

## Assessment of the Effectiveness of Information Literacy Tutorials

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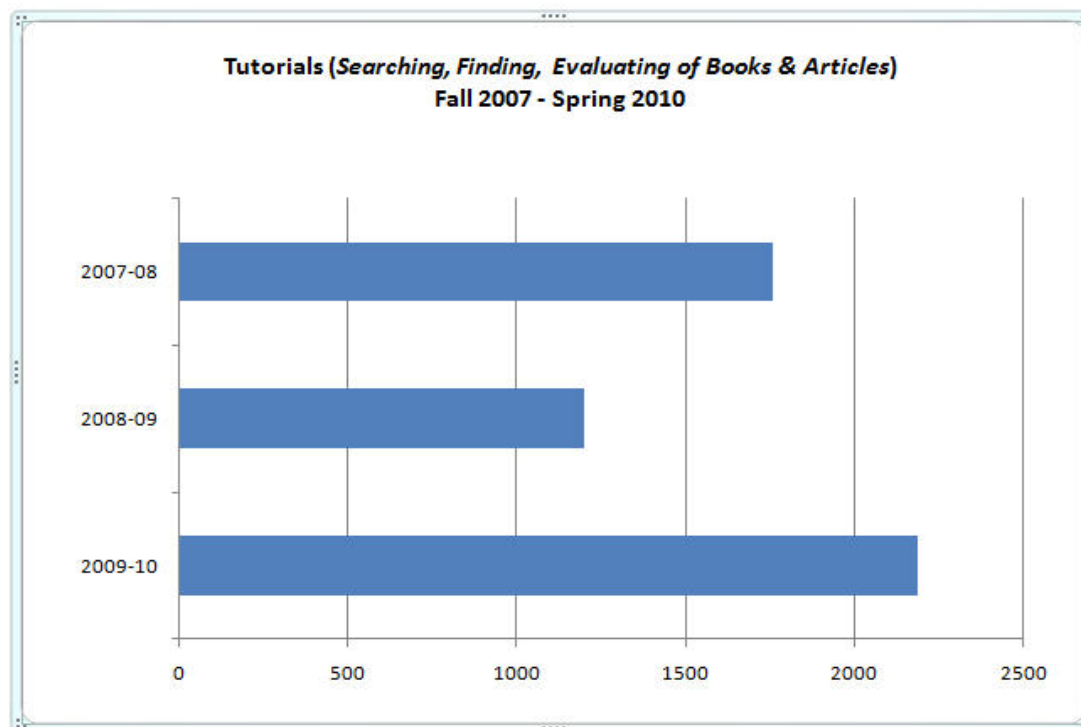
### Overview:

We live in an information society, driven by an information economy in which success is reliant on an individual's ability to work as an effective information developer, evaluator, and consumer. Information literacy—the ability to determine when, why, and what information is needed and then to find, evaluate, and use information effectively and ethically to solve problems, make decisions, and communicate with others—is more than just knowing how to use the Library. Instead, it is a critical 21st century skill-set that provides a foundation for both academic success and life-long learning.

The Instruction & Outreach Services (IOS) department in the Library created 4 online information literacy tutorials or learning objects that faculty can embed into their curriculum to help students become information literate. Assessment (pre and post assessment) and proof of completing the tutorial (certificate) are built into the tutorials. They are located in Blackboard and are available to students 24/7 and faculty can reused these tutorials a number of times in different learning contexts. The four areas covered are:

- ✓ Choosing a Topic
- ✓ Searching, Finding and Evaluating Books
- ✓ Searching, Finding, and Evaluating Articles
- ✓ Citing and Plagiarism

Web versions are also available for those who want to link to them or use them without the assessment and certificate of completion features. All 4 of these information literacy tutorials are synched to the ALA's (American Library Association) *Information Literacy Competency Standards for Higher Education* available at <http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm>. Since we began implementing the tutorials in fall 2007 the use has grown (see figure 1).

**Figure 1****Goals:**

The main goal of this project was to assess the effectiveness of 2 of the 4 information literacy tutorials or learning objects: specifically *Searching, Finding & Evaluating Books*, and *Searching, Finding & Evaluating Articles*. It is crucial to be able to evaluate learning objects regarding pedagogical theories as well as instructional design. Although our data supports that the tutorials are heavily used, they are currently not being evaluated using direct measures of formative or summative assessment. The pre and post-assessments in the tutorials currently measure knowledge via question and answer rather than application. In addition, we wanted to document student performance data by documenting the accomplishment of tasks as well as studying design elements that could be improved.

**Methodologies:**

A pilot study of 25 students (participants) took the assessment study via Morae, a usability testing research software by TechSmith. However due to technical difficulties, 1 of our participants' study was corrupted and was therefore eliminated from the pilot study. To protect the privacy of the participants we randomly assigned them a letter (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, and X). Using the software, we set up the parameters of our assessment study with scenarios, surveys and tasks. We had a total of 10 tasks, a pre-survey and a post-survey. The average time to go through the whole assessment study was 40 minutes.

