Working with scholarly sources: An information literacy unit learning assessment for first-year undergraduates at the University of Hawaii at Hilo and Hawaii Community College

Brian Bays
University of Hawaii at Mānoa
bbays@hawaii.edu
https://canvas.instructure.com/enroll/L898F4

Abstract: A new learning unit on scholarly communication topics was developed for a first-year undergraduate information literacy tutorial at an academic library serving two campuses of the University of Hawaii System. The author recruited participants through campus advertisements and compensated them for their time. The unit design featured a blended learning environment using a flipped-classroom instructional strategy. Students viewed three modules via an online learning management system before a planned face-to-face workshop session to apply learned concepts in a computer-based classroom. Modules consisted of multimedia learning objects presented in a timeline format. A pretest, posttest, and exit survey assessed learning and satisfaction. Results showed student comprehension of online content and general satisfaction with the structure and delivery of modules but participants did not attend the planned session. Recommendations from this study are made to academic librarians and other investigators seeking to adopt a similar approach to these topics.

Introduction

The Edwin H. Mookini Library is a joint-use facility on the Big Island of Hawaii serving the University of Hawaii at Hilo (UH-Hilo) and Hawaii Community College, two campuses of the statewide University of Hawaii System with a combined enrollment of approximately 5500 students. Eight Mookini librarians currently serve this student population through face-to-face library tours and instruction sessions.

First-year undergraduates may also participate in the Library's asynchronous multi-modular online information literacy tutorial as part of their freshman English composition course. The Mookini Library offers an online tutorial via the Laulima (Sakai) learning management system with a design that allows students to complete it independently of scheduled library instruction sessions. The Laulima tutorial requires students to navigate through four modules that feature multiple, text-oriented pages between a pretest, embedded practice quizzes, and a posttest.

Statement of the Problem

Some first-year English class instructors choose to schedule multiple library instruction sessions over the semester bookended with an orientation to the Laulima tutorial during

the first session and a final quiz administered at the last session. Between these dates, up to four additional sessions may be scheduled to discuss various topics or types of resources. As tutorial modules are not synchronized with library instruction sessions, students finish at their own pace. This arrangement creates a situation where some students do not complete the modules by the final session or may have completed them early and not retained some learned concepts.

This author chose to address student engagement by redesigning the tutorial for the spring semester of 2019 on the Canvas learning management system (Canvas LMS). The new Canvas tutorial featured a graphical design, with more images or videos and fewer pages to navigate. Modules tied directly to planned library sessions with students completing a module every two weeks before the next session.

The Canvas tutorial was beta-tested during the fall semester of 2019 with an early-college class enrolled through Hawaii Community College. Results from the beta-test phase suggested that the addition of a new unit addressing topics of scholarly communication could be beneficial to students' understanding of how to access and evaluate information sources. Such a new unit would also place more emphasis on the scholarly publishing process and the teaching of intellectual property concepts that would ideally support students' work as content creators with a related goal of eventually capturing undergraduate student work in the Hilo Online Knowledge University (HOKU), the campus online repository.

A 2013 white paper by the Association of College and Research Libraries, on the intersections of scholarly communication and information literacy, supports these changes and calls for new teaching and learning initiatives as an imperative to respond to the dynamic nature of the current scholarly information environment. Initiatives may take many forms but emphasize activities that educate students to be knowledgeable content consumers and creators, teach new technologies and rights issues, and build an infrastructure for scholarship and creative approaches to teaching (Pitts, n.d.).

As a result, the purpose of this instructional design project was to assess the learning outcomes of a new information-literacy learning unit on scholarly communication topics for first-year undergraduate students at the University of Hawaii at Hilo and Hawaii Community College. This study not only aimed to gauge the effectiveness of this new tutorial content, but also sought to gather data on the effectiveness of its application in a blended learning environment with an increased use of multimedia objects as tools to enhance learning.

Literature Review

Traditionally, academic libraries embed their instruction within college courses and often are limited to single face-to-face class sessions in the library or instructor's classroom. Some librarians have been vocal about the limitations of this approach and argued for the need to provide students with more comprehensive information literacy instruction, including online courses (Mery et al., 2012).

One solution to enhance student learning in response to this concern is a flipped classroom instructional strategy. Library tutorials adopting this approach may deliver modules before scheduled face-to-face sessions in the classroom to reinforce learning. However, experts recommend caution as students may enjoy participating in the flipped-classroom format but not necessarily perform better than in a traditional classroom setting. One important consideration is the capacity for students to actually complete content assignments and be prepared for the scheduled class instruction session (Rivera, 2017).

Information Literacy Learning Objects

Historically, libraries have used tutorials and subject guides to reach students both on and off-campus. Many tutorials use multimedia learning objects created by library staff or borrowed from other libraries when licensed for reuse. Current practices in the field call for utilizing such learning objects throughout an information literacy program to scaffold content as building blocks of knowledge towards a more holistic student learning experience. Libraries may build repositories of created or borrowed learning objects for future use, especially those with limited budgets (Courtney & Wilhoite-Mathews, 2015). This scenario is especially attractive to the Mookini Library, a small unit on campus with limited financial and personnel resources.

Information literacy learning objects (IL LO), have been created by many librarians and institutions both within academic centers of learning as well as public libraries. Bordignon and others (2016) note these objects have been created on many topics with a positive impact on student performance, especially with regard to teaching skills required to find articles. However, Hanh (2012) cautions that while many students generally find library instruction videos useful as lectures, those that are still comfortable with course readings appreciate having the option to choose between the two formats. Library tutorials that offer a more personalized learning experience should find success among students with different learning styles.

Scales et al. (2014) note that while simply including visual and aural elements may generally enhance tutorial design, the effectiveness of instruction through multimedia depends greatly on how well the information is presented. By following basic guidelines of multimedia presentation, content is effectively communicated to students freeing them to identify their own needs as they learn. Theories and principles such as cognitive load theory, multimedia learning theory, visual cueing, Meyer's modality effect, Anderson's ACT-R theory, and Keller's ARCS model ground these guidelines to maintain engagement and maximize learning.

Scholarly Communication

Scholarly communication is defined as "the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for the future". These steps constitute the scholarly communication lifecycle and involve multiple stakeholders (Fruin, n.d.). Topics within

this area often include an introductory discussion of scholarly publishing and the peer-review process that help students gain confidence in using scholarly materials in their assignments and projects. While first-year undergraduate students may not be aware of publisher rights, access models, and the impact of specific journals on research, there is a need for understanding the process and distinguishing scholarly material from popular sources they may otherwise wish to use (Riehle & Hensley, 2017).

