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Christi Piper

Joel Tonyan

Norah Mazel

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PREPARING YOUR CROP: UNDERSTANDING STUDENT EXPERIENCES WITH NEW TECHNOLOGY AND THE IMPACT ON INSTRUCTION

CHRISTI PIPER, JOEL TONYAN AND NORAH MAZEL

INTRODUCTION

As web scale discovery (WSD) tools become more popular in libraries, librarians are faced with the question of whether to incorporate them into library instruction or to continue teaching information literacy skills using traditional library resources. With the implementation of Summon in August 2016, the Kraemer Family Library at the University of Colorado Colorado Springs (UCCS) was faced with that very question: how does Summon integrate with our information literacy instruction? At UCCS, information literacy instruction is integrated into the freshman seminar course, the second semester English Writing Program courses, and through liaison librarians that work with specific departments and colleges on campus. We needed to decide what courses would benefit the most from Summon and the best practices for teaching Summon in our library, with the additional goal of using the changes as a catalyst for greater implementation of the ACRL Framework for Information Literacy for Higher Education into our curriculum.

Before making the decision about whether or not to implement Summon into formal instruction, it was important to develop an initial understanding of how different library users might react to Summon. Buck and Steffy (2013) noticed that there is a “desire by students for library search facilities to be similar to traditional search engines” (p.68), but Asher, Duke, and Wilson (2013) found that students had a hard time evaluating the results to find appropriate sources for particular research tasks. While students are generally receptive to WSD, the same cannot always be said of librarians. Kulp, McCain, and Scrivener. (2014) found that “reference and instruction librarians still overwhelmingly prefer to teach the native interfaces over their institution’s one-box product” (p.307). Knowing that students would want to use Summon and that it would soon be the primary search box on the library website, we decided we needed to better understand how our students interact with the tool to learn how intuitive it is and to provide support to librarians.

We conducted a usability study to answer the following questions: (a) how intuitive is Summon? (b) how learnable is Summon? (c) does Summon need to be taught to students? If so, when is the appropriate time to teach Summon in library instruction? and (d) what do we need to teach about Summon? Determining the answers to these questions allowed us to provide suggestions to librarians about how to use Summon for information literacy instruction and provide activities to encourage incorporation of Summon into instruction.

METHODOLOGY

The mixed methods study was conducted at UCCS, a member of the four-campus state university system of Colorado, with an FTE of more than 12,000 students, including 10,400 undergraduates and 1,800 graduate students as of 2017.

The study was conducted between July and November 2016 and included nine participants: four freshman, one sophomore, three seniors, and one graduate student. Two participants had previously had formal library instruction at UCCS and seven had not. Participants were recruited via the campus student listserv, which reaches all currently enrolled students. We originally intended to

study ten participants, including at least one junior, but one student withdrew before participating; due to time constraints we were not able to recruit a substitute. Participants were provided with a ten-dollar gift card for use at the UCCS dining facilities.

Data collection methods included pre- and post-surveys and usability testing. The pre- and post-surveys were administered using SurveyMonkey and included multiple choice, Likert-scale, and open-ended questions (see Appendix A). The usability tests were conducted in a librarian's office using Camtasia for screen and audio recording. Participants were instructed beforehand to use talk-aloud protocol as they completed the study tasks. The study itself consisted of five tasks (see Appendix B).

LIMITATIONS OF THE STUDY

There are a few important limitations of our study to note. In the middle of testing, ProQuest updated the Summon interface to address some common user issues. This did not affect our ability to compare results because the elements that we were asking students to locate in Summon were not any easier for them to locate after the update.

Our distribution of students across academic standings limits our ability to generalize results, specifically with second-year and graduate students. We had only one student participate from each of these categories, so their results cannot be used to represent the levels as a whole, but can indicate areas of Summon that may be problematic to all users. The study also included only nine participants. While Nielsen (2012) points out that five is a sufficient number for achieving insights in a usability study, twenty or more participants are necessary to obtain statistically significant results. While we will present some statistics and analysis about participants, they cannot be applied to populations at large without evaluation of context.

