Specialized Reference Services at Illinois

Reference Transactional Analysis and Its Implications for Service Providers and Administrators

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As reference service environments continue to evolve, service providers and administrators are encountering numerous challenges and opportunities. This article examines the specialized reference services at the University of Illinois. Using reference transactional data from two academic years (69,630 transactions), this study focuses on five specialized service points and two general service points. Moreover, this study analyzed READ Scale scores, duration of the transaction, question type, and subject area covered during these transactions.

Like many research institutions today, the University of Illinois has been investigating questions related to service models, staffing, and the role of departmental units, and working toward an adaptable service plan that is capable of addressing the short- and long-term research needs of users. Reference services are contributing to these ongoing discussions proactively, thus engaging users, administrators, and colleagues to design and implement innovative services. To contribute to this discussion on reference services, this study aims to provide a fresh look at specialized reference services at a large research library by examining in-person, phone, and email transactions from five specialized and two general reference service points for the period July 1, 2013 to June 30, 2015. The reference transactional analysis also focuses on duration of the transaction, Reference Effort Assessment Data (READ) Scale scores, question type, and subject area. Through quantitative analysis, we hope to shed some light on the intricacies that link reference environments and shape their evolving roles at academic libraries.

Since their inception in the late nineteenth and early twentieth centuries, reference services at public, academic, and special libraries have experienced numerous shifts in service models, scope, and capabilities. Some of the shifts in service models were the result of evidence-based findings, and others were the product of systemic changes in higher education. As reference service models evolved, the role of reference professionals also went through a transformation. In his historical narrative of reference services and libraries, Thomas J. Galvin assigns eight additional functions for reference

professionals in "amplified reference services." In addition to instruction- and assistance-related duties, these functions include compiling bibliographies, topical guides, indexes, and collections aids; indexing and abstracting; "translation"; and "editorial and publishing services."[1] Although some of these functions are still performed by reference professionals, in most academic libraries the vast majority of these functions are now conducted by library vendors and service suppliers. The reference environment now rests heavily on subscription-based resources and the extensive possibilities associated with online resources. Moreover, the most recent realignments and consolidations experienced by academic libraries have fundamentally altered the identities of reference services and their historical role at these institutions.

Yet this reference environment still retains its vitality and continues to explore alternative service models to provide research services to diverse groups of academic communities. As Steiner,[2] Hess,[3] and Lenkart et al.[4] have shown, reference services continue to evolve and play a vital role in the research process of students and faculty. The reference service landscape now operates on different modes of activity with multiple integrated service points to support the needs of diverse communities of scholars at academic, public, and special libraries. As we move forward with innovative service models, it becomes increasingly imperative for reference professionals and library administrators to examine the intricacies of managing integrated service "hubs," specialized reference services, staff training, quality control, and the referral infrastructure at academic institutions. Through internal discussions and assessment, the three reference "hubs" at University of Illinois were designed to address service gaps, enhance subject expertise, and maximize the capacity of the Library to provide research assistance to users across campus. These reference hubs act as the main triaging points for reference transactions. Many large academic libraries have similar service structures to manage incoming queries.

The University of Illinois Library is one such institution. Founded in 1867, the Library currently supports 44,880 students (33,467 undergraduate level, 10,428 graduate level, and 985 professional level) and 2,456.57 FTE faculty members.[5] With more than twenty departmental libraries, designed to support the research needs of fifteen colleges and instructional units, and seven area studies centers, the University of Illinois Library is one of the largest public research libraries in the world. Its various service points are staffed by faculty librarians, graduate assistants, hourly staff, civil service staff, and academic professionals. As with other research libraries, this library system has undergone significant changes over the last ten years to contend with internal and external challenges and opportunities.

