

# **Development and Validation of Subject Librarian Consultation Competencies**

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## **Introduction**

A primary responsibility of librarians is to help patrons learn how to access resources through reference desk questions, library instruction, one-on-one consultations, or other methods. Subject librarians (SLs) provide instruction and consultations to faculty and students in specific disciplines. This study focuses on identifying and validating competencies that SLs may use in research consultations with students.

In a research consultation the SL helps students become independent, skilled, knowledgeable researchers (Elmborg, 2002). Fournier and Sikora (2015) had librarians identify concepts that should be taught during these consultations and grouped them into four main themes: conducting background research, finding appropriate keywords, identifying search tools, and conducting primary searches. Other researchers expanded this list to include competencies such as collaboration, flexibility, IT skills, and critical thinking (Corrall, 2015; Jones, 2003; Luo, 2006; Neerpuh et al., 2006).

Competencies that facilitate research consultations serve multiple purposes including evaluation and improvement of SL consultations and to inform in-service or professional development activities for new or continuing SLs. This pilot study sought to identify and validate competencies SLs might use in research consultations with students.

## **Method**

The study used three procedures for identifying and validating SL consultation competencies, namely, a literature review, an SL rating, and a student rating.

### **Literature Review**

We conducted a review of library-oriented journals using 10 search terms such as subject librarian interview or reference interviews. Where possible, we chose articles that specifically referred to subject or liaison librarians, but other consultations were also considered, such as reference desk consultations. Our review generated 22 potential competencies along with brief descriptions of each competency (see Appendix).

Using the 22 competencies, we identified how often each competency was mentioned in each article. Some articles mentioned only one competency, while other articles mentioned several competencies. Using the total number of times each competency was mentioned across all articles, we placed competencies into high (over 20), medium (11–20), and low (10 or less) frequencies of mentions across all articles.

### **Subject Librarian Rating**

Six SLs from the Teaching and Learning Division (two from each department) each recorded two online student consultations, with the students' permission. Each SL reviewed both of their recordings and rated the degree to which each of the 22 competencies was present or wanted in each consultation. A rating of zero indicated that the competency was not present or wanted. A rating of three indicated that a competency was observed or not observed but wanted. After rating their own consultations, each SL shared the consultation recording with the other SL within their department and an SL outside of their department. Each of these SLs reviewed each

recording and rated each consultation competency as previously described. We determined a mean rating for each competency and ordered competencies from highest to lowest.

No identifying information was collected on any SL or the students with whom they consulted. All consultations were conducted online, and only SLs viewed and rated each consultation. This process was conducted over a two-month time frame to allow each SL sufficient time to conduct two student consultations and to complete ratings.

### **Student Rating**

Using the 22 competencies, we created competency summary statements for students to rate their research consultation. For example, the Behavior competency's summary statement was "The subject librarian's behavior (e.g., posture, facial indications, calm demeanor) indicated that they were listening and interested in what I was saying." These statements were part of a survey students were invited to complete following a consultation. They rated each competency based on their consultation. The rating scale used NA to indicate if the competency was not applicable to their consultation, or a scale of 1 (did not happen) to 5 (was very evident). Four competency statements were negatively worded to prevent response bias. Ratings for these questions were reversed prior to analysis. The last survey question routed students to a second survey where they could provide their name and identifying information to enter a draw for one of three \$10 cash incentives for participating. Using a second survey maintained the respondents' anonymity.

Following a consultation, SLs sent the invitations in one of two ways – via LibInsight, which sends an automatic follow-up email to the student or manually sending a follow-up email with the survey invitation and link. Both invitation methods used the same script. Once the invitation was sent to students, no further action was required by the SLs. We collected data from October 2020 to May 2021. Using the survey data, we conducted a principal component analysis on responses to determine how competencies related to each other.

### **Findings**

We discuss the findings from each research activity in the following sections.