We assigned each study Tasks a score of 0, 1 and 2. A score of 0 (Failed to complete) was defined as a study Task being skipped, ignored or passed. A score of 1 (Completed with difficulty) was defined as a study Task being attempted and maybe completed but the participant had problems such as not viewing the tutorial, not finding the item, not following task directions, looking in a wrong page and/or database, etc. A score of 2 (Completed with ease) was defined as a study Task being completed without any major problems as defined in a score of 1.

Of the 10 Tasks in the study, 6 study Tasks were directional such as Task 1, requiring the participants to find Blackboard and login. Tasks like these allowed us to map how participants maneuvered around the Internet and the Library's homepage. Four study Tasks were functional and based on materials learned while going through the tutorial such as Task 5 where the participants were required to use the Library's catalog to search for a book. Tasks like Task 5 enabled us to see if what participants learned in the tutorial can be applied directly. See complete list of tasks and scores on Figure 2.

**Study Details** **Figure 2**

Description Task Definitions Marker Definitions Survey Definitions

Define tasks to log during sessions.

Name	Description	Instructions
Task 1	Login to Blackboard	Defined
Task 2	Find Library Tutorials & Enroll	Defined
Task 3	Locate the Book Tutorial	Defined
Task 4	View Book Tutorial	Defined
Task 5	Using the Library Catalog	Defined
Task 6	Book Location	Defined
Task 7	Locate the Article Tutorial	Defined
Task 8	View the Article Tutorial	Defined
Task 9	Using the Library Database - Academic Search...	Defined
Task 10	Locate the Full-Text Article	Defined

Success score

Define scores to apply to all tasks.

Definition	Scale
Failed to complete - skipped, ignored, missed task	0
Completed with difficulty - not viewing the tutorial...	1
Completed with ease - without any major problems	2

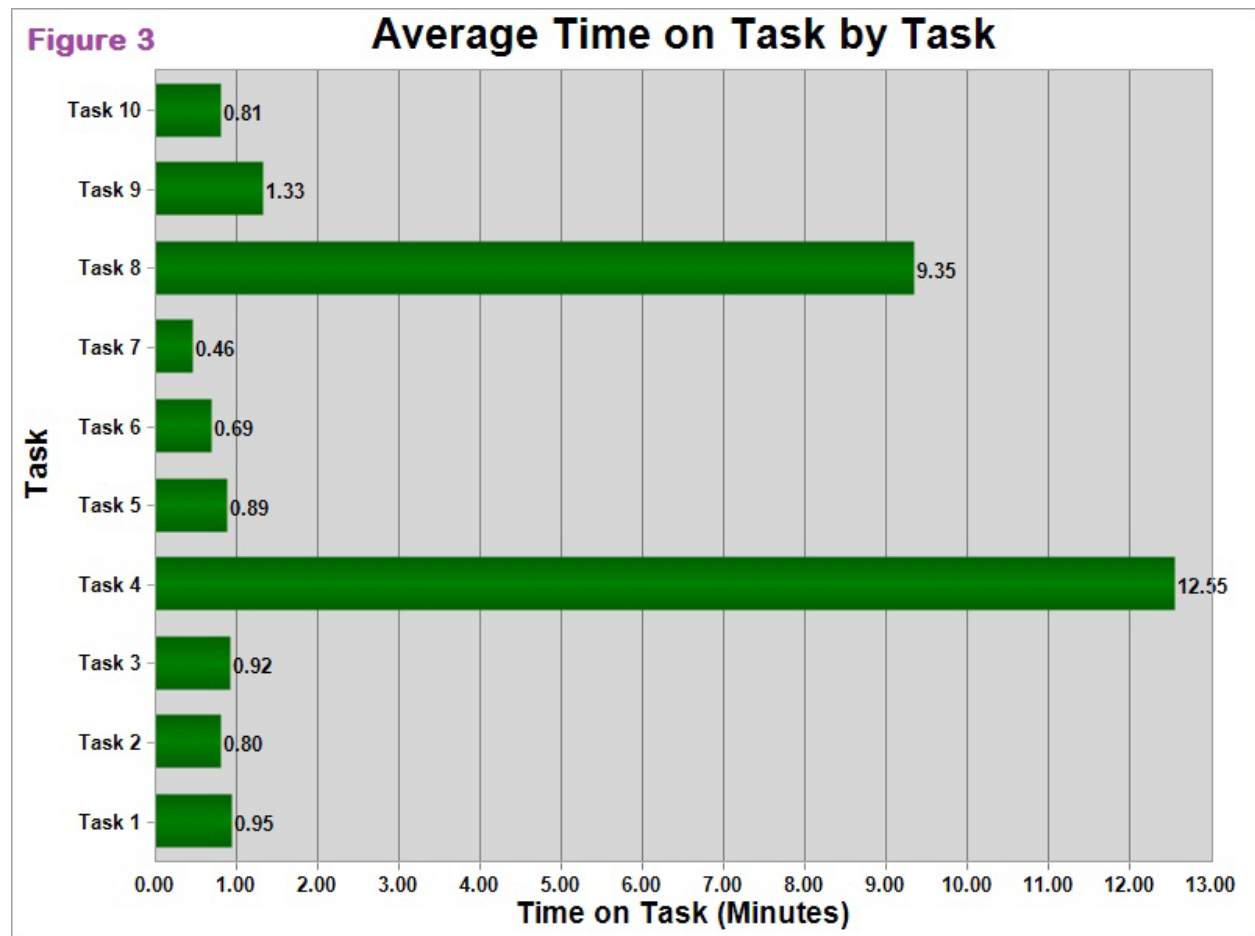
☒ Start Scale with zero (0)