In fall 2007, the University Library administration at Illinois initiated the New Service Models (NSM) program "to address strategic challenges to the future of the University of Illinois at Urbana-Champaign's University Library."[6] This extensive program relied on key principles and challenges outlined in *Library Services for the 21st Century at the University of Illinois at Urbana-Champaign: Final Report and Recommendations of the Budget Group Plus*.[7] Citing transformational changes in information technology, scholarly communication, and higher education, this report saw three major areas of concern in relation to the departmental library service model: the nature of collections, needs of users, and the changing academic environment. To address these changes, the University Library administration began a process of integration and realignment of service points, which dramatically altered the departmental library structure at Illinois. As during previous periods of change in service structure, the specialized reference services at the University of Illinois were affected by local environmental conditions and shifts in administrative priorities.

The restructuring of reference services at Illinois began with the Reference New Service Model report, which called for the formation of a Reference Services Planning Team. In addition, this report identified structural problems with the Library's reference services:

> The Library's current system for reference has a number of disadvantages. Because each unit handles reference separately, there is great inconsistency in the type, quality and hours of service, in the materials that support reference transactions, such as web pages and guides, in the training of staff and graduate assistants, and in the assessment of services. Another disadvantage is that patrons often have difficulty finding help. This is particularly true of patrons who seek assistance in the Main Library where reference desks are located in hard-to-find places and good signage is lacking.[8]

The work of the Reference Services Planning Team and later the Reference Services Implementation Team led to the final implementation report, which called for a new cohesive service structure with reference hubs and specialized reference services at realigned and consolidated departmental libraries. Within this new structure, the specialized reference services at Illinois not only support reference hubs but also maintain a robust service infrastructure in their respective departments for affiliated students, faculty, and academic departments.

The realigned departmental structure at Illinois relies on the expertise of subject specialists, unique collections of print and online reference materials, and an extensive directory of online research resources to deliver services. This extensive directory includes research databases (subject and foreign language ones) and a vast portfolio of bibliographic guides designed for supporting undergraduate and graduate students, courses, teaching faculty, and the service parameters of each reformed unit. Furthermore, subject specialists and staff at the departmental level now participate in the referral management system, and help staff the hub service points at the University Library. This evolving service model continues to incorporate shifts in research trends and needs of patron groups at the University of Illinois.

LITERATURE REVIEW

In 1876, Samuel S. Green observed that "a librarian is frequently asked to give information in regard to things and processes which he knows nothing about."[9] This insightful observation remains poignant today. The predicament Green described continues to present information professionals and library administrators with both challenges and untapped potential for developing innovative reference services.

The impact of reference services is documented in five relevant bibliographies: *Reference Service: An Annotated Bibliographic Guide;*[10] *Reference Service: An Annotated Bibliographic Guide Supplement 1976–1982;*[11] "Cooperative Reference Services and the Referred Reference Question: An Annotated Bibliography, 1983–1994";[12] "Success, Failure, Innovation and Uncertainty in Changing Times: A Selective Bibliography of Literature on Reference Services since the 1980s";[13] and *Performance Measures: A Bibliography.*[14] These bibliographies collectively chronicle published material on reference and reference services since 1876. Specifically, these sources list numerous case studies and impact analysis of reference services at academic, public, and special libraries. Thomas J. Galvin's aforementioned historical narrative provides additional sources for exploring the evolution of reference services at public, academic, and special libraries.

Since reference service environments are impacted by structural changes at the departmental and administrative level, scholarship that tracks restructuring and realignment of service points is prevalent. In her study, *University Library Effectiveness: A Case Study of the Perceived Outcomes of Structural Change,*[15] Jennifer Younger critically examines the relationship between professional activities such as services, organizational structure, and effectiveness at academic libraries. Younger's study focuses on the University Library at University of Illinois at Urbana-Champaign (UIUC). In addition, her analysis of the structural changes at UIUC, Columbia University, and Pennsylvania State University Library ought to be an integral component for examining new service models and their impact on public services and service providers at academic libraries. Recently, Holder and Lannon reported the closings and consolidations of academic libraries and their implications for service points.[16] General and specialized reference environments are susceptible to systemic changes, including to the infrastructure that supports their overall management.

