

Managing an Information Literacy Needs Assessment Across Multiple Campuses

Daniel Wilson

Introduction

South University has eleven physical campuses spread across eleven states, as well as an online campus. Each of these campuses has its own library and instructional staff. In 2011, South University formalized its information literacy instruction with a new information literacy strategic plan. Since that time, changes in staffing, local practices, course assignments, and academic expectations have altered the information literacy landscape at each campus. Maintaining a standardized information literacy program across twelve campuses has been challenging - each campus is separated by distance, student demographics, and variances in the availability of computer labs and other instructional tools. As course assignments changed and new staff joined the team, the distance between campuses became a major obstacle to coordinating practices. With these challenges facing the libraries, the interim assistant vice-chancellor of the libraries met with the campus directors to create a needs assessment team. This team was charged with assessing the university's current information literacy practices, determining if there was a gap between current practice and the desired student performance, and proposing a plan for the libraries going forward.

Distance as an obstacle to coordination

The direct catalyst for the needs assessment project was a growing disconnect between campus practices.¹ The existing information literacy instruction plan required librarians to perform quantitative and qualitative post-test assessments (see Appendix V) after three specific first-year courses (Strategies for Success, Computer and Information Literacy, and Composition

l). After discovering that some campuses were not successfully recording their assessment data, the libraries' information literacy committee issued a survey to librarians to get feedback on any issues relating to the existing information literacy plan. That survey revealed that 33% of librarians did not use the library-approved standardized instructional materials and that 50% had stopped using the standard post-tests.

Librarians also reported that the approved information literacy content attempted to teach too much information and that some librarians could not reliably get into the three required courses. The wording of the university's information literacy strategy plan required information literacy instruction in those courses, but did not require that it be administered by librarians. While most instructors have made time for librarian instruction, others have not. With distance making communication more difficult, it took years to identify all these variances in practice.

When librarians were able to get into those courses, many of the students appeared disinterested in the course matter. Inconsistent post-test results suggested that many students weren't applying themselves to the post-tests or weren't paying attention to the lectures. Results varied across campuses and were generally considered to be unreliable due to lack of student interest and variances in instructional practice across the campuses. These results and observations demonstrated a need to amend not only the instructional topics but also the manner in which the libraries were administering and assessing instruction.

As part of the needs assessment, the team looked into different methods for improving student interest. The chosen method needed to be adaptable to classroom equipment such as computers, compelling to students, and simple enough to coordinate across geographically distant campuses. These factors illustrated that there might be a disconnect between the libraries' instructional goals and outcomes, as well as a failure in the structure and delivery of the lessons. Rocca argues that in order to engage students, instruction should be limited in

length and broken up by alternatives such as labs or other activities.² The team decided that utilizing carefully created practical activities might enable each campus to reinforce learning and maintain student interest while assessing the impact of their lectures.

Planning and implementation

Because of this performance gap, the libraries decided to conduct a needs assessment of the university's information literacy program. Experts argue that new learning programs should begin with a needs assessment; an evaluation that endeavors to identify a performance gap and determine how best to close it.³ Although most literature considers this technique within the context of business or personnel development, the South University libraries wanted to utilize this assessment method to review their information literacy program. Of course, in an environment where a project deals with numerous staff over a large distance, organization is paramount.

The information literacy committee consisted of eleven librarians; however, it was decided that this was too many people to be involved in such a focused project. Instead, the committee co-chair formed a smaller team of librarians to perform the project and report back to the larger information literacy committee. The co-chair formed a team of four librarians and created a basic plan to outline how the project would proceed in comparing institutional expectations with the results of the libraries' information literacy program.

Maki describes five parts to determining institutional expectations: stating your expected outcomes, identifying where you will address each of those outcomes, determining how you will assess those outcomes, determining the performance expected by your institution, and identifying baseline performance.⁴ The team leader developed a three-part plan to arrange those tasks into a structured context that would work for a needs assessment. Part one involved identifying the issues associated with the existing information literacy plan. Part two focused on

identifying institutional and course goals. Part three centered on combining this information into a new plan proposal. In the first part of the project, the team sought to collect stakeholder feedback on the existing plan and to evaluate existing assessment measures to identify areas where university students were underperforming.

