Introduction

Online versions of the face-to-face (F2F) Mt. SAC Library workshops are being designed to offer distance learning students an equivalent online learning opportunity. Reaching F2F students online who may have scheduling conflicts with the F2F workshop schedule is also desired.

Similar to the distance learning versions of F2F credit classes, the online versions of the workshops will follow the F2F curriculum. Our goal is that professors can direct their students to the F2F workshops or the online workshops and expect similar results.

We are using the current campus Course Management System (CMS), Moodlerooms, to develop the online versions of the workshops. This is in alignment with the online versions of credit classes which are offered through Moodlerooms. By developing the online workshops in Moodlerooms, we are using an environment familiar to members of the Mt. SAC community who take, and teach, online classes. By using Moodlerooms, we can integrate instructional materials and assessments in a self-paced asynchronous environment. Moodlerooms also offers synchronous instructional possibilities should the library determine that synchronous options are necessary and feasible.

To reduce the need for large revisions, the workshop content has been broken into short modules that are further broken into smaller segments. When the library website or database interfaces inevitably change, only the segments impacted by those changes need to be revised thus lessening the likelihood that the entirety of the online workshop would be rendered obsolete or need time-consuming large overhauls which are common problems with long tutorials or long videos. Breaking the content into small portions also allows for interruptibility and for the learner to easily stop and start the workshop as needed.

The first online workshop under development is Finding and Evaluating Articles. One module of the online workshop was tested in May 2016. The module tested is currently titled “Search Technique Fundamentals.”
Executive Summary

Between May 2 and May 16, 39 currently enrolled Mt. SAC students tested the Search Technique Fundamentals module of the Finding and Evaluating Articles online workshop.

Students were asked to complete a lesson, a quiz, and a feedback survey.

The purpose of the test was to determine
- If the method of self-enrollment into the workshop would work and if it was easy for users.
- If instruction or improvement is needed to help students navigate through the Moodlerooms lessons.
- If the instructional materials were successful in helping students learn the key concepts in the lesson.
- If answering questions in both the lessons and the quizzes would be a help or burden to students.
- What kinds of problems students may face in their authentic online learning environments. As students use their own devices on a variety of Internet speeds, their potential problems are unpredictable and cannot be tested well in a campus computer lab.
- If students would have any interest in taking online versions of the library workshops.
- What type of changes can be made to improve the online learning experience.

Overall, the test showed that:
- Students like questions with immediate feedback.
- Students like quizzes.
- Students response to the online workshop is positive.
- The pacing and volume of the audio in the videos can be improved.
- The quiz behavior needs to be improved.
- The average score on the quiz was 84%.

Below is information on the following:
1. The participants
2. The test (Evaluation Instruments)
   a. How it was administered
b. Who decided how it would be administered and who designed the questions
c. The survey questions
d. The results
   i. Lesson
   ii. Quiz
   iii. Survey
   iv. Informal feedback from the professors
e. Changes Needed, Prioritized
f. Conclusion

**Participants**

Participants were recruited through professors teaching English and Nutrition. Both professors work closely with the library on information literacy instruction for their classes. The Nutrition professor is also the Online Learning Assistant Faculty Coordinator.

39.02% of participants were in English 68.
58.54% of participants were in Nutrition 10.
2.44% of participants did not indicate which class they were in.

Thirty-nine students completed both the quiz and the lesson.

Thirty-eight students submitted a survey.

The beta test module was available from May 2, 2016 through May 16, 2016. All components of the test were online and asynchronous.

**Evaluation Instruments**

The participants were asked to test the following:
1. The module currently titled “Search Technique Fundamentals” in the Finding and Evaluating Articles workshop
2. The module’s quiz

Participants were also asked to complete a survey for additional feedback.
All full-time library faculty were invited to help develop the purpose, delivery, and method for the test.

Three library faculty members participated: Hong Guo, Pauline Swartz, and Emily Woolery.

They decided what information they wanted to learn from the test and how it would be administered. They discussed options to gather student feedback including using QualTrics, a Google form, or features built into Moodlerooms. The library faculty decided to use the Moodlerooms survey feature and quiz options rather than use outside sources.

