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**Ready-to-go assessment: The implementation and design of a general assessment tool**

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**Abstract**

**Purpose-** The purpose of this article is to highlight an assessment tool that can be used for all information literacy classes.

**Design/methodology/approach-** The assessment was designed and data were stored using Google Forms. Questions were basic, general questions about student confidence after attending a library instruction class. The assessment was piloted in the Fall 2015 semester, improved on and reissued in the Spring 2016 semester, and is now in its current iteration as a tool to be used by most librarians.

**Findings-** The first two implementations were successful, but issues arose in distribution and in the type of questions. Tweaks to the distribution that would work in any computer lab on any campus were beneficial to librarians and students. The content of the questions were also modified after the first two implementations; questions about recalling resources were condensed and changed to questions on what they learned and what they were still unsure of. All implementations showed positive results from the students on their confidence level after library instruction.

**Originality/Value-** This tool and the implementation methods are versatile enough to be used at any kind of institution and with any general learning objective. Assessment is essential in library instruction; this tool provides a way for all librarians to quickly assess their class without taking much additional class time. In addition to the individual librarian, this is also useful for reporting statistics to the college administration if data are needed on the assessment of library instruction.

**Article-** Research Article

**Introduction**

At the David and Lorraine Cheng Library at William Paterson University, librarians teach one-shot information literacy instruction sessions for undergraduate and graduate classes alike. In the 2014-2015 academic year 91% were undergraduate classes in a variety of different disciplines. Many librarians do informal, in-class assessment (i.e. checking for students understanding by asking students to raise their hands if they understood a concept), but as Whitlock and Nanavati (2013) remind us, "we do not often save that assessment data…even though that information was critical to our teaching when we gathered it" (p. 34). In some cases, subject specialty librarians use their own assessment tools; however, this often leads to duplication of effort and workload inefficiencies, which reinforces the need for a single, universal assessment tool. Since assessment is an essential part of higher education, the need for an easy to use assessment tool that can be utilized in most library instruction classes and provide consistent comparable data across all disciplines is generally conceded.

In the past, the user education program piloted some general assessment tools. The "muddiest point," an assessment in which students write on a piece of paper one item that they learned and one item that was unclear was one such assessment. The data from that assessment, collected via pen-and-paper were difficult to store, maintain and keep track of. While some librarians have their own form of assessment, not all teaching librarians are comfortable designing and implementing a formal assessment. Thus, the need existed for a general assessment tool that is easy to store, maintain, and display. Such ease would transfer the assessment into something that becomes second nature to the librarians and allow them to habitually distribute it at the end of the class session.

The definitive goal of this endeavor was to have an assessment tool for all librarians to use after library instruction classes. The data from the assessment could be used on an individual level (i.e. seeing if students had questions about a certain resource, or fully understood a certain resource) as well as on an institutional level by highlighting the value of information literacy instruction. The questions on the assessment tool strived to be more complex than a simple "what did you learn/what is confusing" one-minute paper; questions were targeting both student confidence as well as students' ability to recall information.

**Literature Review**

For overall assessment, Megan Oakleaf's assessment cycle was useful to the planning of this tool, and as she states, "If libraries intend to remain relevant on campus, they must demonstrate their contributions to the mission of the institution by becoming involved in assessment" (Oakleaf, 2009, p. 539). In all implementations of the assessment tool, Oakleaf's assessment cycle was referenced to ascertain what needed to be done in continued improvements to the assessment and continued implementations.

Multiple institutions have explored student confidence or attitudes after attending a library instruction session. Karen Sobel and Kenneth Wolf's (2010) survey of several different assessment methods utilized Bloom's Taxonomy of Learning Domains. One of those domains is attitudes; student feelings' during and about learning. A 2004 study that surveyed students who had library instruction up to two months prior reported the vast majority of the students reporting feeling confident about using the library's resources when speaking of the library in general. When it came to more specific tasks, the students' confidence level dropped, although the author noted that it could have been as a result of the students not receiving instruction in the more advanced classes. This author also discovered an interesting statistic on library instruction; while

82.5 % percent of respondents responded with an affirmative "able to use the library effectively" post-instruction, a smaller percentage of 57.5% said that they would "benefit from a class on library research" (Freeman, 2004). In a study conducted on business students' perceptions of web and library resources after library instruction, that students felt less frustration using print resources after receiving instruction (Lombardo and Miree, 2003).  While many institutions use confidence as an assessment measure, some surveys found little to no correlation between students feeling confident and answering questions correctly. The University of California – Berkeley, for example, surveyed graduating seniors on their information literacy abilities for five years. They reported in all years, the percentage of students rating their library skills as "pretty poor" was never higher than 14%. However, this survey also found that while students self-reported at being confident, their answers were not always correct (Maughan, 2001). Finally, a 2015 study looks at evidence based practice and student success in the library, noting that while many students report feeling confident, there was no correlation for confidence level to correct answers, concluding that some students are overconfident (Molteni and Chan, 2015).  An additional study by Cathie Jackson (2013) resulted in similar findings.