OK Cancel Help

**Results:**

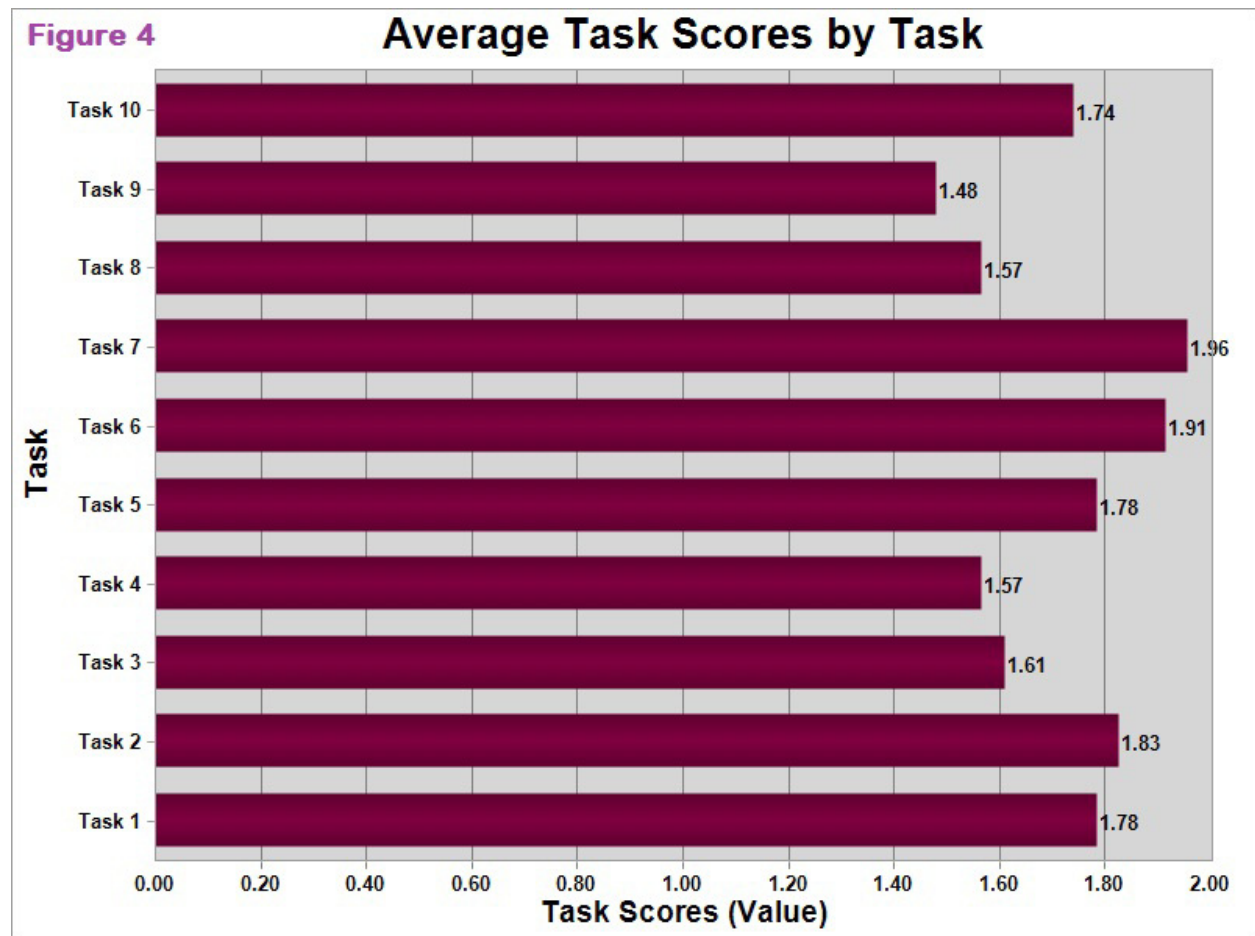
Study Tasks 4 and 8 are the tutorial tasks therefore it was no surprise that participants spent the most time in these 2 study Tasks (see Figure 3). The average time spent on Task 4 (taking the pre-assessment, watching the tutorial on how to search, find and evaluate books, taking the post-assessment with all questions answered correctly and answering a demographic survey) was 12 minutes, and the average time for Task 8 (taking the pre-assessment, watching the tutorial on how to search, find and evaluate journal articles, taking the post-assessment with all questions answered correctly and answering a demographic survey) was 9 minutes.