Identifying issues with the existing plan

Academic librarians often have to collaborate with teaching faculty, but it is often a challenging process. It is made especially difficult when attempting to work with faculty over long distances. Even on-campus librarians sometimes have issues getting in touch with faculty over phone or email; but can resort to direct meetings as a recourse. When dealing with separate campuses, distance makes regular live or virtual meetings challenging. A particular challenge can arise when attempting to contact or work with faculty with whom a librarian may have no prior experience.

Despite the difficulty involved, the team felt it was important to collaborate with faculty stakeholders. Not only was it important to discover which areas of the existing plan teaching faculty had issues with, but faculty involvement can also improve a resulting information literacy plan. Sanborn argues that collaborating with faculty is useful in order to structure information literacy and make it more relevant to individual courses.⁵ In addition, Sanborn's study showed that faculty collaboration might lead to requests for additional information literacy sessions.⁶

Having decided to involve faculty stakeholders, the team had to determine the best way to involve faculty from multiple campuses. Although having a single person conduct all of the faculty interviews would have ensured some level of consistency, it was decided that attempting to have a librarian the interviewee doesn't know contact them would not be ideal for participation. As Sleezer suggests, phone interviews already suffer not only due to the absence of non-verbal cues but also because many people are unwilling to speak for more than a half

hour over the phone.⁷ The team decided that having a stranger conduct the interview would complicate things further. With this in mind, the team decided to have the library directors from three campuses (including the online campus) conduct the interviews. Each of these directors would meet with their campus dean of academic affairs and general studies program director. Additionally, several composition instructors were independently interviewed by the chair of the needs assessment team. The team decided to leave these interviews unscripted but focused on discussing the stakeholders' desired outcomes for information literacy as well as any issues that they perceived in their library's current program. These interviews were conducted over a one-week period while other members of the team were tasked with examining the university's existing assessment data in the form of the annual Standardized Assessment of Information Literacy Skills (SAILS) test, the libraries' annual student survey, and the libraries' annual faculty survey.

While it was important to feature input from both teaching faculty and students, librarian feedback was also essential. Aside from the previously mentioned survey that helped initiate the needs assessment project, librarians from all campuses helped to create a basic Strengths, Weaknesses, Opportunities, and Threats analysis. The SWOT analysis was a separate project but it helped to identify factors that might impact information literacy. While it identified shared resources and librarian diversity as strengths; it also illustrated librarian turnover rate, lack of professional development training, and the non-faculty status of librarians as key weaknesses. It also identified another concurrent project to introduce a mandatory university-wide information literacy video training module for teaching faculty as a strength that might improve librarian – faculty communication.

Identifying institutional and course goals

The second step of the needs assessment project focused on identifying institutional goals and expectations. It would be impossible to identify a gap in performance without first identifying the expected results. This initially involved the examination of five separate types of documents: the university strategic plan, the information literacy strategic plan, the Quality Enhancement Plan goals, the learning outcomes for the three required information literacy courses, and freshman-level course enrollment statistics. In reviewing the course enrollment statistics, it was discovered that both Public Speaking and Introduction to Psychology had high levels of student enrollment and received regular information literacy instruction at some South University campuses. With this new information, the team decided to include the learning outcomes for each of those courses into the needs assessment.

As seen in Appendix II, first-year course goals emphasized student understanding of methods for finding resources, evaluating resources, evaluating ideas, and proper citation in APA format. Furthermore, as illustrated by Appendix III, the needs assessment team chair decided to reach out to program directors in the university's largest program areas. This was done to broaden the data to not only include freshmen goals, but to discover which subject areas were most important for a successful student in those programs. Their responses most heavily emphasized finding resources, interpreting resources, and proper APA citation.

The Quality Enhancement Plan (QEP) is a university-wide initiative in providing direction for improvements to each of the educational programs. The university engages in one QEP at a time. Over a five year period, this QEP drives new programs and initiatives for the school. The existing QEP goal emphasized the relation of classroom learning to career development and was heavily featured in all freshman-level courses. This plan involved the addition of new

assignments into many first-year courses, many of which required review of scholarly articles or government data related to the student's intended career field.

As previously mentioned, student performance on information literacy post-test was often poor and inconsistent. However, the annual university SAILS information literacy test results also demonstrated weaknesses in student understanding of citation, copyright, finding resources, and identifying scholarly resources. This illustrated a significant gap between the stated institutional goals and actual student performance.

