Project Abstract (max 200 words)
Your abstract of your findings should include enough detail so that rationale, methodology and outcomes are clear. Use plain language as this abstract will be posted on the LTO website.

In-class library instruction is often done in a one class, one-hour format. This leaves little time to engage students in discussion or conduct problem based learning activities. Furthermore, the situation restricts our ability to measure learning outcomes. This project aimed to create an online repository of library instruction materials that Librarians could use to create online modules on the research process. The lessons would involve videos, learning objects, quizzes and text. Librarians could share modules with their faculty and try new in-class instruction techniques like the flipped classroom. We partnered with two courses in September 2014 to pilot five new online modules and the flipped classroom method.

Summary of Work Accomplished (max 1500 words)
Describe the study rationale (including supportive literature), project methodology, outcomes and potential application of outcomes.

Studies have shown that on-line modules can strengthen library-based instruction in a wide variety of Academic disciplines (Anderson & May, 2010; Xu, Dong & Nawalaniec, 2010; Mery, Newby & Peng, 2012; Lo & McCraw Dale, 2009). In-class library instruction at Ryerson is often done in a one class, one-hour format. Clark & Chinburg’s (2010) study concluded that one-time, one-hour classes are difficult to effectively teach information literacy and search techniques. There is little time to engage students in discussion and interactive activities are cut short. Furthermore, measuring learning outcomes is limited in this one-time only format.

This project aimed to create an online repository of library instruction that Librarians could share with faculty and embed in their Learning Management System (Blackboard). The repository would include modules (lessons) on key areas of research and information literacy. The lessons would involve videos, learning objects, quizzes and text. With this online repository, Librarians could share modules, edit them to reflect their subject matter, and share the with their faculty. Librarians could try new in-class instruction techniques like the flipped classroom or game based learning.

Studies by Anderson and May (2010) and Ganster and Walsh (2008) found that using
online modules to teach basic library instruction allowed Librarians to use their one-time one-hour class time to engage in high-level critical discussions about information ethics and problem-based learning activities. Furthermore, the students themselves found the modules helpful with their research assignment and returned to them throughout the year. (Anderson & May, 2010; Ganster & Walsh, 2008). Our project aimed to replicate the results of these studies.

With the grant, we hired a recent Ryerson graduate with graphic design and web experience. Throughout the summer of 2014 we created videos, learning objects and lessons on five key library instruction areas:

1. How to start your Research,
2. How to create a Search Strategy with Keywords,
3. Popular Vs. Scholarly Sources,
4. How to Find Articles,
5. Citation Management.

The content of the modules was based on the Association of College and Research Libraries' new Framework for Information Literacy for Higher Education (2015).

We hosted the modules in Google Docs and created a static link that could be embedded in Blackboard. We did not host the modules inside Blackboard as the University decided to change to a new LMS for Fall 2015. We ensured the videos and the text were accessible and we also created the content in Word and PDF, in case we needed to provide a specific accommodation.

Next, we launched a small pilot for Fall 2014 to implement the modules in two courses and flip the instruction. We hoped to survey the usefulness of the online modules and to test Anderson & May (2010) and Ganster & Walsh (2008)'s hypothesis that this would allow for more meaningful hands-on in class sessions. We partnered with SSH 205 Academic Writing and Research, a mandatory first year course for students in the Bachelor of Arts program, and with the Masters of Professional Communication program’s PC 1000 Library Research Colloquium (non-credit). SSH 205 consisted of over 500 students split into 23 sections, with 6 instructors and 6 librarians, while our graduate program consisted of 22 students who were required to complete 3 hours of library instruction.

For both classes, faculty provided students with the online modules 1-2 weeks in advance of the in-class session and instructed them to read and do the activities before the class time. The modules for the Masters students was geared towards a higher level of information literacy and research while the modules for SSH 205 were geared at the first year level for a basic introduction to Library research.

Class time ranged from 1 hour 30 minutes to 2 hours for both. For SSH 205, Librarians went over the modules and students spend the rest of class time searching for one book and one article, or two scholarly articles (depending on the faculty’s preference). Faculty and the Librarian floated around the classroom, answering questions and checking work. Students had to rely on the modules they read prior to the class in order the complete the task. Later that week, each student had to complete a short assignment based on the book/article they found.

