environment. More research could be conducted on other types of post-secondary institutions' faculty instructional training that are created and delivered in an online environment.

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Creation of an Online Library Instruction Course for Faculty: Appendix

Library online course - Introduction to Research and APA

We are currently evaluating the effectiveness of the Library's online module created for Adult Teaching and Learning. We will be using this information for a journal article we are writing and for improving the course.

We would appreciate it if you could provide feedback. Please fill out this quick survey and let us know your thoughts (your answers will be anonymous).

*** Required**

1. 1. Did you visit the Research and APA online module? *

Check all that apply.

- Yes, skip to question 3.
 No

2. 2. If you answered no, could you explain why you did not visit the online module?

If you answered no to the first question, you may submit the form after answering this question.

3. 3. After completing the online module, how confident were you with finding information for a report?

Mark only one oval.

	1	2	3	4	5	
Great discomfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very confident

4. 4. How helpful was the finding and evaluating information portion of the online module?

Mark only one oval.

	1	2	3	4	5	
Barely helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very helpful

5. 5. After completing the online module, how confident are you with documenting your sources (creating references and citations)?

Mark only one oval.

	1	2	3	4	5	
Great discomfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Highly confident

6. 6. How helpful was the APA (references/citations) portion of the online module?

Mark only one oval.

	1	2	3	4	5	
Barely helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very helpful

7. 7. What part of the online module confused or was least useful to you?

8. 8. What was the most helpful part of the module?

9. 9. Thinking about your most recent ATL course, did you find the information provided in the library's online module useful in completing that course?

If you haven't taken another ATL course after the introductory institute, skip this question.

Mark only one oval.

Yes

No

10. 10. Any additional comments regarding the Library's Research and APA online module?

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