Results

After collecting and summarizing all of this information, the needs assessment team was left with the two lists shown in Appendix IV. The first list was comprised of learning outcomes and goals retrieved from institutional plans, course documents, and stakeholder feedback. The second list was comprised of student performance indicators in the form of stakeholder feedback, faculty and student survey analysis, and SAILS test results. Before beginning to create a new information literacy plan it was essential to separate the necessary goals from those that were only desired. In the South University libraries, as in many other libraries, the institution often has more wants than resources.⁸ In order to prioritize information literacy efforts and address the issue of sessions packed with too much information, it was essential to identify the most important information literacy topics.

The first step was to analyze the frequency with which information literacy topics came up. By analyzing the number of times each topic was mentioned in course outcomes, strategic plans, and stakeholder comments, the team was able to organize and identify the following as essential topics for the institution: evaluating sources, citing sources, ethics/plagiarism, effective searching/accessing of online information, and communicating information. Accessing online information and effective search strategy were considered to be similar enough to be combined

and the team considered teaching source interpretation to be outside the scope of one-shot library instruction sessions. We related those topics to ACRL information literacy standards⁹ two, three, and five for comparison with SAILS test results. Standard two relates to accessing needed information effectively; standard three emphasizes critical evaluation of information and sources; and standard three requires understanding of the economic, legal, and social issues involved in using information properly.

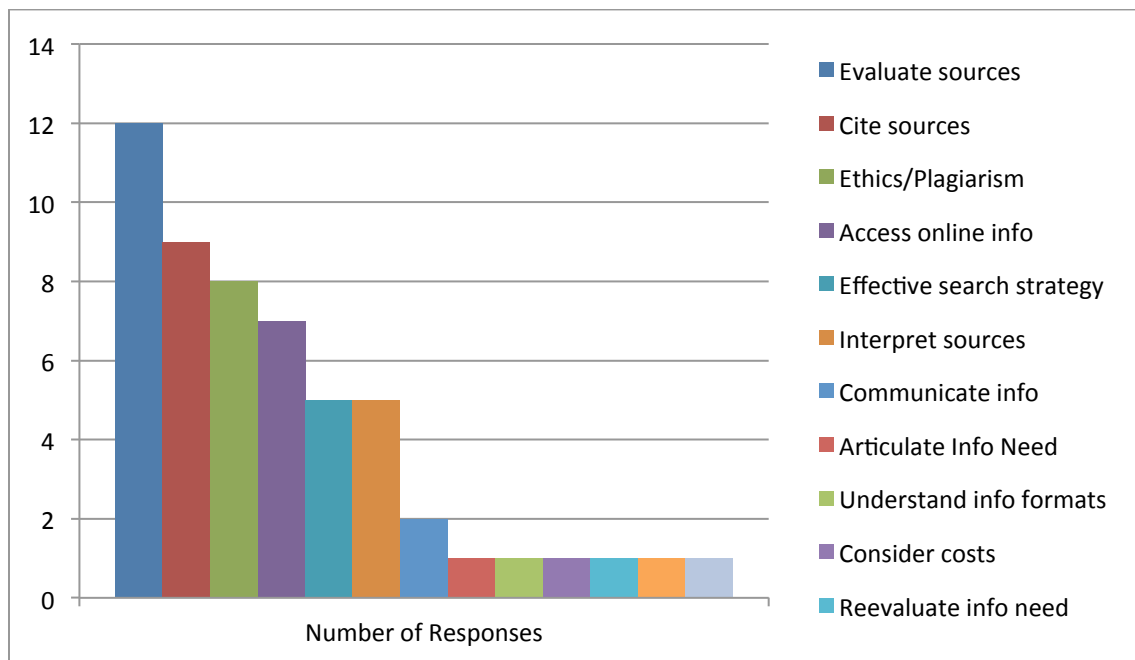


Figure 1: Topic frequency chart

The various information literacy topics were compared separately with SAILS test results to show that South University students needed the most help with searching tasks, citing resources, plagiarism, articulating an information need, understanding information formats, and interpreting sources. By comparing those results with the frequency list, the team was able to identify the topics that were both more frequently desired and in which students needed the most help; creating the priority chart below (See Figure 2). Sources ranking higher on the

frequency chart were rated as 'more important', illustrating the most critical topic areas by revealing which topics were both more important and had the poorest performance.