The three library faculty members also drafted the survey questions for feedback and determined that a multiple choice quiz to check the students’ understanding of the module’s key concepts was appropriate.

The library faculty decided that Pauline Swartz would send a call for quiz questions to all librarians who teach the F2F workshops and add those questions to the online workshop question bank.

Pauline input the librarians’ questions into the question bank and categorized them based on the concept to which the questions relate. This allowed her to build a quiz that would randomly select a specified number of questions from each category for the quiz. The result is that students would see different questions on the quiz, and they would get X number of questions about Boolean AND, X number of questions about phrase searching, etc. Pauline received instructions on how to set up the quiz in this way from Michelle Newhart.

A screenshot of the module’s quiz settings is below.
The individual quiz questions and the percent of correct and incorrect responses are included in the results section.

In addition to the module’s quiz, the students were asked to complete a feedback survey. The questions for the survey were developed by the three aforementioned library faculty members. The survey questions are below.

1. Have you ever used Moodlerooms before?
   a. Yes, I’ve used Moodlerooms
   b. No, I’ve never used Moodlerooms
2. How easy was it to enroll yourself in the workshop?
   a. Very easy
   b. Easy
   c. Neutral
   d. Difficult
   e. Very difficult
3. How easy was it to find your way through the lesson?
   a. Very easy
   b. Easy
   c. Neutral
   d. Difficult
   e. Very difficult
4. The lesson included checkpoint questions. If you answered incorrectly, you were led back to try again and you would see an explanation when you answered correctly. What do you think about how these questions work? (Open-ended question)
5. You tested only one section of this workshop. There are actually four sections. What do you think about taking a 3-6 question quiz after each section?
   a. Quizzes for each section is a good idea.
   b. Quizzes after each section is too much. Just have one long quiz at the end of the workshop.
   c. We don’t need quizzes. The checkpoint questions in the lessons are enough.
6. Complete this statement. I could understand the concepts better if _____. (Open-ended question)
7. If you had any frustrations or technical problems, please describe the problem here. (Open-ended question)
8. This online workshop is entirely self-paced. Did this work for you? Would live sessions that you sign up for be better?
   a. Self-paced is a good idea so we can take the workshop whenever works best with our schedules.
   b. The online workshop should be a live session so that there are no pre-recorded videos. Instead, we would sign up for a specific workshop time and an instructor would lead a live online session.
9. Is there anything else about the online workshop that you’d like to tell us? (Open-ended question)

One major decision that was made by the three library faculty members is the assessment method that will be used for the overall workshop. The decision is to ask students to find and record two relevant articles on their own research topics. This will require an open-ended format for the assignment. It will be included in the Summer 2016 pilot of the Finding and Evaluating Articles workshop. Although this decision does not directly reflect the Spring 2016 test results, it was an important decision and impacts how online workshop will be assessed overall.

Summary of Results
The summary of results follows in this order:

1. Lesson Results
2. Quiz Results
3. Survey Results
4. Informal Feedback from Professors

Lesson Results

Background
The test only included the Search Techniques Fundamentals module of the Finding and Evaluating Articles workshop.

The lesson the module includes checkpoint questions. If students answer correctly, they see a feedback message confirming their choice and a brief explanation as to why it is correct.

If students do not answer correctly, they see a feedback message and are taken back to the question to try again.
This approach is used to provide a low-stakes method for students to test their own understanding of the concepts before taking a higher stakes assessment like the quiz or the assignment. (The assignment was not part of the Spring 2016 test because it will be a culmination of everything students have learned and practiced in the entire workshop, not just one module.)

One student commented in the survey that if they select the incorrect answer, students should be taken back to the video so they can review before trying the question again. In the test, students were taken back to the question, not the video.

My goal is to create parallel videos with additional examples and explanations rather than having the student review the same video. This will take time and is a project for the future.

Results of the Lesson Questions

Question 1. What does typing AND between your search words do to the results?
   a. It narrows the search results. 100% selected this answer.
   b. It expands your search results, giving you more articles in the results list.