However, there is also an opportunity to teach students the related skills of recognizing intellectual property and a basic understanding of the implications of copyright and obtaining permission for the material they may choose to reuse or publish in an open environment. Riehle & Hensley (2017) also note that while undergraduate students do not necessarily think of the library as a place to learn about scholarly communication, librarians are in a unique position to support students as knowledge creators. Students should be aware of restrictions on their use of published information in their own scholarly works.

Library instruction programs have typically taken two approaches to teaching undergraduate students about scholarly communication topics. One approach is from a sociocultural frame of reference. This approach focuses on defining and identifying peer-reviewed journals as well as discussing the peer-review process and why it is important. The other approach is from an economic frame of reference addressing the idea that scholarly information may have great value and that journal article access may be too costly for most people's personal budget. This approach not only reinforces to students the value of libraries and their collection budget to fund access but also highlights the problem they may face in resolving their own information needs once they have graduated (Duckett and Warren, 2013).

Furthering this discussion, students can be shown the relationship of the scholarly article to a search tool. Traditionally, both librarians and instructors may focus on a simple message to first-year students by requiring only library subscription databases for their writing assignments and prohibiting popular internet sources they may otherwise find via Google searches. However, instructional strategies should engage students about the business of scholarly communication and the value of articles that lie within the "deep" Web and may be unavailable for free access. By doing so, students come to realize that information is a commodity where discoverability is distinguished from access (Warren & Duckett, 2010).

Students may question the value of such commodities and the resulting barriers to access as a social justice. This creates an opportunity for a discussion of open-access publishing and fosters an awareness of the need to expand public accessible knowledge. While librarians may focus on the skills needed to locate and cite such resources, they should also remind students of the credibility and relevance of this information for their assignments (Bruce, 2018).

Methodology

The target audience for this new learning unit was first-year undergraduate students at the University of Hawaii at Hilo or Hawaii Community College enrolled in ENG 100, a freshman composition course. Instructional content was at an introductory-level appropriate for lower-undergraduate students with little to no prior knowledge of scholarly communication or information literacy concepts. The online posttest and satisfaction survey provided data that helped answer the following research questions:

- How well do first-year students at UH Hilo and Hawaii Community College understand unit concepts?
- How do these students describe their experience completing a new information literacy unit and synchronous library instruction session?

Content Analysis

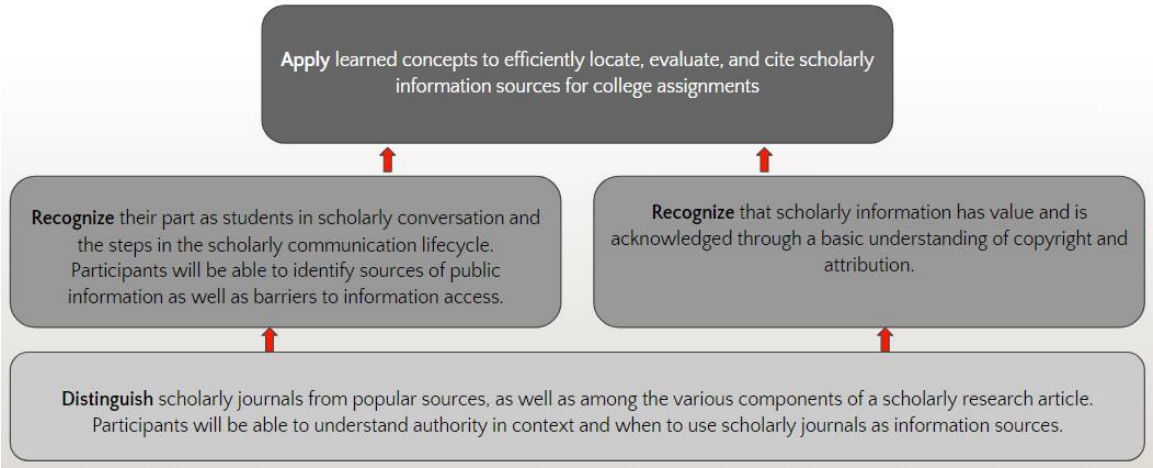
The unit featured three asynchronous online modules designed for cognitive learning in three areas. First, students learn to recognize characteristics of scholarly sources. Second, students develop appreciation for the importance of the scholarly conversation in open sources as well as barriers to access to traditional publishing. Third, students receive a basic introduction to copyright and attribution that they need to create and publish their own works online. Upon completion of the modules, the unit utilized a flipped-classroom strategy to get students into the Library's computer-based classroom for a synchronous learning session. There students apply module concepts to locate and cite scholarly information sources to support topics of interest to themselves (Figure 1).

Unit learning objectives aligned with the Association of College and Research Libraries' Framework for Information Literacy for Higher Education. This framework is a set of interconnected core information literacy concepts that can be implemented more flexibly by librarians rather than a list of prescriptive skills. Each of these six frames feature a central concept to achieving information literacy and includes a set of knowledge practices and dispositions that characterize learners who are developing their information literate abilities (Mueller, 2015).

Instruction for this unit focused on two frames: Information Has Value and Scholarship as Conversation. However, there was also some overlap with other frames. It was expected that students will develop the knowledge practices and dispositions that allow them to become familiar with the use of scholarly sources; realize a basic understanding of intellectual property and its impact on the reuse of scholarly information; and how and why individuals may be marginalized within the systems that produce and disseminate this information.

Figure 1

Content Analysis & Learning Objectives



Participants

The target audience for this study included not only those students currently enrolled in a freshman composition course (ENG 100 or ENG100T), but also those who had recently completed those courses during the fall 2019 semester. The ideal group of participants were ten to fifteen students with approximately half from each campus that provided consent to participant in the study and had not completed the Library's current Laulima online tutorial. Participation in the study had no bearing on grades given with their college course work.

Participants may or may not have received basic information literacy instruction in their previous high school coursework. As a result, they were not expected to have prior knowledge of information literacy concepts that are applicable to the university environment or the college-level research process.

The planned method of primary recruitment consisted of working with an English instructor to offer students the opportunity to participate in the study as part of their scheduled class library sessions. Any additional recruitment needed was to be though the posting of flyers at various locations on campus and at library service desks (Appendix A). A five-dollar print station card served to incentivize students to participate and complete the study by submitting answers to instrument questions. This student investigator personally funded all print card incentives.

Instruments

The unit design included pretest and posttest instruments to assess learning. Each quiz included fifteen questions similar in style to those used in the current Laulima tutorial. Quizzes included a combination of multiple choice, matching, or true/false questions. Pretest and posttest questions were parallel.

After administration of the posttest, the unit concluded with a participant exit survey. This Google Forms survey required approximately ten minutes to complete and consist of fifteen questions to gather demographic data, course perceptions, and short comments on aspects of the unit participants liked, disliked, or would suggest as design improvements (Appendix B).