Recent scholarship and discussions have focused on the changing role of reference work and the overall management of services at academic libraries. Schulte,[17] Bandyopadhyay and Boyd-Byrnes,[18] Nall et al.,[19] Ward and Phetteplace,[20] and Peters[21] have investigated service viability at general and specialized locations and staffing and service consolidations at academic libraries. The Reference Research Forums organized by the American Library Association's Reference and User Services Association have facilitated a platform for examining "reference effectiveness and assessment . . . and organizational structure and personnel."[22] Gerlich and Whatley have also contributed to this discussion by using the READ Scale as a staff calibrating tool.[23] Moreover, De Groote et al. assessed cooperative digital reference services by coding reference transactions into categories, which included specialized services and subject areas.[24]

Scholarship on reference services and transactional assessments reflects a multifaceted approach to examining general and specialized reference services at academic libraries. Jean McLaughlin's survey of reference assessment literature from 2001 to 2010 revealed a lack of a "universally accepted set of standard approaches, study methodologies, and reporting formats for comparison and analysis."[25] This lack of accepted standards and methodologies was also observed by Murfin in her survey of seventy-one academic libraries and their reference transactions: "Without accepted units of measurement, data for different libraries cannot be compared."[26]

In terms of specific examples of reference transactional assessments and case studies, Olszewski and Rumbaugh, in their international comparison of virtual reference services, reviewed reference transaction data from twenty-three libraries in ten countries.[27] Moreover, Olszewski and Rumbaugh analyzed the data using seven categories: institution type (academic or public), language, question type, answer type, user status, subject classification, and response time. The observations and patterns documented by Olszewski and Rumbaugh provide a structural framework for studying specialized reference services at academic libraries.[28] In contrast, studying the correlation of electronic resource expenditure and reference transactions, Dubnjakovic reported that "spending more on electronic resources in academic libraries leads to an increase rather than a decrease in numbers of reference transactions."[29] This is an essential variable for conducting transactional analysis; however, in order to observe the complexities associated with specialized reference services, a holistic approach is needed to address the various challenges confronted by specialized reference service providers.

Chan,[30] Bennett and Siming,[31] Ryan,[32] Bishop and Bartlett,[33] Sugimoto,[34] and Barrett[35] have conducted transactional analyses in conjunction with specialized reference environments, subject expertise, staffing, and embedded librarians, which are directly relevant to this study. In addition, Magi and Mardeusz[36] directly address two vital components of specialized reference: face-to-face in-depth research consultations and sources-based competencies. Furthermore, Magi and Mardeusz articulate the importance of the entire service structure, including referral systems and the multifaceted nature of reference work. As academic libraries move forward with service realignments and consolidations, the reliability of specialized services depends on the communicative model of the proposed realignment, and the ability to staff service points with competent professionals who possess the necessary subject expertise.

METHODOLOGY

With the main hubs supporting general reference at the University of Illinois Library, the new departmental structure developed a reputation among students and faculty for providing in-depth research services through email and in-person consultations. To assess these departmental service points, this study examined in-person, phone, and email transactions from five specialized reference service points for the period July 1, 2013, to June 30, 2015 (two academic years). The dataset was derived from Desk Tracker[37] reference statistics as compiled by the following specialized reference service points: Social Sciences, Health, and Education Library (SSHEL); Business Information Services (BIS); Classics; International and Area Studies (IAS); and Library and Information Science (LIS).[38] In addition to these five specialized reference service points, transaction statistics from two general reference service points, Undergraduate Library (UGL) and Reference and Information Services (RIS), which manages the day-to-day operation of the Main/UGL reference hub, were also included as part of this dataset.

Together these services support the research needs of students, staff, and faculty. According to the University of Illinois enrollment data, for the academic period 2016–17 the iSchool (library science) supports 640 graduate students, while the College of Business has 4,627 students (2,896 undergrad level and 1,513 graduate level). In addition to these colleges, reference hubs and the various service points are frequently used by students and faculty from arts and humanities and life, social, and physical sciences, with a user population of over 10,000 individuals. Data analysis was conducted using the SPSS statistical software.