RESULTS

Participants performed well finding known items in the library's collection. All participants completed task 1 and task 3, respectively, in under two minutes. The majority of participants reported that these tasks were "easy" or "very easy". However, three of the participants rated task 3 as "difficult" and complained that the "video recordings" content type was not immediately obvious and required clicking "More" and then "Apply" after selecting the appropriate content type to filter the results. Nevertheless, they still managed to complete the task in under two minutes.

Table 1: Task 1 Completion Time

Table 2: Task 3 Completion Time

Results were mixed with task 4, which asked participants to find a known journal article and access, email, and cite it. While six of the participants completed the task in less than two minutes, three took longer, with one taking more than six minutes. The participants all located the correct article in less than ten seconds. Where many struggled was in locating Summon's built-in citation feature. Three of the participants took more than a minute to find it and one participant took more than four minutes. Participant 1 tried a variety of Summon's facets (including Subject Terms, Content Type, and Discipline) in their search for the citation and then unsuccessfully tried searching for the author's name and "MLA". Finally, the participant returned to the original result and located the "cite" button to the right of the article title.

Table 3: Task 4 Completion Time

Table 4: Task 4 Confidence versus Performance

Results were more varied for tasks 2 and 5, both of which asked participants to conduct topical research instead of finding a known item. Indeed, the most dramatic differences in performance amongst the participants occurred with task 5, which asked them to locate two journal articles published in the past five years about a research topic concerning the romantic relationships of college students and parents or social media. Completion times varied from 68 seconds to 16 minutes. Participants employed a range of search strategies. Participants who completed the task the fastest used a straightforward approach: they performed a keyword search for "social media relationships college," or something similar, filtered the results using the "journal article" content type, and set the publication range to "last five years."

Participants who struggled with this task struggled with keyword development. Participant 6, for instance, simply searched for "Facebook romance" and participant 8 searched for "social media and relationships." Both omitted the "college students" aspect of the research topic. Additionally, the less successful participants were inconsistent in using Summon's facets. Participant 1, who took more than sixteen minutes to complete this task, did not use the "content type" and "publication date" facets, so the results included a variety of publication types as well as items older than five years. Participant 1 repeatedly expressed that there were "too many out of date results" but never noticed the publication date facet. Participant 9 used the "journal article" content type filter but

not the publication date facet. Participant 9 ultimately gave up after the eight-minute mark due to their inability to find a second relevant article published in the last five years.

We noticed a number of interesting trends in the relative success of participants in completing task 5. The two participants who previously received library instruction completed the task the quickest, finishing in a median time of 57 seconds versus 119 seconds for those without instruction. The three seniors outperformed the other grade levels on task 5, completing in a median time of 121 seconds, as compared with 358 seconds for the four freshman, 265 seconds for the lone graduate student, and 1007 seconds for the sophomore. Additionally, the participant who self-identified as “confident” in using library resources performed task 5 in only 68 seconds, while the six participants who identified as “somewhat confident” took a median time of 300 seconds, and the two “neutral” participants took a median time of 670 seconds.

Perhaps most interesting were the participants’ responses to the post-survey question, which asked them to rate their confidence in their “ability to use Summon to research a topic,” such as in task 5. Despite so many of them struggling with this task, seven of the participants said they were “confident” in their ability to research a topic using Summon and two said they were “somewhat confident.” The actual performance on this task suggests that most participants were overconfident in their abilities. One of the two “confident” participants was unable to complete task 5 and the seven “somewhat confident” participants took a median time of more than eleven minutes to complete the task.