This reinforces the information that we have been providing to faculty and students: the average time to go through each tutorial is 10 to 12 minutes.



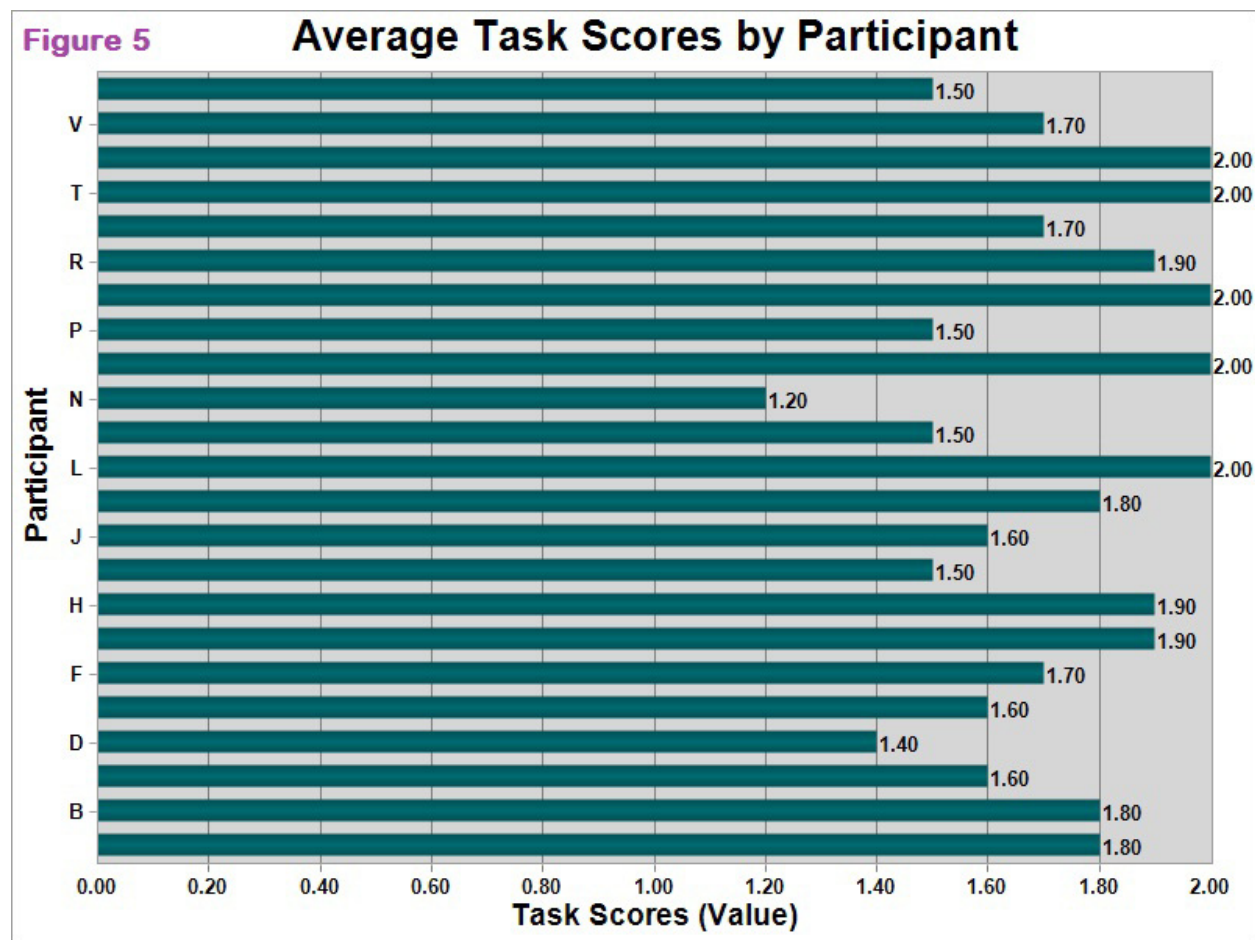
In Figure 4, both study Tasks 4 and 8 had an average score by task of 1.5 while study Tasks 6 and 7 had the highest average score by task of 1.9 (the average score of 2 is perfect). As mentioned before, Tasks 4 and 8 are the tutorial tasks and contained 4 parts: taking the pre-assessment, viewing the tutorials, and taking the post-assessment which caused participants in both study Tasks the most problems because they had to answered every questions correctly and some of them ended up making 3 to 5 attempts before they could move on to take the demographic survey, so it was expected that participants would have some difficulties in these two study Tasks.