When discussing the application of different assessment tools, Sobel and Wolf (2010) noted that in their research comparing multiple tools there was not a clear favorite; they saw positives and negatives in each tool. Portmann and Rousch (2004) used a pre-and-post test model that evaluated students' abilities after receiving library instruction; theirs was utilized on a specialized population, however. A general assessment method at the University of Chicago used a one-shot assessment tool, highlighted in a Power Point presentation and posted on the Simmons College website. The presenter, Rebecca Starkey, describes using a tool that was "outcomes based…quick and easy to complete…can be distributed in paper and

online…reusable…easy to tabulate results" (Starkey, 2011). Her rationale was close to the ones used for this author's tool. However, the preferred form of distribution was fully online instead of in print and this author was looking to create an assessment with more generalized questions to be used in nearly all library instruction classes.

For distribution and implementation, Frutchey's (2012) use of Google Docs in a post-test provided preliminary insights. He reported that using Google Docs was a way to collect the student responses in a noninvasive way. Since publication of that article in 2012, Google Docs has added a Google Forms component, which was used for the assessment tool.  Djenno, Insua and Pho (2015) explored Google Forms for library instruction classes as well; they focused on utilizing the Form at a variety of stages during the actual instruction session, including as a way to entice students to participate in class. This author focused on Google Forms being used as a post-test distributed at the end of the class session.

**Methods**

*Creating the Assessment*

In selecting the criteria for the assessment, the first task was to determine which populations, if any, would be eliminated from consideration for the use of the assessment tool.  It was decided immediately that the First Year Seminar (FYS) classes instructed at the library (students are enrolled in this course during their first semester at William Paterson University) would not be used in this assessment. FYS students are assessed separately with a series of in-class and post-class assessments.  Graduate classes were excluded as well; those students would be doing more specialized research and, having had already received a Bachelor's degree, would

presumably have a different skill level from the undergraduates. In addition to the FYS and graduate classes, all introductory classes were excluded (known at the institution as "1000 level" classes). Many students enrolled in 1000 level classes concurrently enroll in FYS, and excluding that population allowed us to avoid survey fatigue for those students. The assessment tool was thereby determined to be for students enrolled in 2000-4000 level classes, which amounted to all undergraduate classes with the exception of the introductory level classes. However, other institutions looking to use this post-test could very well use it for first year students as well.

The next focus was on the learning outcomes. Learning outcomes at the Cheng Library were implemented as part of the User Education program in 2008 and were modeled after the 2000 ACRL Standards for Information Literacy (ACRL, 2000). They were designed specifically for the upper-level undergraduates, defined as students enrolled in 2000-4000 (sophomore-senior) level courses.

The learning outcomes are quite visible to the librarians. All librarians receive a form prepared for them with information about the course they are instructing; information on the form includes the course name, professor name, date, time, and location, as well as the three learning outcomes. Librarians are expected to utilize at least one of the three outcomes in their instruction; in addition to providing the class information, the form serves as a reminder about the learning outcomes. The three learning outcomes designed for upper-level undergraduates are:

*Select appropriate sources (databases, books, Internet) for the discipline and construct search strategies using key concepts, field searches, controlled vocabulary and advanced features of databases and sources when appropriate.*

*Evaluate information and distinguish among various categories of information resources (e.g. scholarly, trade, popular, primary sources, and technical reports) within a discipline. Recognize what the role of each type of publication plays within the discipline and how each serves the discipline.*

*Select and use a citation style appropriate to the discipline, organize information appropriately by summarizing, paraphrasing, quoting and acknowledging sources. Use management tools to facilitate the organization of sources/citations.*

Both the learning outcomes used and the questions crafted were developed in such a way that if a librarian were teaching the 2000 - 4000 level courses but had designed their own set of more discipline-based or specific learning outcomes, the questions could still be applicable. At its core, the three learning outcomes relate to locating information, evaluating information, and proper citations; these are general enough outcomes that librarians could utilize them and the assessment at hand.