Furthermore, this study conducted descriptive analysis and focused on four specific areas: duration of the transaction (time spent), question Type, subject area, and READ Scale scores covered during this period. The READ Scale is "a six-point scale tool for recording vital supplemental qualitative statistics gathered when reference librarians assist users with their inquiries or research related activities by placing an emphasis on recording the effort, skills, knowledge, teaching moment, techniques and tools utilized by the librarian during a reference transaction."[39] A reference transaction recorded as READ Scale "1" by a librarian means it took the least amount of effort and knowledge to answer it. A READ Scale "6" transaction would require extensive subject knowledge and in some cases consultations with multiple librarians. Correlations between time spent and READ Scale scores were also analyzed. Although subject areas in Desk Tracker vary slightly among service points, and READ Scale scores are dependent on the perception of reference service providers, the inclusion of these assessment variables would nonetheless be beneficial to this analysis.[40] A follow-up study will focus on additional specialized service points at UIUC.

Table 1. Service Points

	Frequency	Percent
Business Information Services (BIS)	1,048	1.5
Classics	193	.3
International & Area Studies (IAS)	2,304	3.3
Library & Information Science (LIS)	520	.7
Research Information Services (RIS)	31,103	44.7
Social Science, Health and Education Library (SSHEL)	14,480	20.8
Undergrad Library (UGL)	19,982	28.7
Total	69,630	100.0

RESULTS

The analysis of this dataset, which consisted of 69,630 transactions for the stated period, revealed that 73.4% of the transactions were addressed by UGL and RIS (see table 1), followed by SSHEL at 20.8%, IAS at 3.3%, BEL at 1.5%, LIS (Virtual) at 0.7%, and Classics at 0.3%. The results for UGL and RIS are understandable because they are primary components of the "Main/UGL Hub," fielding and triaging questions as they come through various modes of communication. Moreover, the "Main/UGL Hub" receives strong support in terms of personnel from departmental libraries staffing reference shifts, thus enabling coverage and subject expertise at the Main/UGL Hub.

Further analysis of the dataset for "Question Type" (see table 2) (from all 69,630 transactions recorded at the services points in this study, 66,638 transactions had data for "Questions Type") showed that 30.9% of the total number of transactions were directional inquiries, and 18.1% of the transactions were about library policies and services. Furthermore, 22.8% of the transactions involved finding specific library materials, and only 6.3% of the total transactions were directly classified as providing research assistance, with 1,653 (2.5%) transactions entered as "ready reference;" 4,328 transactions (6.2%) were entered as "other." As with previous transactional studies, there is a strong showing for inquiries related to technical issues (e.g., printers, scanners, software), with 7,739 transactions (11.6%).

The dataset for this study showed that 77.8% (51,580 transactions) of the 66,281 transactions that reported "Time Spent" data took less than five minutes (see table 3). The duration analysis also revealed a positive correlation between time spent and READ Scale (see table 4). We conclude that there is a strong positive correlation between the two variables ($r = .675$, $p < .001$), which indicates that the amount of time spent and READ Scale are correlated with statistical significance. We excluded transactions that took less than one minute as well as directional/hour questions and conducted the other duration analysis (see table 5). This correlation remains significant ($r = .659$, $p < .001$). Moreover, a cross tabulation (see table 6) between service points and READ scores revealed the following: RIS and UGL addressed the

Table 2. Question Type

	Frequency	Percent
Data Assistance	170	0.3%
Database/eJournal, SFX Access Problems	699	1.0%
Directional/Hours	20,570	30.9%
Finding Specific Library Materials	15,198	22.8%
Library Policies and Services	12,085	18.1%
Other	4,328	6.5%
Ready Reference	1,653	2.5%
Research Assistance	4,196	6.3%
Technical Issues (printers, scanners, software)	7,739	11.6%
Total	66,638	100.0%

Table 3. Time Spent

	Frequency	Percent
5-15 Minutes	11,054	16.7%
15-30 Minutes	2,103	3.2%
30 Minutes – 1 Hour	1,095	1.7%
1-3 Hours	313	0.5%
More Than 3 Hours	136	0.2%
Total	66,281	100.0%