### **Literature Review**

In the 35 articles discussing consultations in libraries, we identified 376 identifiers (words or phrases) of positive consultations, which we used to develop the 22 competencies and their respective descriptions. This was an iterative process in which competencies and descriptions were adjusted as similarities and differences were better understood (see Appendix). All competencies focused on SLs' consultation skills. The total number of identifiers found within each article and the competency category is found in Table 1. Using the frequency of competency mentions within each article, we then ranked the competencies from highest number of mentions to lowest (see Table 2).

Eight competencies were mentioned 20 or more times across all articles. The Professional competency was mentioned the most (34), followed by Behavior (29), Relationships (29), and Communication (28). While the number competency mentions does not necessarily indicate a competency's importance, but it does reflect discussion about the competency.

**Table 1**  
*Total Number of Identifiers Found in All Articles*

Article	Competency Category																						Total
	Assessment	Behavior	Collaboration	Communication	Conclusion	Critical Thinking	Flexibility	Identification	Instruction	Introduction	IT Skills	Professional	Professional Development	Question Strategies	Relationships	Research Efficacy	Research Process	Research Protocols	Search Tools	Search Quality	Time Management	Willingness	
Arendt & Lotts (2012)			1	1					1														3
Bradley et al. (2020)	1											1				1	1	1	1				6
Butler & Byrd (2016)	1	2		2				1	1	1						1				1			10
Cooke et al. (2011)				1	1			1	1		1	1			1							2	9
Corrall (2015)		1		1		1	2		1			1			2	1							10
D’Couto & Rosenhan (2015)	2								1			3			1	1	1		1				10
Desai & Graves (2008)		1												1									2
Donham & Green (2004)	1	1	1	4	4					2				4	1					1	2		21
Durrance (1995)	1				1					2	2			3	4			1		1			15
Elmborg (2002)								1	1					1								1	4
Faix et al. (2014)	1															1	1	1	1				5
Fiske et al. (2007)		1				1				1					1	1						1	6
Fournier & Sikora (2015)	1																						1
Fournier & Sikora (2017)	2				1						1	4				1	1	2	1				13
Jones (2003)	1	2	2	3		1	1						3		3								16
Logan (2009)		2		1	1	1		1				1		1		1	1			1	1	1	13
Luo (2006)		2		1	1	2	2	1	1	1		1		3		1	1	1			2	2	22
Martin & Park (2009)	3		1			1			1		1	2					1	1	3		1	1	16
Massey-Burzio (1998)				1				1	1			1											4
McGowan et al. (2009)														1		1					1		3
McLaughlin (2010)	1							1	1										1				4
McLaughlin (2011)	1	3	1		1	1			1	1					3	1				1	1	2	17
Neerpath et al. (2006)	1	4	1	5	2	2		1	2		3	6			3	1	2	1	2		1	3	40
Parks (2019)		1																				1	2
Peach et al. (2016)		2	1	2	1	1			1				1		2				1			1	13
Pomerantz (2005)			1		1																	1	3
Rogers & Carrier (2016)	1	2	1						1			1			1	1	2	1	3	1		1	16
Suarez (2013)		1		1				1	2			2	1		2	1	1		1		1	1	15
Tennaant et al. (2006)				1							1	1			1								4
Tyckoson (2012)			1	1				1	1			2	2									1	9
Vilelle (2014)					1			1	1	1					2		1		1				8
Watts & Mahfood (2015)	1							1	1			2				1			1	1		1	9
Weare et al. (2013)	2	4	2	3	2			3	2	1				3	2			4		1	1	1	31
Zanin-Yost (2018)			2					1	2			5					1	1	3			1	16
Total	21	29	15	28	17	11	5	16	26	10	7	34	7	17	29	15	14	14	20	8	9	24	376

**Table 2***Total Competency Mentions in All Articles*

Article Mentions	Competency	Article Mentions	Competency
34	Professional	15	Collaboration
29	Behavior	15	Research Efficacy
29	Relationships	14	Research Process
28	Communication	14	Research Protocols
26	Instruction	11	Critical Thinking
24	Willingness	10	Introduction
21	Assessment	9	Time Management
20	Search Tools	8	Search Quality
17	Conclusion	7	IT Skills
17	Question Strategies	7	Professional Development
16	Identification	5	Flexibility

**Subject Librarian Rating**

Following the SL consultations and review, we calculated each competency's rating using a scale of 0-3 with zero indicating that the competency was not present and three indicating that the competency was very present or if not present wanted (see Table 3).