The ease of Google Forms was considered beneficial to designing, implementing, and teaching the assessment.  The library has a Google account that was used to create the form. A URL was generated for a "live form" within Google, and the URL was used to access the form. Every time a student filled out the form and clicked "submit", results were populated into a database accessible with the Google account; all results in Google Forms are timestamped so the librarian can link the responses back to the exact class. There were no mandatory questions in an effort to encourage participation amongst the students.

**Implementation**

*Pilot Design and Results*

The survey was anonymous; the only identifying question was the professor's name. This allowed librarians to distinguish classes from each other when reviewing the larger table of results. The remaining questions were designed to cover different facets of a student's information literacy experience. The second question asked about confidence, "How do you feel about going back and using the resources just demonstrated?" Students were given a multiple choice option for this; choices ranged from very comfortable to very confused. In Carol Kuhlthau's Information Search Process (ISP) model, she discusses confidence as part of the search process- the turning point in which the user is no longer anxious or confused about the information need, but confident and clear (1991). It was important for us to see students feeling confident after the instruction session- that they've made headway within their own search process and feel that the session is useful.

While there was evidence in the literature of no correlation between confidence and correct answers, the first iteration of the assessment contained a question designed to check for student recall: "name the resources demonstrated in class". Question five, "what did you learn," was an opened ended question designed to assess if the students were retaining the information. Question four, "were you able to locate a source that you will use for your assignment," assumed that most library instruction classes were taught with the students needing to complete a research-based assignment.

The questions for the assessment were created using the newly implemented ACRL Framework for Information Literacy for Higher Education (ACRL, 2015).  As the ACRL

Framework is new, scholarly information about utilizing it with assessment is in its infancy. Oakleaf (2014) discusses constructing learning outcomes using the Framework as a guide and then implementing assessment. She mentions that a survey might not serve the needs of the framework as well as a performance-based assessment, as a survey tends to focus on skills, which the Framework does not. With that in mind, the author, while still using the survey method as it was deemed to be the best tool for this type of assessment, tried to shift the questions to be less on skills and more on evidence of learning. The learning outcomes, written with the ACRL Standards in 2008, were general enough that using the ACRL Framework as a guide to write the questions was possible and successful. The Framework was utilized in every revision of the assessment tool.

While different librarians may cover different concepts, resources, and ideas in class, all librarians demonstrate how to navigate through at least one resource. Ideally, librarians want the students to leave the one-shot library instruction class feeling confident that when it comes time to continue research on their project, they have the skill set to go back and retrieve more information. Questions on the assessment were modeled after those found in the "Searching as Strategic Exploration" and the "Information Creation as a Process" frames. For instance, "name the resources used in class" links to the Knowledge Practices part of that frame, where "learners who are developing their information literate abilities match information needs and search strategies to appropriate search tools" ("Framework for Information Literacy for Higher Education", 2015). The question "name one thing you learned today that you didn't know" was modeled after "Information Creation as a Process" with the hope that students would detail a process or tool they did not know before and were able to learn.

Librarians were asked to deliver the assessment survey at the end of their instruction, giving the students approximately five minutes to complete and submit the assessment. At the Cheng Library the software, Lanschool (https://www.lenovosoftware.com/lanschool) allows librarians who are teaching in the library's computer lab to type in a link and "send" it to student computers. For other librarians who did not use the library's computer lab, a tiny URL with the assessment link was provided. Those librarians either wrote the link on the board in the classroom or allowed the students to access the link from their own devices or the computers. Alternatively, some librarians emailed the link directly to the students.

During the pilot, 194 students out of 395 completed the assessment. All students answered the confidence level question and many provided names for the resources they demonstrated as well as one thing they learned. The response rate was at 49.6%. Some issues that arose in the pilot dealt with distribution of the tool. Librarians who taught in areas where students did not have access to computers other than their own device emailed the students after class, as opposed to students completing the assessment before leaving the room. Not all librarians used the assessment tool; since it was a new assessment, some did not remember. Others found it challenging to electronically distribute.