Table 4. Correlations (All Transactions)

		Time Spent	READ Scale
Time Spent	Pearson Correlation	1	.675**
	Sig. (2-tailed)		.000
	N	69,630	65,815
READ Scale	Pearson Correlation	.675**	1
	Sig. (2-tailed)	.000	
	N	65,815	65,815

** Correlation is significant at the 0.01 level (2-tailed).

Table 5. Correlations (Exclude 0 minutes and Directional/Hour Transactions)

		Time Spent	READ Scale
Time Spent	Pearson Correlation	1	.659**
	Sig. (2-tailed)		.000
	N	44,561	42,995
READ Scale	Pearson Correlation	.659**	1
	Sig. (2-tailed)	.000	
	N	42,995	42,995

** Correlation is significant at the 0.01 level (2-tailed).

highest number of inquiries (45.3% and 28.0%, respectively). However, the majority of the inquiries were assessed at READ Scale 1 and READ Scale 2. Meanwhile IAS answered the most questions at READ level 6 (91.6%) and level 5 (71%). These high percentage points are partly due to the Slavic Reference Service, a highly specialized interdisciplinary reference team within IAS, which fields queries from UIUC students and faculty, and supports research needs of academic communities outside of Illinois. In addition to showing a strong correlation between time spent and READ Scale, the transactions analysis showed (see table 7) that the most popular subjects recorded by Desk Tracker were business (18.8%), education (11.3%), history (7.8%), and library science (7.3%).

DISCUSSION

In their respective studies, Marjorie Murfin and Jean E. McLaughlin observed the lack of accepted standards and methodologies for comparative analysis, and as Murfin noted, "without accepted units of measurement," comparative analysis of data from different libraries would be problematic. Although this study is a reflection of reference transactions at a single research library, the analyzed data raise interesting questions in regard to signage, accessibility, comprehension of library policies, instruction, and training for reference service providers for reporting statistics at other institutions. These questions include the following: (1) Are the hub model and referral system currently utilized at the University of Illinois and similar models at other institutions working cohesively with specialized reference services? (2) What structural reconfigurations and adaptive measures can service providers introduce to address the influx of directional, policies-related, and general inquiries of under five minute duration? The answers to these questions are, once again, tied to the intricacies of managing services and to the willingness of service providers to explore strengths and weakness of their service infrastructure.

By conducting transactional analysis on the dataset from five specialized service points with additional data from two general service points, this study made several observations, which will be beneficial to service coordinators and library administrators in similar reference environments. Based on the analysis, reference service managers should address the need for