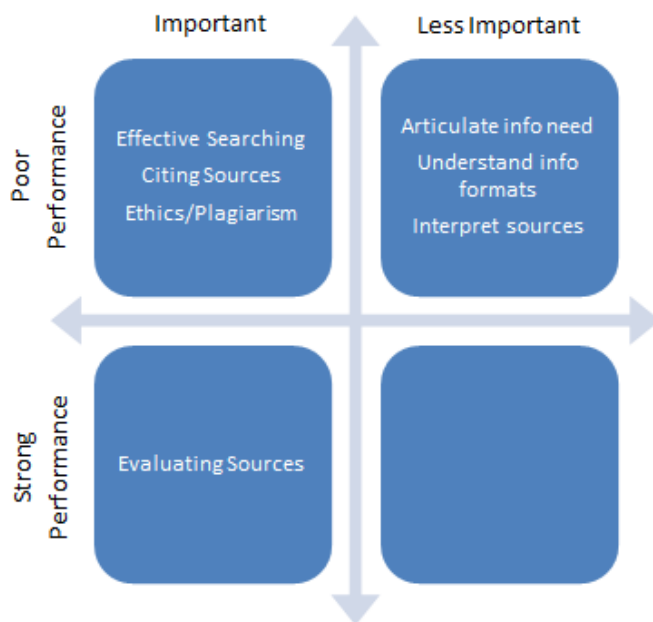


Figure 2: Priority chart

Creating a new plan

While analyzing surveys, conducting interviews, and comparing data was a lengthy and involved process, meeting to discuss a new vision was the most difficult part of the needs assessment project. Data and comments were relatively easy to compile and lay out in a way that suggested where students had the largest performance gaps; however, meeting and discussing plans for revising instruction involved a couple barriers.

First, the librarians on the team had differing views on how to address the performance gaps. Should instruction require PowerPoint or be more spontaneous? Should instruction heavily feature citation or leave that for the course instructor? Second, each South University campus had a different culture and, even more importantly, different availability for educational equipment. Depending on the campus, librarians may be given greater latitude, may have closer

relationships with faculty, and/or may be more heavily involved in academic program meetings. The computer lab availability issue did not become apparent until the discussion turned to how to feature more activities in each of the sessions, revealing that some campuses have trouble reserving computer labs for library instruction. When considering each aspect of the new plan, the team had to consider the equipment and environment needed.

From the faculty and librarian feedback there were several considerations that had to be factored into the new plan. Faculty members were reportedly satisfied with the librarian's instruction abilities but had some concerns about the same content being given repeatedly. They were also concerned about their limited course time. Not only does South University operate on a quarter system that limits the on-ground campus courses to eleven week quarters, but the new QEP initiatives regularly take away from normal class instruction. Faculty members would be reluctant to accept a plan that introduced additional instruction time.

To further complicate matters, librarians reported that library instruction sessions needed more student engagement; yet most student engagement activities take up additional time. In reviewing the literature, Rocca found many studies suggesting that class participation can have an impact on motivating students and enriching their learning experience.¹⁰ With the librarians wanting more student engagement and faculty unwilling to grant additional time, it became necessary to emphasize scaffolding to pare down the volume of content in each session. By breaking up instruction to cover progressively more complex topics over several different courses, the librarians would be able to include more student engagement into individual sessions. However, this also meant that topics had to be prioritized and that some topics (such as interpretation of sources) would either be left out or left up to the course instructors.

With these factors in mind, the team leader created a basic scaffolding plan and organized the existing instructional material into a new set of course topic lists. Previously, in

order to ensure that librarians at each campus were covering the necessary topics, the libraries had a set of mandatory PowerPoints for each of the required courses. In the new plan, topic lists spread the topics amongst the three mandatory courses and provided a list of topics that were required to be covered, along with an approximated time per topic to demonstrate the intended breadth of coverage. These topics were still included in PowerPoints that were provided to each of the campuses, but the PowerPoints were intended to be optional; allowing librarians greater latitude in customizing their own instructional content while ensuring consistency of content. Furthermore, it was decided that each session would be broken up by two hands-on assessment activities that would be devised for each course.

Assessment

The decision to incorporate hands-on activities was influenced by two factors: a desire to increase student engagement and a need to revise the libraries' assessment methods. Librarians wanted to retain the existing qualitative assessments, but South University also required reporting of quantitative data. The annual SAILS results might have provided what was needed, but did not help the librarians evaluate their individual class performance. However, librarians believed the existing post-test measures to be ineffective and desired something that the students might take more seriously.