When reviewing at the students' responses, however, the results were positive: nearly 90% of the students felt comfortable or very comfortable after receiving library instruction. (See attachment for Figure I: data table from Fall 2015)

Based on the responses the library was able to note that this group of students felt comfortable after library instruction, and there is tangible data to back it up. However, there were still issues in distributing the assessment, collecting data, and distributing results amongst librarians.

*Second Distribution Design and Results*

With the pilot being successful, it was noted that the assessment tool would still be used, but with changes to both the questions and the method of distribution. The first change was a simple addition to assist with distribution and the overall student responses. A tiny URL was created for the assessment tool and placed on small cards, similar in size and structure to a business card. If a librarian were teaching in a room without the software product mentioned previously, they could still get the students the assessment by passing out the cards in class and having the students access them from their own devices. The cards were located at the reference desk and librarians were notified that they were available.

Certain questions were edited for clarity for the benefit of the students (Appendix 2). The question, "Were you able to locate a source that you will use for your assignment" was intended to identify if students were leaving a library instruction class with sources they could immediately use for their research assignment. This question was often skipped by the students, and in other cases, librarians had taught the class prior to the students receiving a research-based assignment from their instructor. Other students had recently received their assignments but did not have their topics selected yet. In addition, sometimes the faculty or adjunct requesting instruction feels that the class needs a general or major-specific "library orientation" without a research assignment at all. To better reflect what occurs in all of the library instruction classes, the aforementioned question was split into two separate questions. The first question, "Will you be working on a research assignment for your class?" seeks to directly find out if there is a research-based assignment, or if the librarian is working in more of a general, orientation-type setting. A second question will expand on the first with "if you answered yes, do you think the class will help you or has helped you find sources for your assignment?"

To increase the number of overall answers, four questions were made mandatory: level of confidence and comfort, resource identification, identify something learned, and the yes/no question on whether the students had an assignment or not.

During the second semester, 205 students out of 353 completed the assessment, for a response rate of 58%, higher than the previous pilot period. The cards with the shortened URL link allowed librarians to distribute the assessment when they were not teaching in the computer lab, which allowed for more student responses.

As with the previous implementation, the results were positive with students indicating their confidence. (See attachment for Figure II: data from Spring 2016)

The results are similar to the first iteration, where the large majority of the students reported feeling comfortable or very comfortable with using the resources after receiving library instruction. Several disciplines were covered over the course of the semester including accounting, communications, sociology, and nursing. As with the first implementation, the "name the resources used in class" question was viewed quickly to see if students were able to recall resources but ultimately did not provide any valuable information. It was determined that few changes were needed to the final implementation.

Trends were noted in the student comments of areas they felt confident in; specific concepts covered in class were mentioned (e.g. "Information about industries from the database") as well as overall search skills and strategies (e.g. "I learned how to narrow down my searches, and get articles that refer to my information more closely"). In reviewing the comments, these were far superior to the "name one thing you learned" which focused on simple recall. Looking at the student comments provided evidence of higher-level learning as opposed to the rote memorization of the recall question.

**Current Implementation**

The final version of this tool is now in full implementation at the Cheng Library (Appendix 2). Instead of answers of "very comfortable," "comfortable," "neutral," "confident," and "not confident," the question shifted to a Likert scale, with 5 being "very confident" and 1 being "not confident". The questions shifted a bit more; "name the resources used in class" was completely eliminated since the "what did you learn" question would provide that relevant information. (It also is interesting to see how students respond, with very general or very specific and well-thought out answers, as measured by how confident they reported feeling). In addition, relying on the "what did you learn" question allows librarians to see areas that more of their students reported back as being learned as opposed to just memorized titles. The "do you have any questions" query was changed to "if you answered 1 or 2, what is still confusing?" This allows the students to expand on why they rated their confidence with the library so low, and allows for more students to have a reason to answer the question. It is the hope that more students will articulate what they still find troublesome. To assist with the distribution, the business card with the URL was kept, but for this iteration, a long strip of paper was used on cardstock.

The final piece for the assessment is to make individual librarians aware of their students' feedback. The responsibility now is to the person who created, has access to, and manages the data to send out weekly emails to the individual librarians with their results. This allows individual librarians to not just see the data as a whole, but look at their individual classes, look at the student feedback, and see what overall comments the students had.

The initial results of the assessment, as with the previous semesters, showed the students' general positive feedback after receiving library instruction. As with the first two implementations, when asked how confident they felt after receiving library instruction, the overwhelming majority of the students answered with 4s and 5s.