Table 6. READ Scale and Reference Service Points Crosstabulation

		Reference Service Points							
		BEL	Classics	IAS	LIS	RIS	SSHEL	UGL	Total
READ 1	Count	134	6	184	3	10,767	4,593	8,091	23,778
(Least effort needed)	% within READ Scale	0.6%	0.0%	0.8%	0.0%	45.3%	19.3%	34.0%	100.0%
	% within branch	15.9%	3.2%	9.4%	0.6%	36.1%	32.7%	43.9%	36.1%
	% of Total	0.2%	0.0%	0.3%	0.0%	16.4%	7.0%	12.3%	36.1%
READ 2	Count	81	90	199	91	11,333	7,143	9,088	28,025
	% within READ Scale	0.3%	0.3%	0.7%	0.3%	40.4%	25.5%	32.4%	100.0%
	% within branch	9.6%	48.6%	10.2%	17.6%	38.0%	50.9%	49.3%	42.6%
	% of Total	0.1%	0.1%	0.3%	0.1%	17.2%	10.9%	13.8%	42.6%
READ 3	Count	229	52	191	189	6,400	1,804	1,070	9,935
	% within READ Scale	2.3%	0.5%	1.9%	1.9%	64.4%	18.2%	10.8%	100.0%
	% within branch	27.1%	28.1%	9.8%	36.6%	21.4%	12.9%	5.8%	15.1%
	% of Total	0.3%	0.1%	0.3%	0.3%	9.7%	2.7%	1.6%	15.1%
READ 4	Count	319	18	408	202	1,275	404	177	2,803
	% within READ Scale	11.4%	0.6%	14.6%	7.2%	45.5%	14.4%	6.3%	100.0%
	% within branch	37.8%	9.7%	20.8%	39.1%	4.3%	2.9%	1.0%	4.3%
	% of Total	0.5%	0.0%	0.6%	0.3%	1.9%	0.6%	0.3%	4.3%
READ 5	Count	68	12	658	32	64	85	8	927
	% within READ Scale	7.3%	1.3%	71.0%	3.5%	6.9%	9.2%	0.9%	100.0%
	% within branch	8.1%	6.5%	33.6%	6.2%	0.2%	0.6%	0.0%	1.4%
	% of Total	0.1%	0.0%	1.0%	0.0%	0.1%	0.1%	0.0%	1.4%
READ 6	Count	13	7	318	0	6	1	2	347
(Most effort needed)	% within READ Scale	3.7%	2.0%	91.6%	0.0%	1.7%	0.3%	0.6%	100.0%
	% within branch	1.5%	3.8%	16.2%	0.0%	0.0%	0.0%	0.0%	0.5%
	% of Total	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.5%
Total	Count	844	185	1,958	517	29,845	14,030	18,436	65,815
	% within READ Scale	1.3%	0.3%	3.0%	0.8%	45.3%	21.3%	28.0%	100.0%
	% within branch	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	1.3%	0.3%	3.0%	0.8%	45.3%	21.3%	28.0%	100.0%

data-input training, consistency among service points on recording reference transactions using Desk Tracker (e.g., standardized forms and subjects), and accuracy in assigning READ Scale scores for reference transactions. Moreover, managers and administrators should examine whether these assessment tools are ideal for dynamic reference environments with differing perceptions, service philosophies, and viewpoints on reference transactions.

In addition to structural issues and based on the analyzed data, this study raises questions about staffing at service points. As indicated above, if the vast majority of inquiries (74%) took less than five minutes, then is it viable to support these service points with graduate assistants, academic professionals, civil service staff, and professional librarians? Furthermore, if 6% of the total transactions required research assistance, should service managers and library administrators review their commitments to underperforming service points? Should they undergo another round of service realignments? Unfortunately, there are no quick answers to these important service-related questions; however, based on the analyzed data, some immediate steps can be taken to support the service structure at the University of Illinois and institutions with similar service models.

CONCLUSIONS

The symbiotic relationship between general and specialized reference services at academic libraries supports diverse groups of academic communities, departments, colleges,

Table 7. Subject Main Heading

	Frequency	Percent
Agriculture	38	0.8%
Anthropology	91	2.0%
Art/Architecture	83	1.8%
Astronomy	2	0.0%
Atmospheric Sciences	3	0.1%
Biology	53	1.1%
Business	874	18.8%
Chemistry	30	0.6%
Children's Literature	349	7.5%
Communication	74	1.6%
Computer Science	17	0.4%
Current Events/Popular Topics	14	0.3%
Dance	8	0.2%
Disabilities	9	0.2%
Economics	81	1.7%
Education	525	11.3%
Engineering	82	1.8%
English as a Second Language	11	0.2%
Environmental Studies	22	0.5%
Ethnic Studies	26	0.6%
Gender and Women's Studies	36	0.8%
Geography	38	0.8%
Geology	4	0.1%
Government Information	82	1.8%
Health/Medical	160	3.4%
History	360	7.8%
Kinesiology	25	0.5%
Labor and Employment Relations	21	0.5%
Law	51	1.1%
LGBT	5	0.1%
Library Science	337	7.3%
Linguistics	71	1.5%
Literature	139	3.0%
Mathematics	23	0.5%
Music	55	1.2%
Natural Resources	6	0.1%
Other	123	2.6%
Physics	13	0.3%
Political Science	78	1.7%
Psychology	168	3.6%
Recreation, Sport and Tourism	58	1.2%
Religion	73	1.6%
Social Work	64	1.4%
Sociology	115	2.5%
Special Collections/Archives	14	0.3%
Speech and Hearing Science	42	0.9%
Statistics	23	0.5%
Testing Materials (Health and Social Sciences)	16	0.3%
Theatre/Film/Television	53	1.1%
Total	4,645	100.0%