One reason to study Task 6's highest average task score by task is: participants have already found the book in Task 5 and asking them to tell us the location of the book is pretty easy because the location of the book is clearly identified in the book's record as showed by the *Searching, Finding and Evaluating Book* tutorial. As to study Task 7's highest average task score by task: participants already had the Blackboard page (browser tab) open so asking them to go back to Blackboard and look for the next tutorial (*Search, Finding & Evaluating Articles*) was also pretty easy because the tutorials are all listed together by title on one page.



In Figure 5, Participants D, I, N, P and W received the lowest average task scores of 1.5 or lower (meaning they either failed or completed all 10 study Tasks with difficulties) while Participants L, O, Q, T and U had the highest average task scores of 2 (meaning they completed all 10 study Tasks with ease).

Of the 5 participants (L, O, Q, T and U) with the highest average task scores, L and Q have had librarian led information literacy in the Library before; and of the 5 participants (D, I, N, P and W) who had received the lowest average task scores, none of them have had a librarian led information literacy or library instruction in the Library before.



We were pleased to learn that the participants were able to directly accomplish a task after completing a tutorial. In Figure 6, study Tasks 6 and 7 (knowing the location of the book they've just searched in the Library's catalog and going back to Blackboard to locate the next tutorial) had the highest success distribution by task (95%). As mentioned earlier, there were several

reasons for this success: participants have already found the book, where the book is located in the library was plainly written below the name of the book (in the book's record), and as to going back to Blackboard for the next tutorial, many of the participants have the Blackboard tab (browser) opened from their previous tasks and all the tutorials are listed together on one page in Blackboard.

But this percentage fell to 52% (Figure 6) on locating the Library's database, *Academic Search Premiere* and doing a basic article search (Task 9). Many of the reasons for this includes: skipping the tutorial, assuming knowledge of this process and confusion between what is a Library "database" and a "Google-like" search box on the Library's homepage (which is a multi-search engine that searches multi databases instead of just *Academic Search Premiere*).