(See attachment for Figure III- data from Fall 2016)

None of the students answered 1 (not confident), and only 2 students answered 2. Out of the 248 students, 227 students reported feeling confident and very confident, at a percentage of 91.5%. In total, the approximate response rate was 49%.

**Discussion**

Overall, the assessment tool helped identify students' reaction to library instruction. Keeping the questions general allowed the tool to work well in the many different disciplines. In most cases it was easy to distribute the assessment and collect responses. Use of the Google Form helped to simplify the analysis. Very little class time was needed to complete this; students needed under five minutes to finish up and submit the assessment. Faculty were willing to allow the small amount of class time needed for students to complete the assessment. Distribution was problematic at first when librarians were teaching in rooms that did not allow for student computer use; that was solved with business cards with the shortened URL on them. In the second version of the tool, the response rates were better from the students, but librarians were unable to see their results unless they requested it. Only one did so. Finally, the question "name the resources in class" was eliminated as it was pointed out that although students may be able to correctly name a source, that doesn't mean that the student understands how to evaluate that source.

In analyzing the data from all three implementations, the bulk of the helpful information came from the question "name one thing you learned", where students detailed processes, ideas, and types of searches. In analyzing the "name the resources in class" question, it was noted that the question was more of a simple recall then of a way to provide librarians with student feedback. It was far more valuable to look at the student comments under "name one thing you learned" and relate that back to the overall student confidence level, not to look for a correlation but to notice more how the students were responding and if they were detailing processes or simply reiterating database names.

While there was a difference in the distribution method between librarians who taught in the computer lab and librarians who taught in other classrooms and distributed the link via email or handout, the data showed no clear difference. However, the students who were not working in the lab and did not have immediate access to the assessment were less likely to complete the assessment. Giving the students the assessment immediately, on their own computer, was the most effective way to have students complete it.

*Future Possibilities*

For librarians retrieving their data, librarians at the Cheng Library are working on designing a database that teaching librarians can sign into to retrieve their data as opposed to the current method of one librarian emailing the others with their results. The current iteration works, but a speedier way to access this data would be welcome for all parties involved.

In addition, another measure that may be included in the future is adding a pre-test to the class to gauge the students' confidence level on using the library's resources before the class start. After the class, the students would complete the assessment to indicate how confident they

now feel in using the library's resources. This would provide librarians with a gauge of a potential increase in student confidence levels after receiving library instruction, but it would take another five minutes out of the class, which in a one-shot, and with already losing five minutes at the end of class, may not be feasible. Both Wang (2016) and Byran and Karshmer (2013) utilized both pre- and post- tests in library instruction settings with students being asked to demonstrate skills and in Wang's case, report their feelings on the library instruction session in both the pre- and post- test.

**Conclusion**

Assessment is essential in academic libraries in all areas and user education is one such area. While many librarians conduct informal assessment during their library instruction classes, it is beneficial and practical to have a formal assessment tool librarians can utilize. Having an all-purpose assessment tool developed and ready-to-go in one's own library is advantageous as it allows for librarians who do not specialize in assessment to have a tool that they can easily use. Formulating questions using general learning outcomes is challenging but doable and can serve a wider audience. Having a general assessment tool for library instruction is beneficial to the students, individual librarians, and library and university community as a whole.

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Appendix 1

Information for Classes not Scheduled in Computer Labs

http://tinyurl.com/chengassessment2016

**Appendix 2**

**Fall 2016 Library Instruction Survey**

* Required

Professor's Name

How do you feel about using the resources just demonstrated in class? *

Not confident (1) to Very confident (5)

If you answered a "not confident" (1 or 2), what concepts covered are still unclear?

Will you be working on a research assignment in this class? *

Yes
No

If yes, did you find resources that you will use to complete your assignment?

Yes
No

What did you learn today that you didn't know before coming to the class? *

Fig. I: n=194

| Question: How do you feel about going back and using the library's resources? | Students |
|---|---|
| Very comfortable | 104 |
| Comfortable | 74 |
| Neutral | 13 |
| Confused | 2 |
| Very Confused | 1 |

Fig. II: n=205

| Question: How do you feel about going back and using the library's resources? | Students |
|---|---|
| Very comfortable | 98 |
| Comfortable | 90 |
| Neutral | 16 |
| Confused | 1 |
| Very Confused | 0 |

Fig. III n=248



Question: How do You Feel about the Resources Just Demonstrated in Class?