Table 5: Task 5 Completion Time

Table 6: Task Performance by Confidence Level

IMPLICATIONS FOR TEACHING AND THE ACRL FRAMEWORK

From the results of the five tasks, a few things about Summon became apparent. First, other than a few functions of the interface that were less obvious, few participants had issues locating and utilizing the majority of the search tools within Summon. If participants had trouble locating a tool initially, they were quick to utilize the tool in subsequent tasks once they found it. Second, participants intuitively knew how to use Summon’s single search bar and construct known item searches that retrieved appropriate results. Finally, as seen in task 5, self-identified “confident” participants struggled with constructing effective topic searches. This indicates that while some interface instruction is necessary, search strategy and critical thinking skills are more important. Many participants had trouble not only constructing an initial search strategy for task 5, but also had trouble adjusting their keywords when the initial results were not relevant. We observed that lower-level students with less experience doing research had the most difficulty with the topic search.

We determined that teaching Summon to students in the second-semester Writing Program would be the best fit. Teaching Summon in the Writing Program courses allows librarians to focus their teaching on basic information literacy skills and concepts, instead of demonstrating databases interfaces

Once we determined the best fit, we had to define best practices. We looked at our current information literacy outcomes and identified which could move from skill-based to concept-based to align more with the Framework. For instance, one of our previous outcomes was that “students will be able to apply Boolean strategies in online searching to produce concise search results”; however, by integrating Summon into instruction we were able to change it to “students will be able to develop search strategies that are appropriate to the research question and to the tools being used,” representing the frames Searching as Strategic Exploration and Research as Inquiry. Librarians can now focus on ensuring that students understand how to search for their specific research question using various tools, which may not always necessitate Boolean operators.

While the shift to focus instruction on concepts makes sense for the Writing Program, determining how to make the practical change for instruction and activities was more challenging. Having outcomes without specific skills to accomplish means that instructors have to be more flexible with class discussion and with working with the needs of each particular class of students. In order to understand what that can look like, here is an activity that utilizes Summon as the primary tool for in-person instruction and works to develop the dispositions of the Framework in students.

Searching as Strategic Exploration

Because Summon typically returns a high number of results for broad searches, it works well with the frame Searching as Strategic Exploration. This frame presents the opportunity to address the knowledge practice of “design[ing] and refin[ing] needs and search strategies as necessary, based on search results” (ACRL, 2016, p.9). One activity to explore these practices is a results analysis activity. For the entire instruction session, it is helpful to utilize a sample research topic that the librarian can demonstrate the research process with. Using the broad form of the sample topic, conduct a search in Summon. At this point, you can focus completely on the resource type that will be most beneficial to the students or you can look at the various content types in Summon.

When you reach the results page, question students about some important smaller details, such as identifying how many results were returned by the search and what their opinions are on the number of results. Asking key questions about the results, such as “do you have room to narrow your search topic based on the number of results you are getting?”, will get students thinking critically about the process.

Use the initial results that you retrieved from your sample search to work on narrowing a topic. Pair students together and assign them an article abstract from the results list to evaluate. Ask students to provide a brief summary of the topic and evaluate what the main argument is. Once each pair has had a chance to summarize their result, come together as a class to group the results into more specific categories. For instance, a simple search on community college student debt returns results that can be grouped into subtopics including how student debt affects retention, loan choices that community college students make, and the impact of state policies on community college students’ debt. The variety of topics that are displayed in the initial results lead to a discussion about how there is room to narrow the search topic and how search terms impact results. These conversations help students understand that the vocabulary that we use to discuss a topic is important, impacts the information that is returned, and that research is a process.

CONCLUSION

Summon is a tool that students are drawn to and feel comfortable using, despite some of its noted difficulties. It is important for information literacy instructors to recognize that Summon and other discovery layers can be valuable in engaging students in the research process. While this is just one example of how Summon can be used to integrate the Framework concepts into lower-level information literacy instruction, it also allows librarians to minimize interface demonstration and emphasize discussion time and critical thinking skills in many ways.