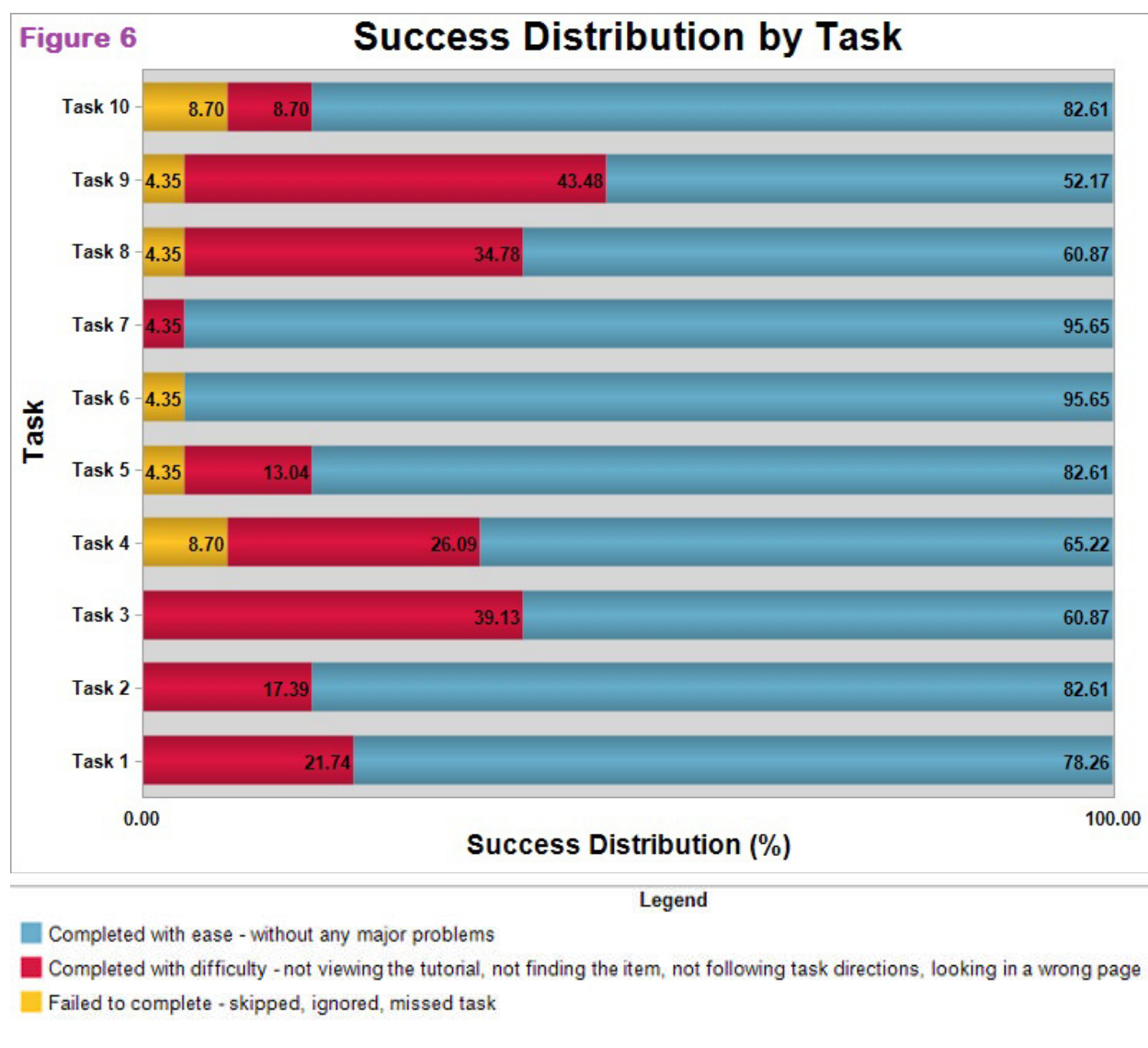
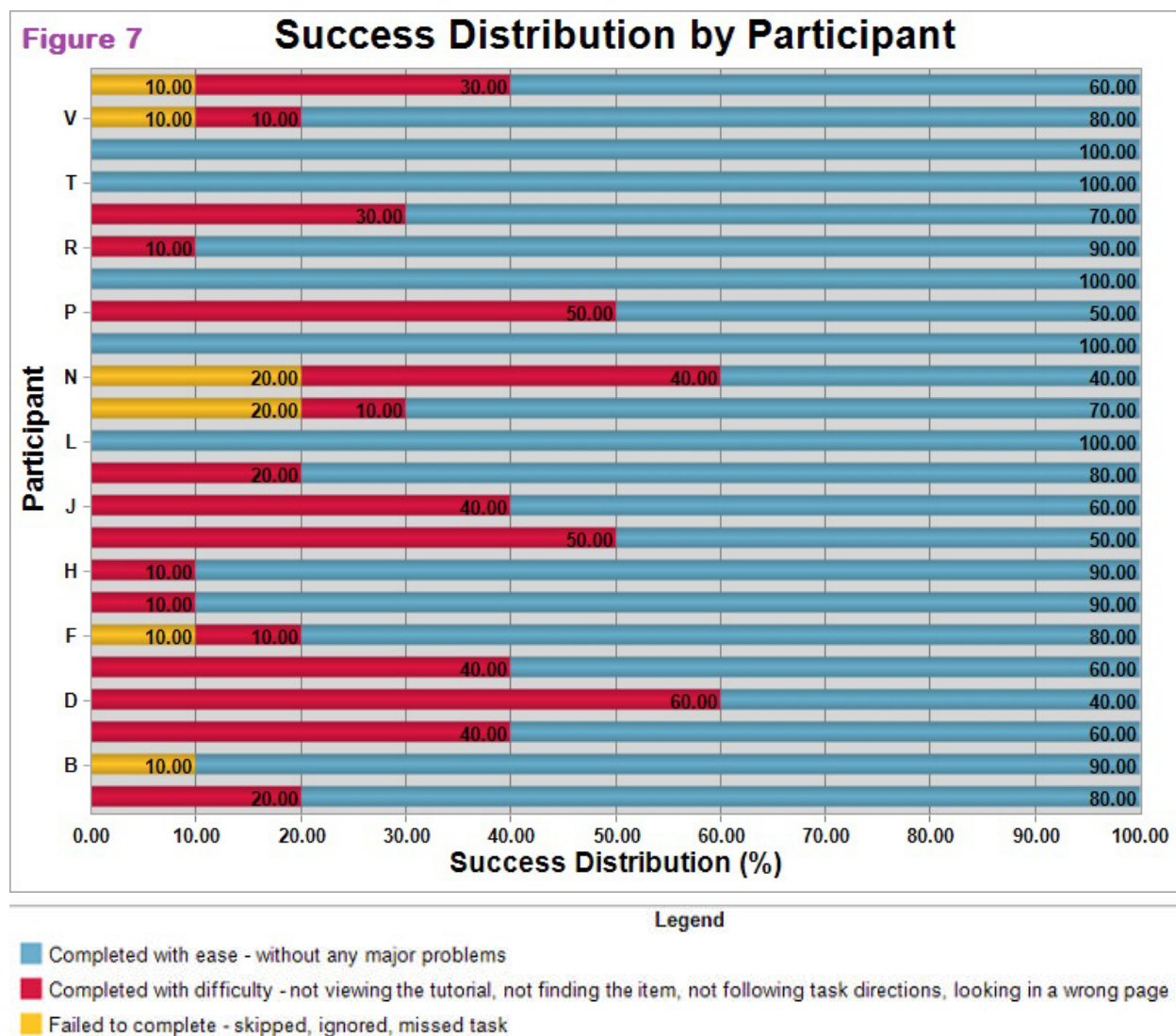




Figure 7 showed the 6 participants (B, F, M, N, V and U) who failed to complete 1 or more study Tasks. They failed because they either choose to skipped or missed the study Task(s) completely by assuming that they finished the Task(s) and went on to the next Task.