Project Design

The entire project, including unit content, assessments, and a scheduled classroom session was expected to require approximately 2.5 hours for participants to complete. The asynchronous portion of the unit used a "nested container" design for ease of maintenance.

At the top level, this design featured the Canvas learning management system (Canvas LMS) as a delivery platform for the learning unit modules and instruments. It also included a start page with introductory information about the unit and a link back to a syllabus with an overview of the study, technical requirements for access, and further instructions for assistance. Participants were required to complete the pretest instrument before advancing to the first module (Appendix C).

Within Canvas LMS, each of three module pages included an embedded Sutori presentation. Sutori is an online platform that delivers multimedia content in a timeline format that many learners find easy to navigate. Students view all module content by scrolling through the embedded presentation window without having to navigate multiple pages. In addition, students have the option of creating a free Sutori account if they wish to take advantage of the built-in comment features for presentation content.

Lastly, the information literacy learning objects themselves consisted of brief animated cartoon videos, narrated slide shows, figures and text embedded within each presentation. Appendix D provides an example of learning objects embedded within the Module 2 presentation. Most unit learning objects were typically around three minutes in length and designed by this author or borrowed from other information literacy programs under Creative Commons licenses that allowed reuse for educational purposes. A Wakelet account served as a central shared repository for selection of linked learning objects. This curated collection aids in tutorial maintenance as well as functions as a way for Mookini librarians to share new learning objects that would aid future tutorial design and library instruction sessions.

Following completion of the online modules, students had the option to participate in a fifty-minute, face-to-face instruction session with a librarian in a computer-based classroom to reinforce knowledge of learned information and concepts. As outlined in Table 1, this session's lesson featured an engagement activity, followed by a demonstration of Google Scholar searching, and time for students to conduct their own search and post a reflection on a scholarly open-access information source they found on a topic of interest. The session set aside an additional twenty-five minutes of class time for completion of the online posttest and exit survey.

Session activities followed the ARCS motivational strategy (Keller, 1987). The lesson plan starts with a Kahoot! quiz chosen as an icebreaker activity to engage students in a ten-question review of module content. Kahoot! quiz games require students to compete with one another to earn points by selecting the correct answer to a question as quickly as possible. Following this activity, students receive a demonstration of how to use Google Scholar and ZoteroBib to find and cite an open access journal article. The demonstration serves to highlight the importance of access and attribution as well the relevance of this activity to students' need for finding and citing scholarly online sources for their class writing assignments.

Students gain confidence in the use of these tools by performing their own searches from classroom computers on a topic of interest. At the end of the session, students participate in a Padlet activity to quickly evaluate their chosen sources then post a brief online annotation and citation. Padlet discussion walls allow each student to create posts that may include text, hyperlinks and images. As these posts are viewable by the entire class in real time, students obtain a sense of satisfaction in seeing successful application of unit concepts as well as understanding the challenges others may experience.

Table 1

Library Classroom Lesson Plan

Time	Task
5 min.	Introduction & lesson overview
10 min.	Engagement activity: Module review quiz with Kahoot!
10 min.	Demonstration: Google Scholar library links configuration, topic search and auto-citation
10 min.	Student search practice
10 min.	Identify and post found article and citation with brief reflection using Padlet
5 min.	Questions and reminders for completing the study

Procedures

The planned study obtained university institutional review board (IRB) approval to run over four weeks in February 2020 as detailed in the timeline in Table 2. A consent form provided study details to participants and directed them to the learning unit with a provided access code. Students implied their consent to participate through successful registration with the Canvas learning management system (Appendix E).

The project aimed to have participants complete the asynchronous portion of the unit and pretest during the first two weeks. The timeline included a week at the end for participants to attend the optional synchronous class session and to complete the posttest and online exit survey afterwards. Participants completing the study receive the print card incentives at this time.

After the administration of all instructional activities and assessments, approximately two to three weeks were used to collect data analysis and prepare results for discussion and presentation to an online conference. Graphs and tables visualized data. Project activities concluded with a report to the IRB and submission of this paper for publication to the university online repository.

Table 2

Instructional Design Project Goals and Timeline

Date	Task
October	• Begin writing detailed project plan. • Begin the IRB approval process. • Create data collection tools (i.e. pre and posttests, survey)
November	• Continue drafting and revising project plan • Begin module construction
December	• Finalize project plans for approval • Finalize module construction.
January	• Begin project implementation upon IRB approval • Start participant recruitment
February	• Enroll participants in module • Administer module pretest and online content • Perform face-to-face instructional session • Administer module posttest and satisfaction survey
March	• Compile and analyze results data • Complete final paper draft
April	• Create TCC presentation slides • Conduct TCC presentation
May	• Complete final paper

Analysis & Results

The original plan to recruit participants in conjunction with a scheduled English class failed. Therefore, this author focused on recruitment by flyer advertisements posted within the Mookini Library and at various locations around the UH-Hilo campus. In addition, this investigator sought recruitment assistance from instructors of seven other freshman-level English and Art classes, the Mookini Library's cohort of student assistants, as well as through the Learning Center, a tutoring center for Hawaii Community College.

Twelve students enrolled in the study. However, only eight students completed the modules, pretest and posttest. Seven of these eight students completed the course exit survey. None of the enrolled students chose to participate in the optional classroom session.

As detailed in Table 3, most participants were UH Hilo students, female, and had prior experience with the Library's current Laulima tutorial. Unfortunately, only two Hawaii Community College students and two males chose to participate in the study. Perhaps a more encouraging aspect was that five participants indicated they were in the study's target audience of first or second-year students.

Table 3

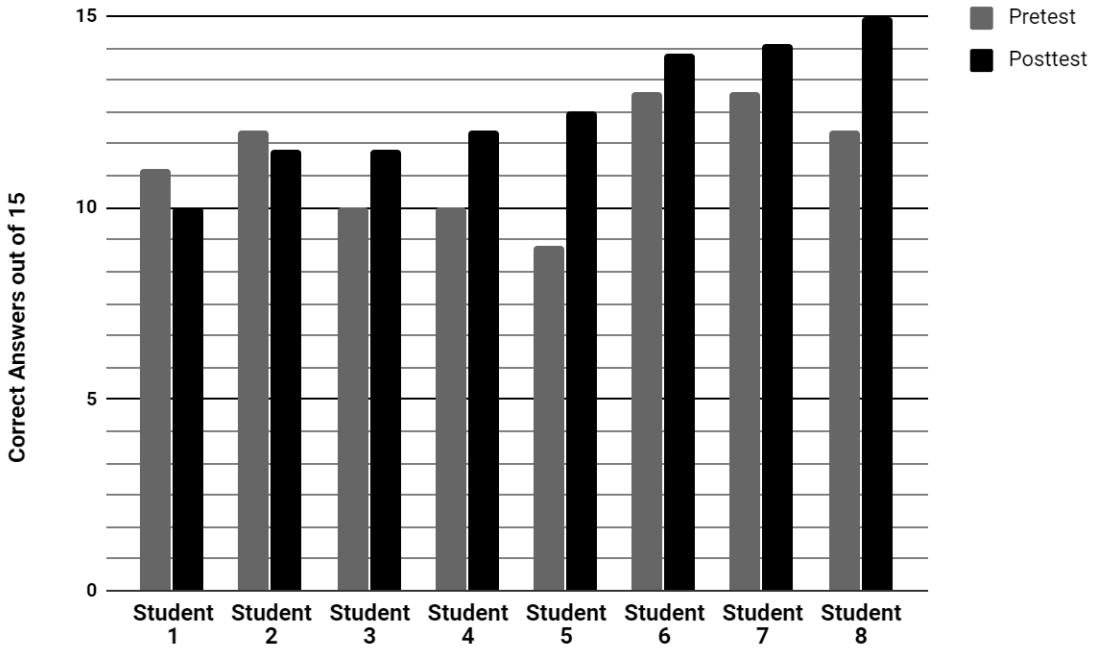
Participant Enrollment Status, Gender, Home Campus, and Tutorial Experience