For PC 1000, graduate students came to class after reading the modules with their major research question. During their time they had to complete a form that asked them to outline their major research question, create their search strategy (using Boolean) and
find 3 sources. They also had to use more advanced research skills like using journal rankings and citation reference searching. The librarian worked with each individual student during the class time. Students handed in the assignment at the end of the class and the Librarian graded the assignments (Pass/Fail). All 22 students passed the assignment.

Feedback from Librarians and Faculty was positive. Overall, the faculty felt the class time was better used for a problem based learning activity such as creating a search strategy and conducting hands-on searching for the articles and books. The only issue that they felt arised in SSH 205, was not enough time. Although the classes were booked for 1 hour, it often went over time to 1 hour 30 minutes. It was suggested that for next semester the sessions should be up to 2 hours.

The Librarians also felt this was a better use of library instruction time. They liked the fact that each student left the class having completed a successful search. In SSH 205, some Librarians did raise concerns that a lot of the students seemed to be stuck on what their research question meant and needed clarification from the professor before they could start searching. Overall, they felt this was a better use of time instead of lecturing for an hour.

Both classes had assignments based on the in-class session. We were not able to access the grades for these assignments, but we do know from faculty that for SSH 205, they were happy with the completion rate and quality of the assignment; and for PC 1000, all students passed the quiz. Having a way to analyze the results is something we would like to include for next year. We were able to send the students a feedback survey after the class. Unfortunately, the survey was not mandatory and the number of responses was low. Overall, students indicted the modules had the right amount of information, they felt they had a good grasp of the five key learning objectives and that they might return to the modules when writing their final paper.

Finally, the toolkit of videos, quizzes, learning objects, plus the five modules was shared with subject librarians in Fall 2014. Some librarians have shared the modules and activities with their faculty and we will continue to monitor the use of the modules in the Winter 2015 semester.

For the future we would like to survey the students after they wrote their essays to see if they returned to modules or if they still felt they understood the five key concepts of research. For Winter 2015, we will look into creating both pre and post tests that measure students’ learning outcomes for the online modules. For the in class, we are looking into gamification programs like Kahoot to bring game based learning into the classroom.

**Evaluation of Project’s Success (max 600 words)**

Explain how you know that the project was successful (Include evidence of rigorous evaluation.)

The original scope of the project was to pilot with up to 4 different courses, and while we only partnered with 2, the size of SSH 205 (over 500 students in 32 sessions) exceeded
the number of students we hoped to reach. Our pilot courses also allowed us to compare the experience of a first year undergraduate class to a Masters level class in response to online and flipped library instruction.

Faculty and Librarian feedback was positive to both the online modules and the flipped classroom approach. Faculty wrote to the Librarians involved to express their positive reaction to the new method. Comments included: “that went fantastic today. The students got so much out of it!”; The more hands-on approach helps students get a real sense of what is involved in doing research. I think the flip methods works a lot better” ; “the students needed the help, and a lot of them appreciated it. I prefer this format to the old one, simply because it gives the students more hands-on experience.”

In the past, it has been very difficult for the Library to gain meaningful data on learning outcomes from our one hour classroom sessions. In the past our sessions for SSH 205 and PC 1000 involved lectures and not hands on activities. We had no way of knowing after they left the lecture if they could conduct research. Moving the lecture part online into five condensed modules cleared up our class time for an activity where we could measure the fundamental skill of research - could they execute a search and find an appropriate source. For SSH 205 students had to show their search results to the instructor or librarian before the end of class and we can now say that they left the classroom having successfully executing a search and locating a scholarly source. The same for PC 1000, as the graduate students were required to outline their search strategy and find 3 sources for their graded assignment. They also had to demonstrate more advanced techniques like journal rankings and using citation references for more sources.

In terms of collecting feedback, we send a survey out to students after the in class session. We received a 60% response rate from PC 1000 but we only received a 20% response rate for SSH 205. As this does not represent a significant portion of the students in SSH 205, we can not conclude whether our data speaks for the entire class experience.

Interestingly, for PC 1000, 60% indicated this was their first library instruction session. This is a high number for students who have never received in class library instruction during their entire undergraduate degree. Over 70% completed all five modules and 90% felt the modules contained the correct amount of information and activities. The Graduate students felt confident that they had grasped the learning objectives of all five modules. In terms of using the modules again while writing their major research paper, 70% said they might return, only 10% said they would return to the modules. Finally, 70% felt the in class activity was very useful.