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APPENDIX A

Pre-Test Survey:

1. What is your classification at UCCS?
Freshman / Sophomore / Junior / Senior / Graduate student
2. What is your major or degree program?
3. Have you taken ENGL 1410/2080/2090 at UCCS?
Yes / No
4. Have you received any other librarian instruction?
Yes / No
5. Have you used Summon before today?
Yes / No
6. How frequently do you use the library catalog?
Never / Once a semester/ Once a month / Weekly/ Daily
7. How frequently do you use library databases, such as Academic Search Premier?
Never / Once a semester/ Once a month / Weekly/ Daily
8. How confident are you in your ability to use library resources?
Confident / Somewhat confident / Neutral / Somewhat unconfident / Unconfident

Post-Test Survey:

1. How difficult did you find it to use Summon?
Very difficult / Difficult / Neutral / Easy / Very Easy
2. How do you like Summon in comparison to the library catalog?
Much worse / Worse / About the same / Somewhat better / Much better / Can't compare
(Optional) Explain:
3. How do you like Summon in comparison to library databases?
Much worse / Worse / About the same / Somewhat better / Much better / Can't compare
(Optional) Explain:
4. How confident are you in your ability to use Summon to locate a specific item (book, movie, article, etc) when you already know its title?
Confident / Somewhat confident / Neutral / Somewhat unconfident / Unconfident
5. How confident are you in your ability to use Summon to research a topic?
Confident / Somewhat confident / Neutral / Somewhat unconfident / Unconfident
6. Now that you have used Summon, how would you describe what it does?

APPENDIX B

Tasks:

After each task, participants were asked to answer the following question aloud and provide a reason for their choice:

How difficult was this task to complete using OneSearch? Very Difficult/ Difficult/ Neutral/ Easy/ Very Easy

1. Known Item Book Search:

You need to read the book *Schindler's List* by Thomas Keneally for your English class. Is there a print copy of the book available in the Kraemer Family Library? If so, what is the call number of the book?

2. Books on a subject:

You are writing a research paper about cyberbullying and need books on the topic. How many books and eBooks does the library have on cyberbullying?

3. Known Item Video:

You are taking a class on children's film and you have been asked to watch the Pixar movie *Wall-E*. Is there a video recording of the movie available in the Kraemer Family Library? If so, what is the call number of the video?

4. Known Item Article:

You need to read the article "Branded worlds and contracting galaxies: The case of star wars galaxies" written by M.J. Clarke. Identify the correct article. In Summon, find an MLA citation for the article. Then in Summon, email the link to the article to yourself. Finally, locate the full text of the article.

5. Find Two journal Articles on a Given Topic:

You are writing a paper and need to research how social media use affects the romantic relationships of college students. Your professor said to find two journal articles published in the last 5 years to use as sources. Find two articles on the topic that meet these criteria. Then, using the options in Summon, email both articles to yourself.

Images for Tables and Figures (Editor will put in body of the text later)