Characteristics	Number	Percent
Current Enrollment		
Freshman	1	12.5%
Sophomore	**4**	**50%**
Junior	1	12.5%
Senior	2	25%
Gender		
Female	**6**	**75%**
Male	2	25%
Home Campus		
University of Hawaii at Hilo	**6**	**75%**
Hawaii Community College	2	25%
Experience with Laulima Library Tutorial		
Never completed	**3**	**37.5%**
Completed last semester	3	37.5%
Completed last year or earlier	2	25%

Of the eight students who completed the study, all but two students showed an improvement in learning between their pretest and posttest scores (Figure 3). Five students scored at least 80% or higher on the posttest. Eighty percent is the minimum score students must obtain on the Laulima module practice quizzes without a requirement to retake a quiz.

Figure 2

Unit Tests

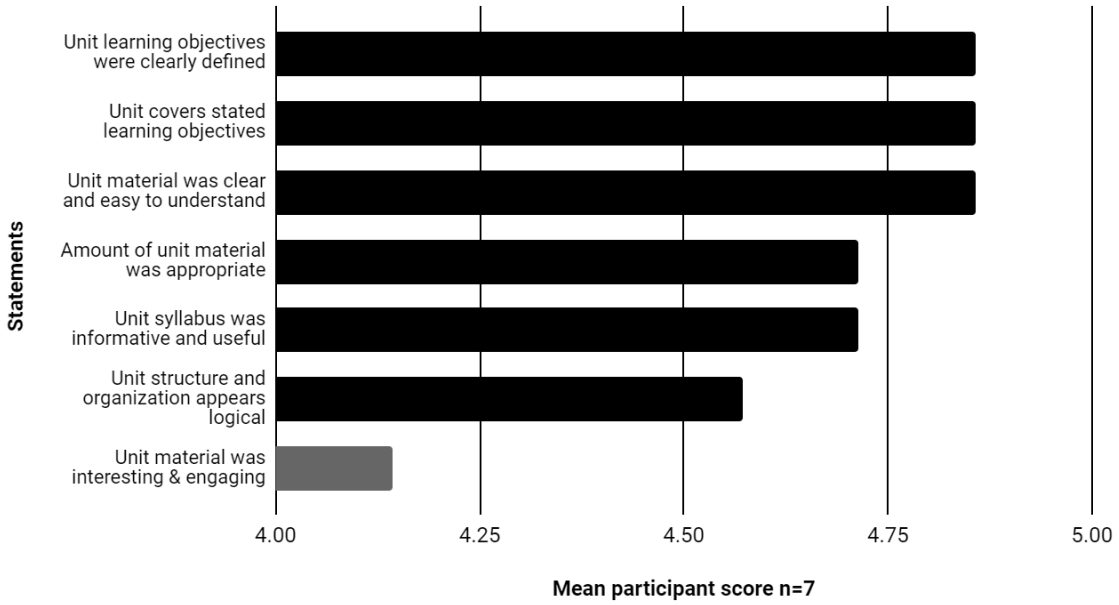


The exit survey collected the above demographic data as well as student responses about their perception and satisfaction with the learning unit's structure, organization and material. The survey asked participants to rate the unit in seven areas according to a five-point Likert scale with 1 being *strongly disagree* and 5 being *strongly agree*. As noted in Figure 3, seven of the eight students completed the survey where the mean rating for each area was between a score of 4 (*agree)* and 5 (*strongly agree).*

Scores indicated that all students agreed or strongly agreed the unit was logically structured and organized as well as contained an appropriate amount of material; that the unit covered the stated learning objectives and that these objectives were clearly defined; and that the syllabus was informative and useful. However, the lowest mean score for the survey reflected interest and engagement of the learning material. Here, four students agreed that the material was interesting and engaging, two students strongly agreed with that statement, and one student gave the lowest score of 3 (*neutral*).

Figure 3

Unit Perceptions



The last portion of the exit survey asked participants to comment on what they liked or disliked about the study. They were also asked what aspects they thought could be improved. Most comments were very positive with very few dislikes.

As noted by the word cloud in Figure 5, of all participant responses about what they liked most, the main theme of the comments were how most of the participants really liked the video content. Some students commented that they liked the variety of content types and quiz questions; others did not like the amount of text or breadth of content covered by the quiz questions.

Suggestions for improvements included a greater emphasis on scholarly journal article components, limiting the amount of IL LO text with shorter descriptions or using bullet points, and incorporating practice quizzes at the end of each of the three modules. One student commented on their hearing impairment and suggested that all videos have subtitles as some had poor audio quality.

Figure 4

Unit Comments

Note. Seven student comments represented as a word cloud in response to survey question: "What did you like most about the course?"

Discussion

In this author's experience, first-year undergraduates often perceive information literacy topics to be dry or boring, which may lead to poor learning and performance from unengaging tutorials or assessments with traditional library lectures and demonstrations. This design project aimed to answer two research questions about student understanding of new module content and student experience with a new instructional strategy.

Student Learning

Results from the posttest demonstrated learning among six of the eight participants within the asynchronous modules. However, only one of these six participants was a first-year student. Questions remain as to whether or not the first-year student or all undergraduate participants would have performed better on the unit posttest had they participated in the scheduled classroom session and engaged in active learning exercises to reinforce and apply new concepts. In addition, participant comments from the exit survey suggested that the inclusion of brief module practice quizzes could be more helpful to their knowledge retention.

The lack of participation for the face-to-face session may have been a result of the perception among students that it constituted an unreasonable time commitment of an additional fifty minutes when factored into the study's requirements. Most students that completed the online portion of the study did so within sixty to seventy-five minutes as measured by total activity within the Canvas learning management system.