For SSH 205, we had a very low response rate, but we did learn that for the majority (91%) this was their first library instruction session. This makes sense as it is there first semester at Ryerson University. Over 80% completed all five modules and 78% felt that the modules contained the right amount of information and activities. Interestingly, the majority, 74%, said they might return to the modules when starting the research and writing process of their major paper. We were hoping that they would see more value in returning to the modules while researching their major paper. For next semester, we hope to promote the modules as a resource for when researching and writing and to survey students after their major paper is handed in to see if they did return to the modules.
When asked how confident they felt with the skills laid out in each of the five modules, the majority felt confident with four of the five learning objects (Using the Library website, picking scholarly over popular sources, finding articles and citing their sources). Interestingly, the majority said they did not feel they had grasped the skills in module 3 - creating a search strategy with Boolean. This is a very important step in the research process, but also a very difficult one to grasp for first year students. We will look over the module for next semester and provide more examples on how to create a search strategy during the in class sessions.

The majority of the comments focused on wanting more time to complete the hands on activity and to get used to using the library website and searching. Finally, 78% felt the in class activity of searching for two sources was very useful.

Transferables (max 500 words)
List and describe knowledge gained in this project and how that knowledge could benefit faculty members in the Ryerson community

Our current instruction statistics indicates that the Library teaches over 12,000 students annually, this leaves a large section of our 30,000 plus full-time student body without formal library instruction. The results of our project strengthens our believe that e-learning is one way to reach these students. Past research emphasises the importance of library instruction on student success with the research process (Emmons & Martin, 2002; Julien & Boon, 2004) plus the success of skill retention by combining e-learning and in-class learning activities (Ganster and Walsh, 2008). The Library will continue to seek out collaboration with faculty to continue this project. The knowledge we gained from this project will strengthen our new approach to flipped and online library instruction.

Our positive takeaway from this project was that Faculty and Librarians felt the combination of e-learning modules on key research skills and a hands-on class activity was a better use of the one-shot time-frame available for Library Instruction. By moving the instruction online and using the class time to search and find appropriate sources, the students were able to experience research, demonstrate the knowledge gained from the modules, troubleshoot any problems with a librarian and leave class with appropriate articles and books for their assignment. Faculty emphasized in their feedback that the hands-on activity was very valuable to their students. Interestingly, for next semester, faculty have asked us to expand the class time from 1 hour 30 minutes to 2 hours so students can spend more time on the activity.

We learned from our survey results that students felt one week to read five modules was enough time and the amount of time spend reading the modules (30 minutes to 1 hour) was appropriate. When asked how they like to learn online - the majority indicated by watching videos (48%), next preferable was reading short text (35%). Our modules were a combination of both, but we will consider revamping our videos and moving them to the top of the modules for next semester.
We also discovered issues with online and flipped classroom instruction that we will incorporate into our future teaching. Librarians suspected that some students did not read the five modules before coming to class. This will continue to be an issue and one way to increase compliance would be for faculty to conduct a mandatory quiz on the modules. However, we also feel that the hands-on activity did at least quickly introduce students to research and we reminded them through-out class time to refer back to the modules for help. Also, the modules provide a resource for students when they finally sit down to write their final paper. Planning for low compliance for the on-line modules is something we will keep in mind when planning our flipped classrooms in the future. A quick overview of the modules during class-time and the development of an appropriate activity is one way to address this issue. We also acknowledge that the idea of flipped instruction was new to students in this pilot. We expect this approach to become more widely used in the coming years and students will become more familiar with reading modules online before class time.

**Media or Publication (max 500 words)**
List any media attention your project has received internally from Ryerson or externally. List any publications or conferences you have attended where data from this project was presented. Confirm that you acknowledged or will acknowledge the grant’s contribution to your work in media, publication or conference presentations.

The project will be presented at WILU 2015 in St. John’s Newfoundland in June. WILU is a conference for library instruction in the post-secondary sector and is open to Librarians in Canada.

The project will be put forward to preset at the TRY Conference (UofT, Ryerson and York University Library Conference) and at the Ryerson University Faculty Conference in May 2015. The grant from will be acknowledged in the presentations.

**Financial Summary**

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Works Cited


Xu, Y., Dong, L., & Nawalaniec, T. M. (2010). Enhancing engineering students' knowledge of information literacy and ethics through an interactive online learning module. In *2010 Annual Conference and Exposition, American Society for Engineering Education.*