Question 2: Is the following statement true or false?
Knowing the standardized term, or subject word, for your topic can take much of the guesswork out of finding effective search words.
   a. True 100% selected this answer.
   b. False

Question 3: Based on the image below, what is a subject term in Academic Search Premier for the topic, "student athletes?"
   a. College athletes 97.67% selected this answer (correct)
   b. Student athletes 2.33% selected this answer

Question 4: When should you put quotation marks around two or more words?
   a. When you want to search those words as an exact phrase. 100% selected this answer.
   b. When you want to search only titles of articles.
   c. When you are not sure how to spell the words.

Question 5: What happens when you use search limits?
   a. Search limits will reduce the number of articles that your search retrieves. 100% selected this answer.
b. Search limits will increase the number of articles that your search retrieves.
c. Search limits have no impact on the search results.

Quiz Results

Background
The quiz included 6 questions. Each question was worth 5 points.

All librarians who teach the F2F workshops were invited to contribute questions based on the curriculum of the F2F workshop because the online workshops are intended to be an online equivalent of the F2F sessions.

Questions contributed by librarians were added to the online workshop’s question bank. In order for Moodlerooms to generate a new quiz when a student starts a new attempt, each question was assigned a category. The quiz is set to select one random question from each of the following categories:
1. Phrase searching
2. Combining search techniques
3. Search limits
4. Search terms and subject (headings)
5. Boolean AND
6. Boolean OR

Students were allowed to take the quiz three times and the highest score would be recorded.
23 students took the quiz once.
17 students took the quiz more than once.

Results of the Quiz

The average grade of all students’ last attempt was 84%.

Students saw 6 of the following questions on each quiz attempt.

1. What should you try if your search produces too many articles?
   a. Add a subtopic using Boolean OR
   b. Add a subtopic using Boolean AND

   75% Correct
   25% Incorrect
2. What does typing Boolean AND between your search words do to the search?
   a. It narrows the search because it tells the database to retrieve only articles that include ALL of the search words.
   b. It broadens the search because it tells the database to retrieve articles that include ANY of the search words.
   c. Typing AND between the search words does nothing to the search.
      85% Correct
      15% Incorrect

3. Which of the following would be the best way to write a search if you wanted articles that discussed the health benefits of chocolate?
   a. "health benefits" OR chocolate
   b. "health benefits" AND chocolate
      100% Correct
      0% Incorrect

4. What does typing Boolean OR between your search words do to the search?
   a. Typing OR between search words does not impact the search.
   b. It narrows the search because it tells the database to retrieve articles that include ALL of the search words
   c. It broadens the search because it tells the database to retrieve articles that include ANY of the search words
      85% Correct
      15% Incorrect

5. Which Boolean operator would you use to search for synonyms or related terms?
   a. AND
   b. OR
   c. NOT
      91% Correct
      7% Incorrect

6. Which of the following is the best use of the Boolean operator, OR?
   a. Michael Jackson OR review
b. punk rock OR punk music

81% Correct
19% Incorrect

7. Which search reflects the best use of Boolean operators and phrase searching?
   a. hip hop gender
   b. "hip hop" AND gender
   c. hip hop AND gender
      
      88% Correct
      12% Incorrect

8. Which of the following would be the best way to write a search if your research question was, "How does sleep impact the academic performance of college students?"
   a. sleep AND academic performance OR college students
   b. sleep AND "academic performance" AND "college students"
   c. "How does sleep impact the academic performance of college students"
   d. "sleep OR academic performance OR college students"
      
      85% Correct
      15% Incorrect

9. What does typing two or more words inside quotation marks do to the search? For example, what would happen if you searched "obesity epidemic?"
   a. The words inside the quotation marks must appear in the title of the article.
   b. Quotation marks have no impact on how the database searches.
   c. The database would search for whatever is inside the quotation marks as an exact phrase. The words obesity and epidemic need to be right next to each other in the article.
      