With the failure to target the study to a particular class and scheduled library session, recruitment was generally difficult. After approximately six weeks of recruitment, the print card incentives proved to be relatively ineffective in garnering interest among campus students or retaining their participation after enrollment. As a result, most students who completed the study were library assistants whose supervisors allotted time for them to participate during work shifts.

Finally, there was confusion among some students in enrolling for the study and remembering which email they had used to register with Canvas. University of Hawaii students typically use the Laulima learning management system for coursework and access that platform with their UH username and password.

Student Experience

The results from the online exit survey were more positive than expected with all responding students agreeing with most unit perception statements. All students appeared to be comfortable and satisfied using the Canvas learning management system, Sutori presentations, and appreciated the video content to explain detailed information. As further illustrated in one participant's words:

> What I liked most about the study was how it had several videos explaining different types of subjects by which I have a better understand [*sic*] how things work. Like I knew about the topics but I did not know the detail [*sic*] information about them. Now I have a better understanding of how things work when doing research papers. (UH Hilo student)

The lowest rated score, the unit perception statement addressing interest and engagement with the material itself, was not completely surprising. Some students commented that the variety of video, image and text content was enjoyable and engaging while others commented that the reading text associated with the online videos or other objects within each Sutori presentation were distracting, not concise, or not necessary to learning the concept or skill. The latter view may have been a result of design error that impaired some students' capacity to learn. As discussed within the context of cognitive load and multimedia learning theory described by Scales et al. (2014), content not effectively managed between audio and visual channels of learning may introduce distraction. Perhaps a greater focus on using video as the only medium to convey information in the online presentations would provide for a simpler and more engaging learning experience for first and second-year students.

Conclusion

This study fulfilled requirements for the Department of Learning Design & Technology's Master's degree program at the University of Hawaii at Mānoa. Reflecting upon this project's design process, this author notes a few challenges that future candidates and library professionals may wish to consider when conducting their own research.

First, the shortcomings of this study demonstrate the consequences that may result when designing for learners that fall outside a researcher's locus of control. Recruitment was extended to the maximum period allowed and the requirements of the unit modified to better accommodate participants' ability to commit the time necessary to complete the modules and assessments, yet the study failed to recruit the desired number of participants.

Second, with regard to the appeal of familiar or attractive design tools, student investigators should not overlook learning management systems or other educational technology with access methods similar to the online campus tools students actually use. Familiar campus login credentials serve to minimize enrollment confusion such as that experienced among this study's participants.

Third, reliance on an anonymous exit survey in this study limited data collection and contributed to problems with analysis. Students who enrolled but never finished the study did not record any demographic or qualitative data. One student completed the modules but chose not to respond to the exit survey. The addition of a pre-survey to solicit information from all participants before they progress through module content will ensure that more data is collected and may provide clues as to why some students choose to drop out.

Lastly, librarians seeking to use this design model should attempt to connect asynchronous online learning modules to scheduled library instruction sessions already in place for freshman courses so as not to constitute a burden in additional time or workload to students outside of class. Alternatively, librarians may wish to explore more effective student recruitment and study participation incentives. Course extra credit or gift cards that can be used off-campus should be considered.

The use of short, embedded video content can be an effective way to stimulate interest among undergraduate students. Sutori's capability to present content in a graphical and timeline format provides academic librarians with an attractive tool to convey information literacy concepts to those first-year students who may otherwise find this information uninteresting. However, features that provide designers the opportunity to include descriptive text and interactive options with multimedia objects may introduce distraction and overwhelming students' capacity to learn if not properly managed. A suggested area for future investigation is a deeper assessment of the effectiveness of brief animated video within timeline presentations to reach this audience.

References

Bordignon, M., Strachan, G., Peters, J., Muller, J., Otis, A., Georgievski, A., & Tamim, R. (2016). Assessment of online information literacy learning objects for first year community college English composition. *Evidence Based Library and Information Practice, 11*(3), 50-67. https://doi.org/10.18438/B8T922

Bruce, S. (2018). Open access for scholars left behind: The issue of limited access to data and scholarship. *International Information & Library Review, 50*(3), 236–243. https://doi.org/10.1080/10572317.2018.1491708

Courtney, M., & Wilhoite-Mathews, S. (2015). From distance education to online learning: Practical approaches to information literacy instruction and collaborative learning in online environments. *Journal of Library Administration, 55*(4), 261–277. https://doi.org/10.1080/01930826.2015.1038924

Duckett, K., & Warren, S. (2013). Exploring the intersections of information literacy and scholarly communication: Two frames of reference for undergraduate instruction in Davis-Kahl, S., and Hensley, M. K. (Eds.) *Common ground at the nexus of information literacy and scholarly communication* (pp. 35-54). Association of College and Research Libraries, a division of the American Library Association.

Fruin, C. (n.d.). Scholarly communication toolkit: scholarly communication overview [LibGuide]. Retrieved October 16, 2019, from http://acrl.libguides.com/scholcomm/toolkit/home

Hahn, E. (2012). Video lectures help enhance online information literacy course. *Reference Services Review, 40*(1), 49–60. https://doi.org/10.1108/00907321211203621

Keller, J. M. (1987). Strategies for stimulating the motivation to learn. *Performance+ Instruction, 26*(8), 1-7. https://doi.org/10.1002/pfi.4160260802

Mery, Y., Newby, J., & Peng, K. (2012). Why one-shot information literacy sessions are not the future of instruction: A case for online credit courses. *College & Research Libraries, 73*(4), 366-377. https://doi.org/10.5860/crl-271

Mueller, D. (2015). Framework for information literacy for higher education. Retrieved October 20, 2019, from: http://www.ala.org/acrl/standards/ilframework

Pitts, J. (n.d.). Intersections of scholarly communication and information literacy: teaching and learning [LibGuide]. Retrieved October 20, 2019, from https://acrl.libguides.com/intersections/roadshow/teaching_learning

Riehle, C. F., & Hensley, M. K. (2017). What do undergraduate students know about scholarly communication? : A mixed methods study. *Portal: Libraries and the Academy, 17*(1), 145–178. https://doi.org/10.1353/pla.2017.0009

Rivera, E. (2017). Flipping the classroom in freshman English library instruction: A comparison study of a flipped class versus a traditional lecture method. *New Review of Academic Librarianship*, *23*(1), 18–27. https://doi.org/10.1080/13614533.2016.1244770

Scales, B. J., Nicol, E., & Johnson, C. M. (2014). Redesigning comprehensive library tutorials. *Reference and User Services Quarterly*, *53*(3), 242–252. https://doi.org/10.5860/rusq.53n3.242

Warren, S., & Duckett, K. (2010). "Why does google scholar sometimes ask for money?" Engaging science students in scholarly communication and the economics of information. *Journal of Library Administration*, *50*(4), 349–372. https://doi.org/10.1080/01930821003667021

APPENDIX A

Information Literacy Research Study

Contact Brian Bays, LTEC Graduate Student & UHH Librarian
808.932.7310 / bbays @hawaii.edu

Are you a first or second-year undergraduate student? Help us by participating in a short learning assessment

FEBRUARY 2020

Study Overview

This study aims to assess the effectiveness of a new learning module as part of a proposed information literacy tutorial for undergraduates at UH Hilo & Hawaii Community College.