Maki stresses the importance of identifying which students will be assessed and when, as well as emphasizing the importance of assessing student learning over time.¹¹ Unfortunately, while the information literacy committee wanted formative assessment for measuring improvement over time, it was decided that the reliance on one-shot sessions would make that impractical. Instead, the team decided that the libraries could use activities to measure student's actual skills rather than focusing on theoretical knowledge. Schilling argues that in-process measures such as practical exercises "are useful for identifying exactly where a student's skills

are weak or strong".¹² She also discusses the importance of measuring both short-term and long-term retention.¹³ It was ultimately decided that in-process activities would boost engagement and provide short-term skills assessment while annual SAILS tests would be used to measure each campus' long-term retention of theoretical knowledge.

Conclusion

The needs assessment project was the first of a series of periodic assessments that would ensure the continued development of South University information literacy practices. The resulting information literacy plan also included recommendations for future action to be taken, including a recommendation to speak with curriculum planning committees about why some campus librarians reported difficulty accessing the three mandatory freshman courses.

The needs assessment produced a new plan for covering information literacy over three mandatory freshman-level courses. Whether or not this new approach will yield improved results will take time to determine; however, the new assessment activities have already begun to yield more positive results compared to the previous post-tests. In the first quarter of our Strategies for Success course piloting the new system on all campuses, students achieved an 87.75% correct response rate on the assessment activities; a noticeable improvement over the older post-tests. The activity questions for this course focused on identifying appropriate sources of information and developing search keywords. Additionally, initial faculty and librarian feedback suggest an overall positive reception to the assessment activities.

While these initial results suggest some level of success in the implementation of these changes, the process itself has also opened up greater communication and collaboration between faculty and librarians; as well as identifying some key areas where the libraries differ and can seek further improvement. In that regard, the project has already had a beneficial impact that will hopefully continue into the future. In June of 2016, the ACRL Board of Directors

voted to rescind the “Information Literacy Competency Standards for Higher Education”. This may spark many universities to revisit their information literacy practices and assessments; providing an ideal time to perform a needs assessment to identify performance gaps in existing practices.

Daniel Wilson (danielwilson@outlook.com) is Library Director, South University, Montgomery, AL.

Published: November 2016

Appendix I – Objectives from institutional strategic plan and library SWOT analysis

| |
|--|
| Strategic Plan |
| <ul style="list-style-type: none"> • Determine and evaluate benchmark standards for information literacy, including pre and post assessments • Administer annual SAILS test • Appoint a formal librarian information literacy committee • Spread information literacy instruction over five courses, rather than three |
| SWOT Analysis |
| <ul style="list-style-type: none"> • Lack of professional development training is a weakness • Lack of faculty status diminishes ability to work equally with faculty • Lack of coordinated information literacy instruction on campuses • Library staff turnover rate is a threat • Mandatory information literacy faculty training module is an opportunity • New embedded librarian program is an opportunity |

Appendix II – Course Outcomes

| Course | Outcomes/Objectives | Assignments | ACRL Framework |
|---|--|--|----------------|
| UVC 1000 | <u>Learn how to find and use resources.</u> Learn to analyze and critically evaluate ideas. | Access Occupation Matcher and <u>find an article</u> related to the career identified for you in the occupation matcher. Cite the article using the cite link available with the article. | 1, 6 |
| ITS 1000 | Gain factual knowledge: terminology, methods, and trends. <u>Learn how to find and use resources.</u> | Career paper. Students must <u>find two credible websites</u> about their profession and technology. Research career and technology for discussion assignment – paraphrase and cite sources. | 1, 3, 6 |
| ENG 1100 | <u>Learn how to find and use resources.</u> Learn how to analyze and critically <u>evaluate ideas.</u> | Reflection essay about their career, <u>using APA citations. Annotated bibliography.</u> Mandated <u>Argumentative - Persuasive paper: 5 sources.</u> | 1, 2, 3, 4, 6 |
| SPC 1026 | Demonstrate awareness of <u>ethical standards</u> and cultural, social, and intellectual diversity in regard to the creation and appraisal of speeches and writing assignments. <u>Learn to analyze and critically evaluate ideas.</u> | Informative speech assignment related to the student's future career. <u>Students will explore journals and sources relevant to their career, accessing 3-5 sources for a presentation.</u> | 1, 6 |
| PSY 1001 | Explain the link between historical and current trends in Psychology. <u>Appraise the contribution of psychological research studies.</u> Learn to critically evaluate and analyze ideas, arguments, and points of view. | | 1, 5 |
| <p>ACRL Framework¹:</p> <ol style="list-style-type: none"> 1. Authority is Constructed and Contextual : Standard 3. (Types of authority, source evaluation). 2. Information Creation as Process : Standard 1. (Types of information, formats and their uses). 3. Information Has Value : Standard 5. (Citation, plagiarism, publication). 4. Research as Inquiry : Standard 1. (Determine research needs, scope, info organization). 5. Scholarship as Conversation : Standard 3, 4, 5. (Citations, contribute to research, identify contributions of other researchers). 6. Search as Strategic Exploration : Standard 1, 2. (Scope, identify where to search, design search strategies). | | | |