      95% Correct
      5% Incorrect
10. Which source limit would you select to find articles published in scholarly journals?
   a. Magazines
   b. Newspapers
   c. Reviews
   d. Academic Journals
      100% Correct
      0% Incorrect

11. If your assignment requires you to only use sources published in the last 10 years, which database limiter would you use?
   a. none of these answer choices
   b. full text
   c. publication date
   d. source type
      100% Correct
      0% Incorrect

12. If you find an article in your results that only gives you the summary (abstract) but not the full-text, you probably forgot to click which database limiter?
   a. full text
   b. source type
   c. publication date
      100% Correct
      0% Incorrect

13. Database limiters are good for:
   a. Choosing a specific publication type.
   b. Ensuring you get the full-text of articles in your results.
   c. Narrowing your results by publication date.
   d. All of these answer choices.
      85% Correct
      15% Incorrect
14. True or false?
When an article is added to a database, it is labeled with a subject word which is the official standardized terms that the database uses for a topic.
   a. True
   b. False
   100% Correct
   0% Incorrect

15. True or false?
Subject words given to relevant articles help with your research because they provide effective keywords to use in future searches.
   a. True
   b. False
   93% Correct
   7% Incorrect

Survey Results

Background

As noted in the Evaluation Instruments section, Hong Guo, Emily Woolery, and Pauline Swartz decided to use the Moodlerooms survey feature rather than an outside source such as QualTrics or a Google form.

Using the Moodlerooms survey feature for this one-time test eliminated the need for Pauline to learn QualTrics or seek assistance from another LLR staff member to create the QualTrics survey. The Moodlerooms survey feature also allowed all things related to the online workshop and this beta test to be administered and contained in a single location.

Results of the Survey

1. Have you ever used Moodlerooms before?
   a. Yes, I've used Moodlerooms 89%
   b. No, I've never used Moodlerooms 11%

2. How easy was it to enroll yourself in the workshop?
   a. Very easy 79%
   b. Easy 18%
   c. Neutral 3%
3. How easy was it to find your way through the lesson?
   a. Very easy 63%
   b. Easy 29%
   c. Neutral 8%
   d. Difficult 0%
   e. Very difficult 0%

4. The lesson included checkpoint questions. If you answered incorrectly you were led back to try again and you would see an explanation when you answered correctly. What do you think about how these questions work? (Open-ended question)
   Student responses:
   - The breakdown of steps was a bit confusing but the numerical order helped. I prefer a physical lecture rather than an internet based class. That is my preference. Overall I think it works well.
   - It explains students why they were wrong.
   - I think it's a fun way to get users involved.
   - Giving the explanation at the end helped me because if I got it wrong it told me why the other answer was correct once I retried.
   - I think before they are allowed to answer again, they must re-watch the video so they won't just guess.
   - It worked well to help students understand what they are learning.
   - They are helpful because it helps to make sure you are grasping the main points being discussed.
   - They were helpful and confirmed the answers.
   - They worked well.
   - Great.
   - They related with the lesson well.
   - I think it's a great system.
   - Very effective. Makes sure you were paying attention to the video and
you understood what it was saying

- I was having a difficulty with the check point questions.
- They work great and let you learn from your mistakes ad help learn better with the explanations given.
- I liked the questions. I thought it was good for a small review of each section
- I like it because even if you answered incorrectly you still had the opportunity to go back and correct yourself.
- It worked!! It helped through the lesson
- I believe the current system is designed well enough.
- These questions helped me learn new concepts.
- Great idea, who has the time.. who has the time.
- Good.
- I liked that when you were led back it showed an explanation
- I found it very helpful and it helped me review any questions.
- I think its a good idea. You can see where you went wrong.
- It is efficient to understand the materials
- I think that it helps students to understand the topic instead of just powering through all the videos.
- I liked the questions . I believe students have to actually pay attention to ensure the answers are correct.
- They work.
- I think it is good because students who have made mistakes can immediately know what and why they have done wrong.

- like the idea
- It's easy if you watch the review before answering the questions.
- I thought the question were pretty straight forward.
• I think it is a good idea. It helps verify that the student is paying attention.
• They are helpful and they assure that you are understanding the concepts.
• It is very nice to go back to the wronged answer because I know my mistake.
• it was good giving hints, but not completely giving me the answers.