In addition to task specific information we deployed a pre and post-survey in our assessment study. The pre-survey gave us demographic information about the participants in the study. The majority of our participants were either freshmen or juniors and only 2 sophomores. The other pre-survey demographic information showed us that of the 24 participants; only 5 have had in-person information literacy or library instruction sessions (taught by a librarian) in the



Library before. And 2 of the 5 participants who completed the study with a perfect score of 2 (Figure 4) were among the ones who have had the in-personal information literacy sessions.

Our post-survey gave us information on confidence level, usefulness of the tutorials and whether the participants would return to the tutorials again for assistance (10 participants said yes, 9 said maybe, 2 don't know if they'll return to use another tutorial and only 1 said no). It also gave us suggestion on how to improve our tutorials and additional places where the tutorials can be housed besides in Blackboard.

### **How We Will Use The Findings:**

The major issues we observed were navigation within Blackboard and the Library's Homepage. Students consistently used Google to search or locate Blackboard and the Library's homepage rather than typing in the URL or following clickable links. Rather than teaching students to memorize URLs, we will now encourage them to use whatever search engine (Google, Bing, Yahoo, etc) they are comfortable with to search and locate destinations (i.e., Fresno State's Blackboard, Library homepage, etc.)

Secondly, students had problems with navigational and design features in Blackboard. Specifically, some of them clicked on images thinking they were clickable, not seeing the navigational buttons, not understanding the use of the "ok" and "submit" buttons, not reading or seeing the directions because they were either in different font or color, etc. Therefore in our next release, we will double check for font/color consistency and make our images clickable as well as putting a link in the tutorial back to the Library's homepage. We observed many of the participants looking for a link back to the Library's homepage after completing the tutorial.

We also received many valuable suggestions on the usefulness of the tutorials. For example, 12 participants rated the usefulness of the tutorials as a 4 on a scale of 1-5, and 5 being "very useful". It's comments like these and the ones about them wanting to return to the tutorials again for assistance that prompts us to continue creating tutorials and working to make them as useful as possible. Some of the suggestions that we are giving serious consideration to are: improve ways of advertising to students and faculty such as Dog Days, provide alternative formats such as print, and add more images to the tutorials.

In addition, participants' suggestions of where else these tutorials could be linked to besides Blackboard included: the front page of the Library's homepage, email to all students at the beginning of every semester to remind them and My Fresno State's webpage. All of the responses to this question reinforce the value of the tutorials and we will pursue locating them in these additional places. Because learning objects are reusable and contextually adaptable, they can be easily reformatted and placed in a number of instruction delivery platforms or access points. Based on feedback, we plan to actively work on placing the tutorials in many more locations.

We will close the assessment loop by reviewing the tutorials' learning goals and learning outcomes, and create new learning activities embedded in the tutorials. These learning activities will add value by adding comprehension checks throughout the tutorials. We will also refine our assessment data collection methodology by changing the assessment tool from only multiple choices to a combination of multiple choice and open ended answers. We will be able to pull these open ended answers into a database and randomly select a group for analysis. An analytic rubric will be created to judge student success.

**What Problems Did We Encounter and How They Were Resolved:**

As mentioned earlier in our report, we did experience technical difficulties. This was expected as working with software and technologies therefore we had chosen to have a study of 25 participants instead of 20.

Another problem we encountered was observing many students reading the study directions out loud instead of talking out loud on their thought process. We solved this issue by verbally reminding them during the study that it's their thought process that is more important in this study. But many of them did not like to talk out loud about what they were doing or why they decided to do certain things therefore this methodology was not very effective in learning about the participants' thought processes.

**Appendix A** – post survey

**Were the tutorials useful to you as a student who will be using the library?**

	Not Useful	1	2	3	4	5	Very Useful
A					X		
C			X				
B							
E			X				
D				X			
F					X		
G					X		
H					X		
I					X		
J				X			
K					X		
L					X		
M					X		
N				X			
O					X		
P			X				
Q			X				
R					X		
S					X		
T			X				
U					X		
W				X			
V			X				

**After taking the tutorials has your confidence level increase in doing research in the library?**

	Not Confident	1	2	3	4	5	Very Confident
A				X			
C				X			
B							
E				X			
D				X			
F				X			
G				X			
H					X		

I					X
J				X	
K				X	
L					X
M				X	
N				X	
O				X	
P		X			
Q				X	
R					X
S					X
T				X	
U					X
W				X	
V			X		

**Would you return to use another tutorial?**

	Yes	Maybe	No	I don't know
A		X		
C		X		
B				
E		X		
D	X			
F	X			
G	X			
H		X		
I	X			
J		X		
K		X		
L	X			
M	X			
N	X			
O		X		
P	X			
Q		X		
R	X			
S	X			
T		X		
U				X
W				X
V			X	