Appendix III – Graduation needs by academic department

| | Criminal Justice | Nursing | IT | Business | Legal Studies |
|-------------------------|------------------|---------|----|----------|---------------|
| Find online resources | x | x | x | x | x |
| Cite in APA | x | x | x | x | |
| Info ethics | | x | x | | |
| Form research questions | | | x | | |
| Interpret sources | | x | x | x | x |
| Communicate information | | | x | | |
| Evaluate sources | | x | x | | |
| Refine search | | | | x | |

Appendix IV – Outcomes and weaknesses

| Learning Outcomes | Reported Student Weaknesses |
|--|--|
| <ul style="list-style-type: none">• Evaluate sources• Cite sources• Understand information ethics• Access online information• Search effectively• Interpret sources• Communicate information effectively• Articulate information need• Understand information formats• Consider the cost of information• Reevaluate information need• Form appropriate research questions | <ul style="list-style-type: none">• Understanding citations and styles• Understanding copyright• Identifying scholarly vs popular resources• Locating journals by title• Students and faculty requesting more instruction on APA, copyright, evaluation, electronic resources, and using interlibrary loan |

Appendix V – Old Information Literacy Instruction Session Post-Test Evaluations

Composition I Post-Test

1. What is your name?
2. Which SU campus do you attend?
3. Please enter today's date.
4. What is the first step in the research process?
 - a. Write the essay
 - b. Evaluate the information you have collected
 - c. Know your project requirements
 - d. Do a Google search
5. What technique can you use to help identify a topic?
 - a. Brainstorming
 - b. Mind mapping
 - c. Geo-caching
 - d. Both A and B
6. Which of the following sources provide background information?
 - a. Encyclopedias
 - b. Dictionaries
 - c. Textbooks
 - d. Databases
 - e. All of the above
7. Which of the following does NOT apply to scholarly articles?
 - a. Peer-reviewed
 - b. Use references and contain bibliographies
 - c. Have lots of advertising
 - d. Published in professional journals

8. People magazine is an example of:
 - a. A popular source
 - b. A trade source
 - c. A scholarly source
 - d. None of the above

Strategies for Success Post-Test

1. Today's date
2. Instructor
3. Name (optional)
4. Please choose your campus
5. Name of the library presenter
6. Which of the following statements most accurately describes the use of documentation or citation styles, for example, APA, MLA?
 - a. All disciplines use the same documentation style for formal written papers.
 - b. There are many documentation styles, and they vary by discipline.
 - c. There are many documentation styles, and they vary by education levels, such as high school, college undergraduate, graduate and doctoral.
 - d. There are many documentation styles, and which style you use depends on the format of the source being cited, such as books and articles.
 - e. I don't know
7. In most cases, which of the following criteria is least important when identifying a resource to use for your research?
 - a. The author's bias.
 - b. The author's credibility.
 - c. The format of the resource.
 - d. How up-to-date the resource is.

- e. Who the author is.

Internet and Computer Literacy Post-Test

1. Your name
2. Your campus
3. If you are assigned to write an argumentative paper on the merits of the European Union, a topic with which you are unfamiliar, which of the following is the best source for basic background information?
 - a. A book titled, Competition law and industrial policy in the EU (376 pages)
 - b. A dissertation titled, "The global Mediterranean policy: The evolution of the European Union- Mediterranean countries relations during 1976--1998" (240 pages)
 - c. A recent USA Today article titled, "U.S., European Union call truce on trade war - for now" (453 words)
 - d. Encyclopaedia Britannica
 - e. Journal of European Economic Development
4. You have been assigned a research project for a sociology class that requires you to search in sociology databases. Which of the following sources would be the best to consult to find the correct terminology for your search?
 - a. Journal of Applied Sociology. Los Angeles: Southern California Sociological Society and the University of Southern California.
 - b. Merriam-Webster's Collegiate Thesaurus. Springfield, Mass.: Merriam-Webster, 2006.
 - c. The Blackwell Dictionary of Sociology: A User's Guide to Sociological Language. Cambridge, MA: Blackwell, 2006.
 - d. The Comprehensive Guide to American English. Boston: Houghton Mifflin, 2006.
 - e. The Oxford English Dictionary. Oxford: Clarendon Press, 2006.