5. You tested only one section of this workshop. There are actually four sections. What do you think about taking a 3-6 question quiz after each section?
   a. Quizzes for each section is a good idea. 79%
   b. Quizzes after each section is too much. Just have one long quiz at the end of the workshop. 5.3%
   c. We don’t need quizzes. The checkpoint questions in the lessons are enough. 15.8%

6. Complete this statement. I could understand the concepts better if _____.
   (Open-ended question)
   Student responses:
   • I watched the video more than once.
   • the videos didn’t jump around
   • The videos stopped rebuffing.
   • The quizzes were done right after the section is over because all the information is still fresh and there is no room for confusion.
   • More examples were presented.
   • I was looking them up alongside the video.
   • they had more detail to the lessons.
   • they were numbered.
   • I could understand the concepts better if the videos had more audience interactive material.
   • there were more visuals.
• you showed what I answered wrong.
• I was told to click next after each video
• Had more practice
• there were more examples.
• it shows me how to do it online step by step
• No comment on this
• there were more examples
• there are more workshop like this to help student academically
• they are labeled in numerical order. [NOTE: This was from one of the first two participants. I therefore added numbers to each page for later participants.]
• They were shorter
• they were to speak slower.
• the videos were a bit slower.
• Pretty lady instructor in the video.
• there were more examples.
• 13 participants did not respond or wrote “no comment”

7. If you had any frustrations or technical problems, please describe the problem here. (Open-ended question)
   Student responses:
   • 31 students wrote “none,” “NA,” or similar comments, or did not reply.
   • Can I download each article or only can see on website?
   • Yes. The videos kept getting stuck.
   • just the volume on one of the videos but you already know which one since you even said to turn up the volume for that video
• It was stated that the workshop would take about 25 minutes. I found that it exceeded that.

• I didn't skip any questions but it showed I did and I lost points.

• There was a moment when the computer froze and my answer would not imput.

• We were told you would be able to stop at any time and progress would be saved. I did not see any kind of obvious menu or button giving the option to stop and save.

• I wish there are more tutorial like this to help students

8. This online workshop is entirely self-paced. Did this work for you? Would live sessions that you sign up for be better?
   a. Self-paced is a good idea so we can take the workshop whenever works best with our schedules. 97.4%
   b. The online workshop should be a live session so that there are no pre-recorded videos. Instead, we would sign up for a specific workshop time and an instructor would lead a live online session. 5.3%
   97.4 + 5.3 exceeds 100%. Participants were able to select more than one answer.

9. Is there anything else about the online workshop that you’d like to tell us?
   (Open-ended question)
   Student responses:
   • 19 students wrote No, NA, a similar comment, or left this question blank.
   • It's better than searching "google" because it will be more specific to get what we need to search. It would be more helpful.
   • I belive it is very well done and easy to understand but I would have it mandatory to watch the whole video because if people have to do this for a class they could skip all of the video lessons
• Good workshop and very helpful.

• On the quiz I chose the wrong answers for the last two questions and got 20/30. On the second attempt I went in and changed both answers and still got 20/30. One of the questions only had two possible answers and the other had 3. After three attempts of changing answers around on the same questions, the question with the two possible answers had to have been right and my score remained the same. After three attempts the questions had to have eventually been right because I tried a different answer on each attempt and my score never improved or got worse. Is it possible the answers are not being updated between retakes?

• A quiz after every section would be more beneficial instead of a quiz for the entire workshop at the end. When working on a computer it is better to have hands on trial of what you are being taught. You don’t get to try as you go, everything in your mind is based on the theory of doing it. When you have a few things that you just learned and you have never tried, it can cause some confusion until you actually physically try doing the different searches first hand. A quiz right after the section takes away the guess work of whether you understood the material correctly. When you move on to the next section you have a confident understanding and less room to confuse two similar subjects. For example the difference between using OR/AND. Easy to confuse if you have to wait till the end of the workshop to quiz.

• Some of the voiceovers were very slow.

• the workshop is a good experience

• No, I think it's a great resource.

• is good just quiz was annoying

• This is very convenient and helpful.