Table 1

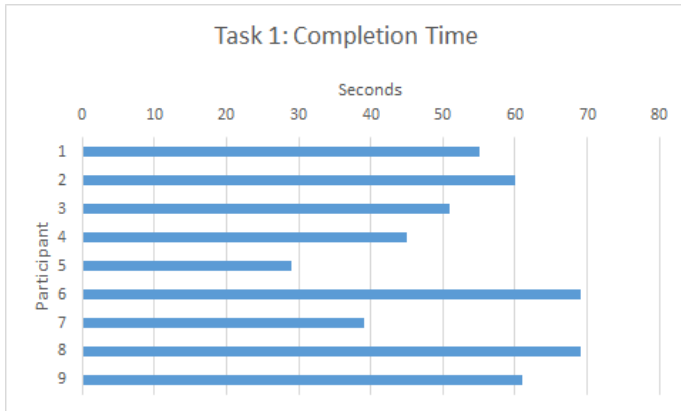


Table 4

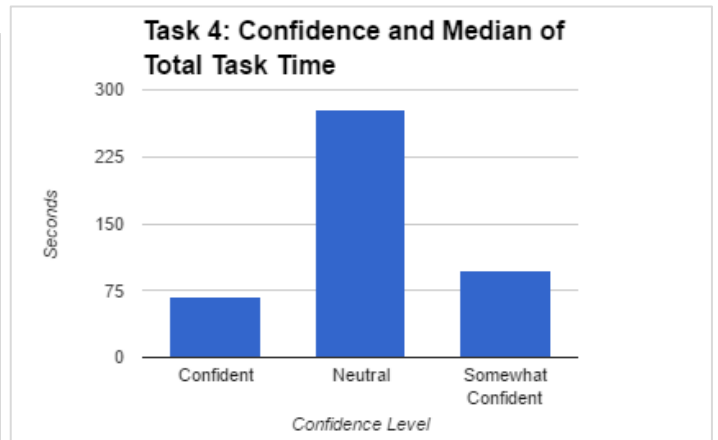


Table 2

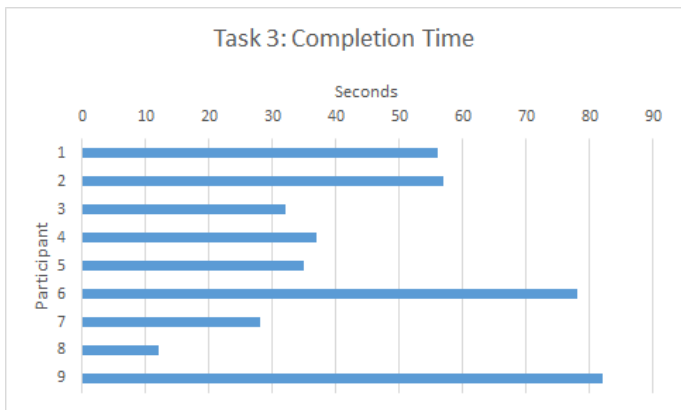


Table 5

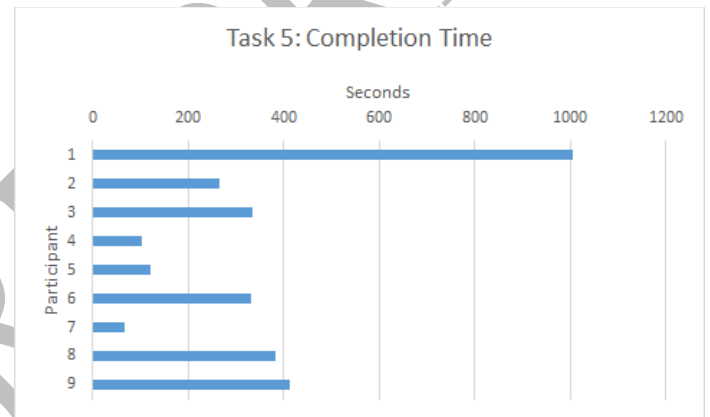


Table 3

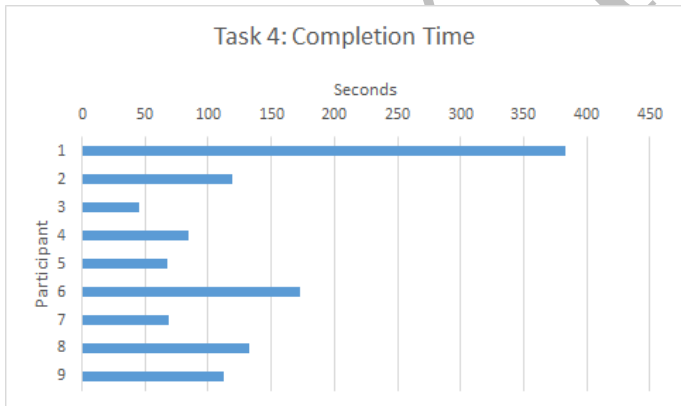


Table 6