What are your general impressions of the tutorials? (choose all the apply)								
	Too Fast	Too Slow	Too much Info	Just Right	Perfect	Too Long	Too much Images	Not enough Images
A			X					
C			X			X		
B								
E				X				X
D				X				X
F			X			X		
G				X				
H				X		X		
I		X				X		X
J		X	X			X		
K				X				
L		X		X				
M				X				
N		X						
O	X							
P		X						
Q		X						
R		X				X		
S				X				
T				X		X		
U		X				X		
W		X				X		
V			X					

### How could these tutorials be more useful?

#### Comment

A I think they are perfect usefulness because it tells you how to attain more help if needed

C Maybe if they were broken down into specific topics. Having to sit through all of the different sections can take a long time. I might know how to most of that and just need help in one area. It's a waste of my time to sit through all of that to wait for the part that I need. That's why I said it was too long. It took me awhile to figure out how to get started.

B

E Show examples using more pictures to illustrate points

D These tutorials could be more useful by having students use the tutorials every semester so they don't forget how to use them.

F It is just a lot of information, maybe less repetitive?

G they are perfect the way the way are.

H I think that these would be so useful to have at the beginning of freshman year. There is so much about the library that I didn't know. I wish I was required to take this last term. It would be more useful if they offered a little more help on how to navigate the shelves once you have found the code. It would also be useful if there was maybe a mini online library tour so you could see all of the different sections and where they are.

- I you can have more images and shorten the video. Overall it was great information that I learned today.
- J Text version available of the entire tutorial with pictures would be more efficient for the students since the videos are LONG, BORING and would make students go to sleep.
- K
- L advertises them a little more no one knows about them.
- M maybe if they were advertised more not many people know about them.
- N if people knew they existed. I didn't know these were available to me until I heard about the survey.
- O I think that these tutorials are fairly useful, but it might be even more so if they were not only in video format. Sometimes a bullet list will suffice when needing to know how to do something.
- P If there were examples available to follow up with.
- Q It seemed like the issues discussed in the tutorials were rather elementary. I think there are more features more deserving and in need of tutorials than these. That said, I did appreciate the review on accessing journal articles.
- R Although they were full of information there were some sections when it went to slow.
- S they could have gone a tad bit slower, however I do not think they were 'too fast'. I thought that overall they were very useful.
- T
- U they are useful as they are but some of the things that are said in the beginning are repetitive. We know that we are taking a tutorial on a certain thing so it should just go ahead and start the tutorial right away.
- W It got boring time to time, so I would assume that some people skip tutorials
- V it's fine

### **Where should the tutorials be located or linked besides in Blackboard?**

Comment

- A On the library website or Fresno State website
- C The left hand side is a good spot but maybe an icon would be better than text. It took me a second to find it. If it was an icon I could just see it and click on the link. I'm more visual. Thanks
- B
- E library homepage
- D These tutorials should also be located on the Fresno State website and on the students e-mail.
- F on the Henry Madden Homepage.
- G In the students' email.
- H These tutorials should be on the library website. It would be great if there was a button on the home page that helped introduce new students to the library.
- I it should be located there just make it more noticeable.
- J On the library website but I believe they are already there, but I don't think signing into blackboard is that big a deal if a student does not want to get a certificate for the tutorial. It just makes the task to learn about something a little more time consuming.

- K I believe an email should be sent out in the beginning semester to let us know that there are tutorials available on how to effectively use the library resources. Also, the events should be laid out for us to briefly see. Any communication is helpful.
- L somewhere you can see them better.
- M maybe introduce them to incoming freshman or transfers during dog days.
- N These tutorials should be on Henry Maddens' main webpage and in our fresno state account.
- O I think there should be link in the library homepage for them. When I want something that has to do with the library, I usually look there first.
- P Under useful links for each class.
- Q Maybe somewhere on the library's website.
- R A place where they are next to the classes or part of the classes' section. Most students just go to blackboard to get the assignments that the teachers post on it. I wasn't even aware that I had different links in the blackboard section.
- S the current link placement on blackboard is rather small, maybe have it a bit bigger and up at the top of the page more.
- T Fresno state homepage, Henry madden homepage
- U maybe if there were in the top instead of the bottom of the left side in Blackboard.
- W I'm not sure. Anywhere so it can get some attention
- V blackboard is fine



**Appendix B** – pre survey**What year are you?**

	Freshman	Sophomore	Junior
A	X		
C			X
B	X		
E			X
D			X
F	X		
G	X		
H	X		
I	X		
J		X	
K			X
L			X
M	X		
N			X
O		X	
P			X
Q			X
R			X
S	X		
T	X		
U			X
W	X		
V			X

**Have you had a librarian led information literacy session or library instruction held in the Library before?**

	Yes	No
A		X
C	X	
B		X
E		X
D		X
F		X
G	X	
H		X
I		X

J		X
K		X
L	X	
M	X	
N		X
O		X
P		X
Q	X	
R		X
S		X
T		X
U		X
W		X
V		X