• Everything was super easy to work.
- I enjoyed it.
- The questions were fun.
- Great Idea !!!! love it
- I like the short explanation videos.
- No everything was perfect.
- The online workshop should be a live session so that there are no pre-recorded videos. Instead, we would sign up for a specific workshop time and an instructor would lead a live online session. Make the students get involved and off their bottoms.
- I learned the same techniques as I do when I go to the workshops. It talks about the same techniques which is good because you know your not missing out on anything. I like how you can finish whenever you can.
- I think the voice of videos should be the same.
- everything was good
- The courses were very easy to follow.

Informal Feedback from Professors

The Personalized Learning Designer (PLD) had not been set up for the test. A PLD will be used to automatically email students proof of completion. Professors were informed that a list of workshop completers would be provided for the test because the PLD was not ready.

One professor suggested that we create a very easy way for students to prove to their professors that they have completed the workshop.

One professor stated that she would like to have students turn in the workshop assignment, which will be finding two reliable articles on the students’ own topics, as an assignment for the parent class. I need to develop a method for allowing students to submit work to be accessible by the library faculty and the professor
assigning the workshop. This was always a goal, so hearing it come from a faculty member without any prompting reinforces the need for this feature.

Changes Needed

High Priority

- Using the automatic random question feature may not be working properly. Assistance from the OLSC is needed to set up this quiz as well as additional quizzes for this online workshop by the Summer 2016 pilot target date of June 20. Training on this feature so I can set them up for the future online workshops is ideal.
- A few students commented on the quiz. Once the quiz is set up properly, a warning should be added so students know that they will see different questions with each attempt.
- A video and accompanying printable handout on how to navigate the workshop and the lesson will be created. Students will be required to watch the video and answer questions before moving on to the workshop content. This is similar to an online orientation for distance learning courses.
  - Include information that YouTube videos are embedded in the lessons. Students should use equipment that can handle playing YouTube videos.
- A method for allowing students to submit work to be accessible by the library faculty and the professor assigning the workshop must be developed. This may be an attractive feature for faculty.
- After the test I met with the Online Learning Assistant Faculty Coordinator to get assistance with testing the PLD. We discussed other issues like self enrollment and how we would not be able to easily tie students to their A-numbers for research on online workshop completers and issues like student success and retention. The Online Learning Assistant Faculty Coordinator suggested that we make a form asking for demographic information and A-numbers using SmartSheets and use the same system that is used for the faculty enrollment into SPOT. This should be investigated and set up ideally by June 20, which is the start of the Summer 2016 pilot. The hard deadline for this should be before the beginning of the Fall 2016 semester.

Medium Priority

- Fix the audio on the one low volume video.
● Create more examples.
● Finish creating printable guides summarizing the important take-aways from each module.
● Determine an ideal narration speed for the videos. One comment was that a few of the voiceovers were very slow. Two comments indicated that it would be helpful if the videos were slower, meaning the videos were too fast.
  ○ Record audio for remaining videos using the ideal speed, or close to it.
  ○ Re-record audio for existing videos using the ideal speed, or close to it.
● Re-work some quiz questions or create new questions that reflect application of search techniques. For example, add more questions like #3 rather than #2.
● Change the lesson question behavior so that students are taken back to the video to review before trying the question again.

Low Priority or Issues to Consider Further
● Create a plan to enhance the workshop with additional videos on the same topics to reinforce ideas when students incorrectly answer the lesson checkpoint questions.
  ○ If alternative videos for the same concepts are created, the lesson can use the branching feature of Moodlerooms lessons.
● Create multiple choice questions that require students to try searches in a separate window or tab. This can allow immediate practice while taking advantage of automatic grading of multiple choice questions. The drawback to consider is the increased unpredictability regarding how long it will take students to complete the lesson and activities. This idea might not be needed because students will have a mini assignment requiring them to find two articles in the full version of the online workshop.

Features to Keep
● Students like the immediate feedback provided in the lesson checkpoint questions.
● Students like the quizzes and a large majority recommended quizzes at the end of each module.
● The content, as one student commented that it is the same as the F2F workshop.
Conclusion

Overall, the feedback from the participants is positive. I was surprised by comments like “I enjoyed it,” “Great idea !!! love it,” and “The questions were fun.” However, implementing the high and medium changes can improve the online learning experience and integrating more hands-on immediate application of the search strategies can reinforce student learning.