Seven competencies had mean ratings of 2.4 out of 3 or higher, with Behavior (2.61) and Research Processes (2.58) ranking the highest. Professional, which had the most article mentions, was rated lowest.

**Table 3***Mean Subject Librarian Competency Ratings for All Consultations*

Rating	Competency	Rating	Competency
2.61	Behavior	2.16	Identification
2.58	Research Process	2.11	Question Strategies
2.47	Communication	2.05	Critical Thinking
2.47	Instruction	2.05	Willingness
2.47	Research Efficacy	1.95	Research Protocols
2.47	Introduction	1.74	IT Skills
2.44	Conclusion	1.68	Collaboration
2.33	Flexibility	1.53	Assessment
2.32	Relationships	1.22	Time Management
2.32	Search Quality	1.06	Professional Development
2.32	Search Tools	0.89	Professional

**Student Rating**

We do not know how many survey invitations were sent by SLs, so we were not able to calculate a survey response rate. Two responses were deleted because the age of the student was under 18 or unknown. Only 109 of 257 responses had complete responses for all 22 competencies. We only used these 109 responses in the analysis because we could not determine if the nonresponses were random or not.

Table 4 shows the mean and standard deviation for each competency. Using the scale of 1 (did not happen) to 5 (was very evident), student ratings were skewed, with over half of the

competencies having ratings of 4.5 or higher. These ratings indicate high quality consultations from the perspective of students.

**Table 4**

*Mean and Standard Deviation for Each Competency*

Competency	Mean	SD
Professional	4.94	0.23
IT Skills	4.88	0.42
Flexibility	4.86	0.40
Behavior	4.84	0.41
Research Efficacy	4.83	0.41
Research Process	4.81	0.55
Conclusion	4.73	0.65
Instruction	4.69	0.66
Professional Development	4.64	0.66
Collaboration	4.56	0.86
Identification	4.50	0.94
Time Management	4.50	1.22
Search Tools	4.44	0.95
Search Quality	4.41	1.03
Willingness	4.41	1.28
Communication	4.39	1.34
Research Protocols	4.39	1.00
Introduction	4.36	1.11
Critical Thinking	4.35	0.92
Assessment	3.91	1.34
Relationships	3.85	1.47
Question Strategies	3.73	1.47

We conducted a principal component analysis to determine how the competencies might cluster in factors and the degree to which each competency loaded on the factor. We identified two factors. The first factor focused on the SL's consultation skills and the second focused on patrons' needs (see Table 5). All factor loadings are positive, with moderate to strong loadings.

**Factor 1.** SL Consultation Skills competencies emphasize skills SLs may use in a consultation depending on the student's background and experience. The factor loadings account for 88.3% of the variance found in the analysis.

**Factor 2.** The Student Needs competencies focus on student interaction skills SLs may use. They account for 11.7% of the variance.

Finally, we listed all competencies from highest to lowest values for article mentions, mean ratings, and loadings (see Table 6) to illustrate ranking similarities and differences. Depending on the ranking source, competencies varied in importance. Each type of ranking is not an indication of one competency being more important but serve as a means for self-reflection by SLs in how consultations are conducted and how in-service training is undertaken.