What do I need to do?

Complete a self-paced, online learning module and an **optional** scheduled 50-minute face-to-face session in the library classroom. You will also take a short pretest, posttest and a satisfaction survey.

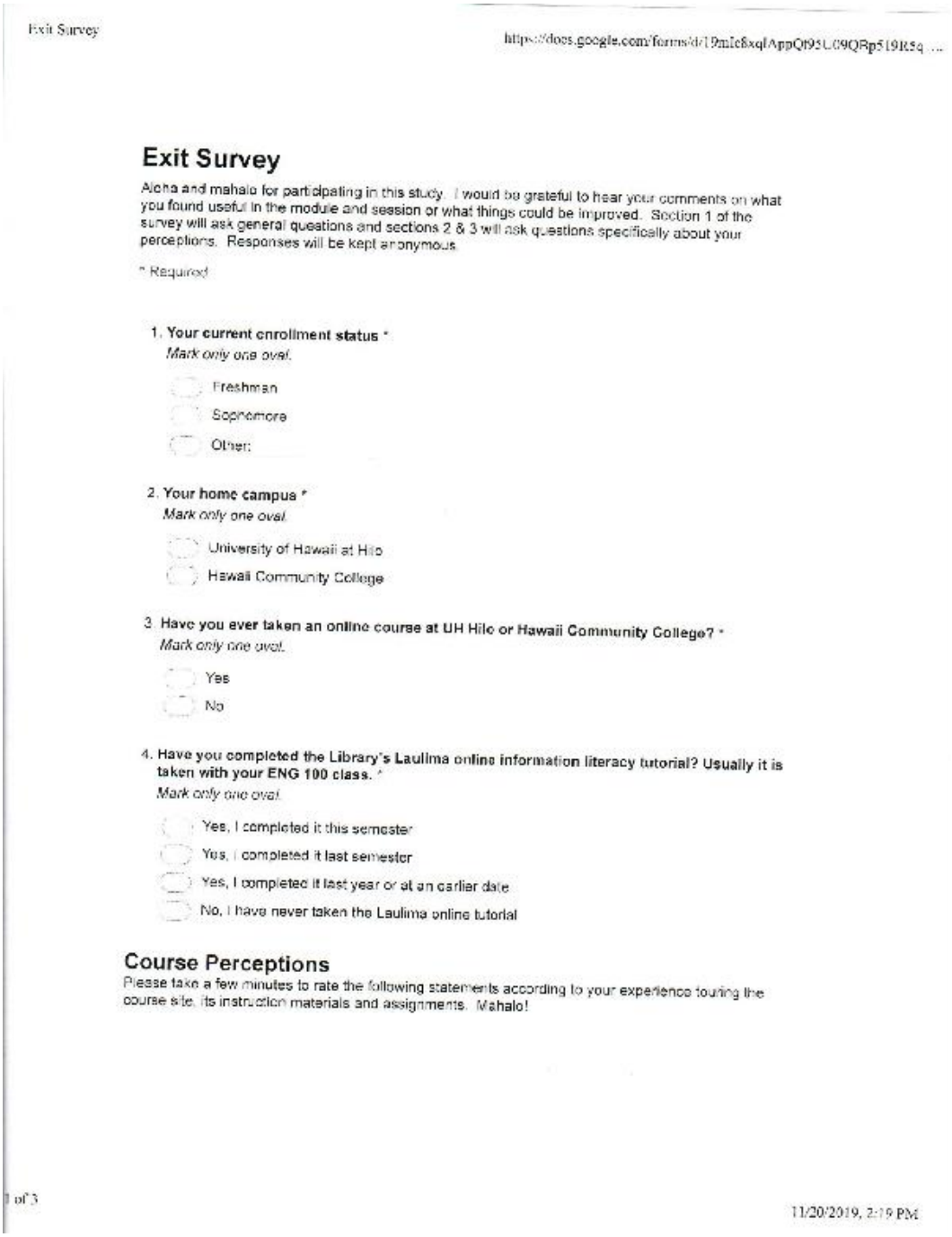
How long will this take me to complete?

You will need to commit approximately 1 hour of your time to complete the study (not including attendance at the optional scheduled session date).

Participants earn a $5 print card

Participants in the study will receive a $5 print card in appreciation for their time and effort.

APPENDIX B



Exit Survey https://docs.google.com/forms/d/19mIc8xqIAppQt95L09QRp519R5q ...

Exit Survey

Aloha and mahalo for participating in this study. I would be grateful to hear your comments on what you found useful in the module and session or what things could be improved. Section 1 of the survey will ask general questions and sections 2 & 3 will ask questions specifically about your perceptions. Responses will be kept anonymous.

* Required

1. **Your current enrollment status** *
   Mark only one oval.
   - Freshman
   - Sophomore
   - Other:

2. **Your home campus** *
   Mark only one oval.
   - University of Hawaii at Hilo
   - Hawaii Community College

3. **Have you ever taken an online course at UH Hilo or Hawaii Community College?** *
   Mark only one oval.
   - Yes
   - No

4. **Have you completed the Library's Laulima online information literacy tutorial? Usually it is taken with your ENG 100 class.** *
   Mark only one oval.
   - Yes, I completed it this semester
   - Yes, I completed it last semester
   - Yes, I completed it last year or at an earlier date
   - No, I have never taken the Laulima online tutorial

Course Perceptions

Please take a few minutes to rate the following statements according to your experience touring the course site, its instruction materials and assignments. Mahalo!

1 of 3 11/20/2019, 2:19 PM

5. **Course syllabus was informative and useful** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

6. **Course learning objectives were clearly defined** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

7. **Course covers stated learning objectives** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

8. **Course structure and organization appears logical** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

9. **Amount of course material (presentations, videos, etc.) was appropriate for understanding this topic** *
Mark only one oval.