5. You are assigned a research topic for geometry class on the history of Pascal's triangle (for an 8-10 page paper). Which source is the best one for background information on this topic?
 - a. Concise Encyclopedia of Mathematics
 - b. Encyclopedia of Science and Technology
 - c. Oxford English Dictionary
 - d. Trigonometry Textbook
 - e. World Almanac and Book of Facts

Student Feedback Evaluation Administered After Each Instructional Session

1. (Optional) Enter your name
2. Today's date
3. (Optional) Enter your email address
4. Please choose your campus
5. Class name
6. Name of library presenter
7. Please choose the option that best describes each statement

| | Yes | Somewhat | No |
|--|-----|----------|----|
| Objectives for information literacy class were clearly stated. | | | |
| The presenter was well organized. | | | |
| The presenter was knowledgeable about the subject. | | | |
| Information was presented in a clear and concise manner. | | | |
| The overall content was useful and practical to students. | | | |

8. Thank you for taking this survey. Please share comments and suggestions, your feedback is greatly appreciated!

¹ Maki, Peggy L. "Developing an Assessment Plan to Learn About Student Learning." *The Journal of Academic Librarianship*. 28 (1-2): 8-13 (2002), 8. Accessed May 09, 2016. doi:10.1016/S0099-1333(01)00295-6.

² Rocca, Kelly A. "Student Participation in the College Classroom: An Extended Multidisciplinary Literature Review". *Communication Education*. 59 (2): 185-213 (2010), 205. Access May 11, 2016. doi: 10.1080/03634520903505936.

³ Sleezer, Catherine, Darlene F. Russ-Eft, and Kavita Gupta. *A Practical Guide to Needs Assessment*. San Francisco: Wiley, 2014, 17. Accessed May 11, 2016. ProQuest ebrary.

⁴ Maki, Peggy L. "Developing an Assessment Plan to Learn About Student Learning." *The Journal of Academic Librarianship*. 28 (1-2): 8-13 (2002), 9. Accessed May 09, 2016. doi:10.1016/S0099-1333(01)00295-6.

⁵ Sanborn, L. "Perspectives On... Improving Library Instruction: Faculty Collaboration". *Journal of Academic Librarianship*. 31 (5): 477-481 (2005), 478. Accessed May 11, 2016. doi: 10.1016/j.acalib.2005.05.010.

⁶ *Ibid.*, 480.

⁷ Sleezer, Catherine, Darlene F. Russ-Eft, and Kavita Gupta. *A Practical Guide to Needs Assessment*. San Francisco: Wiley, 2014, 53. Accessed May 11, 2016. ProQuest ebrary.

⁸ *Ibid.*, 37.

⁹ American Library Association. "Information Literacy Competency Standards for Higher Education." Association of College & Research Libraries. Last modified June 25, 2016. Accessed June 26, 2016. <http://www.ala.org/acrl/standards/informationliteracycompetency>.

¹⁰ Rocca, Kelly A. "Student Participation in the College Classroom: An Extended Multidisciplinary Literature Review". *Communication Education*. 59 (2): 185-213 (2010), 188. Access May 11, 2016. doi: 10.1080/03634520903505936.

¹¹ Maki, Peggy L. "Developing an Assessment Plan to Learn About Student Learning." *The Journal of Academic Librarianship*. 28 (1-2): 8-13 (2002), 11. Accessed May 09, 2016. doi:10.1016/S0099-1333(01)00295-6.

¹² Schilling K, and R Applegate. "Best Methods for Evaluating Educational Impact: A Comparison of the Efficacy of Commonly Used Measures of Library Instruction". *Journal of the Medical Library Association : JMLA*. 100 (4): 258-69 (2012), 263. doi: 10.3163/1536-5050.100.4.007.

¹³ *Ibid.*, 260.