**Table 5**  
*Principal Component Analysis Factors with Loadings*

Factor 1: SL Consultation Skills		Factor 2: Student Needs	
Competency	Loading	Competency	Loading
Search Quality	0.744	Willingness	0.919
Flexibility	0.700	Time Management	0.863
Critical Thinking	0.680	Communication	0.830
Collaboration	0.661	Question Strategies	0.744
Behavior	0.654		
Assessment	0.646		
Research Efficacy	0.627		
Identification	0.615		
Professional Development	0.613		
Professional	0.593		
Search Tools	0.568		
Instruction	0.564		
Introduction	0.552		
Research Protocols	0.535		
IT Skills	0.529		
Relationships	0.506		
Research Process	0.505		
Conclusion	0.421		

**Table 6**  
*Competencies Ranked by Type of Analysis*

Article Mentions	SL Consultation Ratings	Student Mean Ratings	Factor 1: SL Consultation Skills	Factor 2: Student Needs
Professional	Behavior	Professional	Search Quality	Willingness
Behavior	Research Process	IT Skills	Flexibility	Time Management
Relationships	Communication	Flexibility	Critical Thinking	Communication
Communication	Instruction	Behavior	Collaboration	Question Strategies
Instruction	Research Efficacy	Research Efficacy	Behavior	
Willingness	Introduction	Research Process	Assessment	
Assessment	Conclusion	Conclusion	Research Efficacy	
Search tools	Flexibility	Instruction	Identification	
Conclusion	Relationships	Professional Development	Professional Development	
Question Strategies	Search Quality	Collaboration	Professional	
Identification	Search Tools	Identification	Search Tools	
Collaboration	Identification	Time Management	Instruction	
Research Efficacy	Question Strategies	Search Tools	Introduction	
Research Process	Critical Thinking	Search Quality	Research Protocols	
Research Protocols	Willingness	Willingness	IT Skills	
Critical Thinking	Research Protocols	Communication	Relationships	
Introduction	IT Skills	Research Protocols	Research Process	
Time Management	Collaboration	Introduction	Conclusion	
Search Quality	Assessment	Critical Thinking		
IT Skills	Time Management	Assessment		
Professional Development	Professional Development	Relationships		
Flexibility	Professional	Question Strategies		

### **Limitations**

There are several limitations. First, the literature review could be more extensive to identify other competencies or change the frequency with which competencies are mentioned. Second, the review of consultation recordings could involve more SLs. Third, the student portion could be more inclusive – involving SLs from different institutions, including Special Collections curators – to allow for more comprehensive competencies. Fourth, requiring students' response prior to entering the incentive draw would improve the number of usable responses. Fifth, all consultations were conducted online, elevating the importance of some competencies (e.g., IT Skills) and limiting others. Finally, asking students to rate the helpfulness of the consultation would enable the competencies to be more predictive rather than just descriptive.

### **Conclusion**

This study identified and validated 22 competencies that SLs might use in a consultation with students. The identified SL research consultation competencies may be used by SLs to help train new SLs and to help SLs assess the quality and efficacy of their consultations, enabling them to identify strong consultation skills and improve weaker skills. The SLs may also use the competencies for in-service presentations and discussions. The net result of each of these efforts would be improved consultations with students.



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### Appendix: Competencies and Their Descriptions