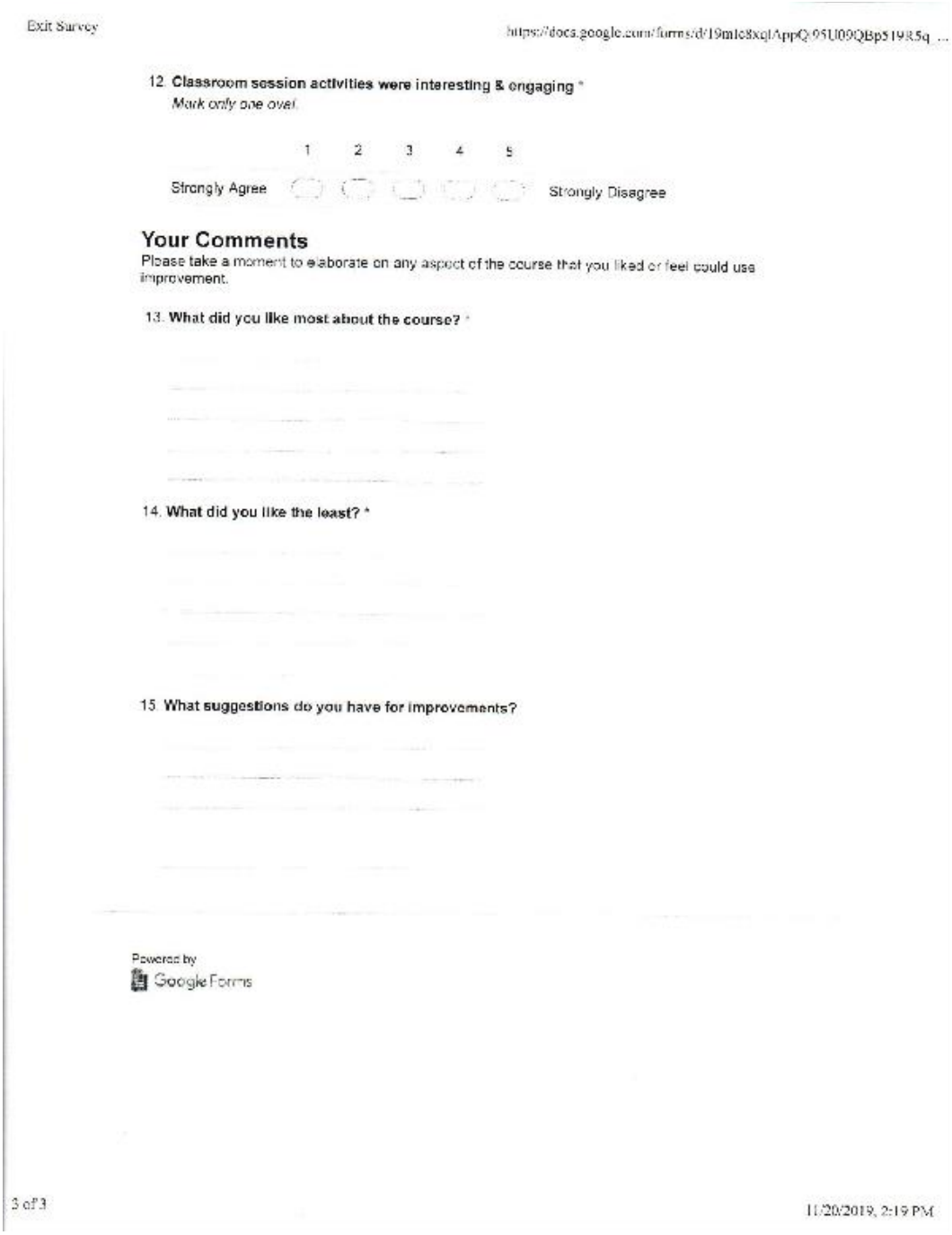
	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

10. **Course material was clear and easy to understand** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

11. **Course material was interesting & engaging** *
Mark only one oval.

	1	2	3	4	5	
Strongly Agree	◯	◯	◯	◯	◯	Strongly Disagree



Exit Survey https://docs.google.com/forms/d/19m1c8xqlAppQ-95U09QBp519R5q ...

12. **Classroom session activities were interesting & engaging** *
Mark only one oval.

	1	2	3	4	5	
Strongly Agree	◯	◯	◯	◯	◯	Strongly Disagree

Your Comments

Please take a moment to elaborate on any aspect of the course that you liked or feel could use improvement.

13. **What did you like most about the course?** *

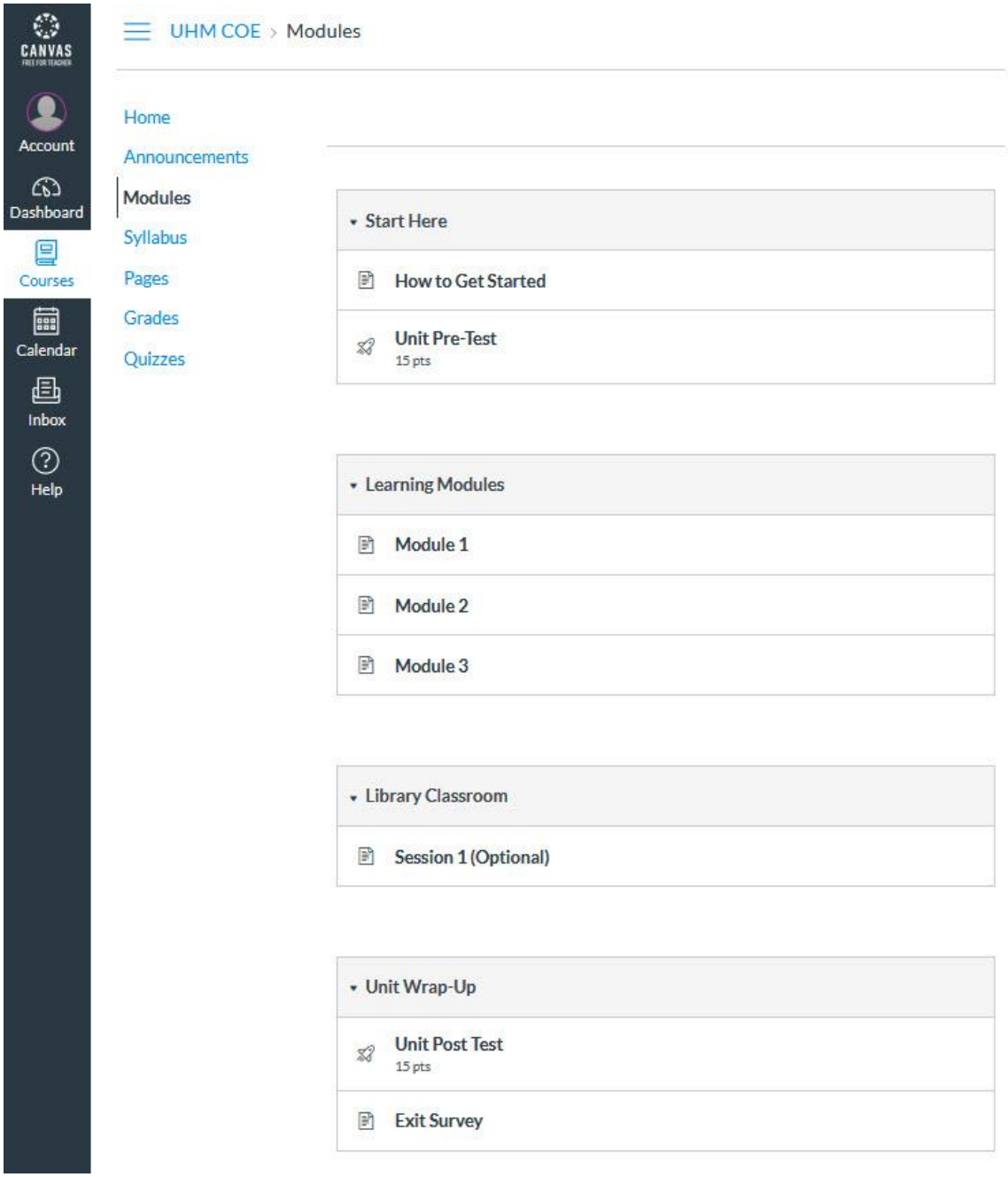
14. **What did you like the least?** *

15. **What suggestions do you have for improvements?**

Powered by Google Forms

3 of 3 11/20/2019, 2:19 PM

APPENDIX C


CANVAS
Account
Dashboard
Courses
Calendar
Inbox
Help
UHM COE › Modules
Home
Announcements
Modules
Syllabus
Pages
Grades
Quizzes
Start Here
How to Get Started
Unit Pre-Test
15 pts
Learning Modules
Module 1
Module 2
Module 3
Library Classroom
Session 1 (Optional)
Unit Wrap-Up
Unit Post Test
15 pts
Exit Survey

APPENDIX D

The Scholarly Conversation

Overview: In this module we will get into the idea and process of scholarly communication. You may have been asked to find peer-reviewed journals for an assignment. What makes peer-reviewed articles different? How does a research article go from lab to library? Finally, we will look at access to scholarly information and barriers that prevent access.

Benefits:

- You will be able to recognize your part in scholarly conversation and the steps in the scholarly communication life-cycle.
- You will be able to identify sources of open or public information as well as barriers to information access that exist due to the value of scholarly information as a commodity.

Research is a Conversation (02:02)

Although the content and structure of conversations vary based on many different factors, scholars may have conversations that are formally structured papers following documentation conventions in the field.

They may present studies and papers at conferences. The topic or problem addressed by the article may be part of a debate that goes on for years. There may be scholarly works that represent different sides of an issue and a particular work may not represent the only or majority perspective on an issue.

URL:
https://vimeo.com/176421612
Courtesy UNLV Libraries

Share Comment

Citations

When we think of scholarly conversations as articles and books, we see that the use of citations are the foundation of these conversations. Following the sources that scholars use to support their argument or position in papers, their use of citations allow them to expand on and credit the work of those who have come before.

Papers or articles "hook together" to allow others to follow an article's cited references to track down and discover other related works in a process called bibliographic or citation mining.

Share Comment

Peer Review in Three Minutes (03:15)

What exactly are peer-reviewed journal articles? View this short video to learn more about the peer review step

APPENDIX E

University of Hawai'i
Consent to Participate in a Research Project
Curtis Ho, PhD., Principal Investigator
Project title: Assessment of a Scholarly Communications Module

Aloha! My name is Brian Bays and you are invited to take part in a research study. I am a graduate student at the University of Hawai'i at Mānoa in the College of Education's Department of Learning Design & Technology (LTEC). As part of the requirements for earning my graduate degree, I am doing a research project.

What am I being asked to do?
If you participate in this project, you will be asked to (1) complete a short online pretest, (2) read or view subject material in an online learning module, (3) participate in a 50-minute face-to-face instructional session in the Mookini Library classroom, and (4) complete a short online post-test and satisfaction survey after the class session.

Taking part in this study is your choice.
Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you. Your choice to participate or not participate will not affect your rights to services at the Mookini Library.

Why is this study being done?
The purpose of my project is to evaluate the effectiveness of a new learning module as part of a proposed information literacy tutorial for lower undergraduates at the University of Hawaii at Hilo and Hawaii Community College. I am asking you to participate because you are a first-year or second-year undergraduate at one of these two UH campuses.

What will happen if I decide to take part in this study?
You will need to commit approximately 2 hours of your time to complete the requirements of this study. You will be asked to respond to multiple choice, matching, and short answer questions in the pretest, post-test, or satisfaction survey. Most of the study requirements can be completed at your own pace using an online learning management system before the given deadline. However, you will be expected to attend the face-to-face instructional session at the given date(s) in the Mookini Library computer based classroom (LRC 233).

What are the risks and benefits of taking part in this study?
I believe there is little risk to you for participating in this research project. You may become stressed or uncomfortable answering any of the pretest, posttest or survey questions. If you do become stressed or uncomfortable, you can skip the question or take a break. You can also stop taking the pretest, posttest and survey; or you can withdraw from the project altogether.

There will be no direct benefit to you for participating in these activities. The results of this project may help improve the Mookini Library's information literacy program to benefit future students.

Confidentiality and Privacy:
I will not ask you for any personal information, such as your name or address. You are not required to provide personal information to enroll in the course module. Please do not include any personal information in your short answer responses to the satisfaction. I will keep all study data secure in a locked filing cabinet in a locked office/encrypted on a password-

University of Hawai'i
Consent to Participate in a Research Project
Curtis Ho, PhD., Principal Investigator
Project title: Assessment of a Scholarly Communications Module

protected computer. Only my University of Hawai'i advisor and I will have access to the information. Other agencies that have legal permission have the right to review research records. The University of Hawai'i Human Studies Program has the right to review research records for this study.

Compensation:
You will receive a $5 print card for use with the UH Hilo campus networked printing system for your time and effort in participating in this research project.

Future Research Studies:
Even after removing identifiers, the data from this study will not be used or distributed for future research studies.

Questions: If you have any questions about this study, please call or email me at 808-932-7310 or bbays@hawaii.edu. You may also contact my faculty advisor, Dr. Curtis Ho, at 808-956-7771 or curtis@hawaii.edu . You may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu to discuss problems, concerns and questions, obtain information, or offer input with an informed individual who is unaffiliated with the specific research protocol. Please visit http://go.hawaii.edu/jRd for more information on your rights as a research participant.

To Access the Module: Please go to the following web page:
https://canvas.instructure.com/register . You will be given a code and asked to enroll in the module. You will find instructions on the home page for completing the pretest, learning materials, classroom session, posttest and survey. Enrolling in the module implies your consent to participate in this study.

Please print or save a copy of this page for your reference.

Mahalo!