Competency	Description
Assessment	The SL teaches the student how to evaluate accurate, credible, relevant, and appropriate sources.
Behavior	The SL demonstrates a variety of behavioral characteristics, including posture and facial indications (e.g., nods head, maintains eye contact) indicating that the SL is listening and interested in what the student is saying. The SL remains calm throughout the consultation and uses an appropriate voice tone that fosters a warmth-based environment.
Collaboration	The consultation is conducted and viewed as a collaboration between the student and the SL. The SL encourages the student to contribute ideas.
Communication	The SL has strong written and verbal communication skills resulting in effective interactions with clearly presented and organized ideas. Multiple communication methods, absent of jargon and confusing terminology, are used during the consultation. The SL follows up with the student after the consultation to ensure that the student's needs were met.
Conclusion	The SL signals a clear end to the consultation and indicates that there will be a follow-up contact. The SL asks if all questions have been answered or if there are additional questions and indicates a willingness to meet with the student again. The SL promotes other library services and resources.
Critical Thinking	The SL uses creativity and different insights to teach the student to see the big picture as they jointly apply critical, analytic, and problem-solving thinking to the research question. This instruction includes referring the student to others for help as needed.
Flexibility	The SL adjusts to the student's needs and preferences, including valuing, respecting, and maintaining diversity. The SL is also able to engage with the student when the student's thinking is messy and ambiguous.
Identification	The SL determines the needs, background, and experience of the student including the student's research goals. Background includes the student's knowledge and experience using research tools and a description of the student's research without overloading the student with information or focusing too much on processes the SL wants to share instead of what the student needs. This competency also identifies the student's expectations of the consultation.
Instruction	The SL uses good instructional methods and treats the consultation as a one-on-one teaching and learning opportunity. The consultation is instructive, logical, simple, and helps the student navigate "the sea of choices." The SL uses clear examples to illustrate what is taught and can identify whether the student is or is not understanding. The SL teaches the student how to access and use the library and its resources (information is not just given to them).
Introduction	The SL introduces themselves by name and indicates how to refer to themselves. The SL uses the student's name and begins with welcoming comments that help to reduce any anxiety the student may have. The SL finds ways to relate to the student and avoid any opinionated responses. The SL's friendliness is evident and helps to set the student at ease.
IT Skills	The SL demonstrates the ability to use a variety of technologies to meet the needs of the student.
Professional	The SL demonstrates the professional standards of the library and other fields of study.
Professional Development	The SL exhibits the attitude of being both a teacher and a learner. The SL uses a learning theory to guide consultation instruction. The SL learns from each query and interaction and incorporates that learning into future consultations. The SL is willing to compare and contrast best and worst consultations to determine new opportunities for learning and growth. The SL takes calculated risks to improve themselves.
Question Strategies	The SL uses a variety of questioning strategies, including open questions (probing questions to better understanding the research), closed questions (clarifying questions to narrow the focus of the research), and follow-up questions (rephrasing the student's questions to confirm understanding). The SL alternates well-phrased, logical questions with listening skills.

Relationships	The SL engages in relationship-building activities at the start of and throughout the consultation to establish and build trust, respect, and civility. The SL uses etiquette to be approachable, courteous, polite, and sincere. The SL expresses appreciation for the student's request for help.
Research Efficacy	The SL displays strong organizational skills throughout the consultation, including describing procedures used, focusing on research support, and teaching research strategies, skills, shortcuts, informal tips, and techniques, all from the perspective of the student—what will be most helpful to the student at their level of need. The SL may need to conduct a background search of the student's topic prior to the consultation.
Research Process	The SL teaches and walks the student through the research process, demonstrating traditional and nontraditional search tools (e.g., databases, library catalog, Google) and relating the elements of the search to each other. The consultation includes how to narrow or broaden searches and search terms. The SL brainstorms with the student to identify keywords connected to the subject. Depending on the student's experience, the consultation may include instruction on advanced search techniques.
Research Protocols	The SL teaches the student about citation management tools and styles, annotated bibliographies, use compliance (e.g., copyright, plagiarism, accessibility), types of research, and multiple search strategies. The SL's knowledge of research protocols is manifest through each consultation discussions (e.g., how and when to use databases).
Search Quality	The SL discusses how effective or accurate the search tools are on the accuracy and efficacy of the resource, including specific and current subject knowledge.
Search Tools	The SL discusses the level of sources (primary, secondary, tertiary), use of library tools (e.g., databases, open-access, traditional resources, Boolean operators, library website, journal access and article download, interlibrary loan), use of library catalog, and their knowledge of the resources and collections.
Time Management	The SL responds in a prompt and timely manner to information requests. The SL teaches time management skills and tips. The SL is aware of and consults within the time limitations of the student.
Willingness	The SL balances leading and following in the consultation as they seek to understand and use the student's information-seeking behaviors. The SL has a desire to understand the student's point of view and focuses the consultation on the student's needs. The SL shows interest in and enthusiasm for the student's research topic. The SL is helpful and encouraging. The SL is aware of the impact of the discipline's culture on perception and research.