and affiliated research centers. In order to nurture this relationship, service providers have developed innovative models to address the complexities associated with reference services. Adapting to emerging trends and incorporating user needs and expectations have been the hallmark of reference services. The data analyzed by this study revealed the need for a multitiered service system and a functioning referral system, which efficiently manages the available human resources and expertise not only at the University of Illinois but also at other institutions. These immediate steps will strengthen these service points and reference environments. Moreover, the data analysis showed strong correlation between duration (time spent) and READ Scale scores. This is particularly true at the specialized reference services level.

As these specialized service environments continue to take on more complicated research inquiries, which in turn demand expertise, training, and time, perhaps libraries will invest in specialized service points by redirecting experienced service providers to in-depth consultation services. Specifically, we believe libraries should consider investing in the development of specialized interdisciplinary reference teams to take on the influx of complex research inquiries.

The model for this approach has already been in existence since 1976. The Slavic Reference Service at UIUC is an interdisciplinary reference team that provides year-round assistance to scholars in arts and humanities and life, social, and physical sciences with a set geographic focus: East Europe, Russia, and Central Asia. Currently, the reference hub model at UIUC relies heavily on subject specialists accessed by patrons through a referral system to resolve difficult research inquiries. In some cases a single subject specialist is responsible for providing expertise for geographically large and culturally diverse regions, with queries addressing multiple subject areas. We postulate that a trained team of interdisciplinary reference specialists working together on a daily basis would be better equipped and much more effective at engaging graduate students and faculty than reference hubs, when resolving advanced research inquiries. The reference hubs are effective in triaging and addressing straightforward queries, but the interdisciplinary reference team approach appears to be better suited when responding to advanced and complex reference requests.

The Reference Management Team[41] and the University Library Administration at the University of Illinois are taking immediate steps to address some of the questions raised in this study. A multitiered service system and a consultation scheduling pilot program will be introduced this fall. The select

group of specialized reference services will be participating in this pilot program. In addition, a robust referral system will be a component of this pilot program. If the pilot phase proves successful, the consultation scheduling service will be open to all service points.

The specialized reference services have entered a period of significant changes that present librarians with challenges and opportunities for unlocking the full potential of reference services at an academic library. The challenges encountered by Samuel S. Green so long ago, of librarians being asked to give information on subjects and processes they know nothing about, continue to shape reference environments. His poignant statement still stands as a reminder for every reference librarian to adapt and improve services. As new innovative teaching and learning methodologies are introduced into higher education, specialized reference services at large research libraries have a historic opportunity to integrate themselves in the research process of students and faculty. As this study has demonstrated, assessment of these specialized outlets is the first critical step in designing the next generation of research services.

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38. Among the five specialized reference service points, the Business Information Services (BIS) and the Library and Information Services (LIS) have no physical service desks. They are embedded library services developed after the closure of the Business and Economic Library and Library and Information Science Library.
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40. READ Scale examples from service points include: (1) READ 1 from RIS: "What's the phone number for the Undergraduate Library Media Desk?" "Where is the International Area Studies Library?"; (2) READ 1 from IAS: "What are the Slavic periodicals?" "Where can I find a Japanese-English dictionary?" (3) READ 6 from RIS: "Grad student researching Costa Rican participation in World Fairs, and immigration to the U.S. We had a research consultation already scheduled with a subject liaison for tomorrow." "Wanted articles and technical papers about different skyscrapers. searched many different databases and had trouble finding anything. Referred to Art and Arch."; (4) READ 6 from IAS: "May I ask a question here in Grossman, zhizn' i trudy dostoevskogo, 52. May 28, 1848. there is a letter from stepan yanovsky to Apollon Maikov written sometime in 1881 on Dostoevsky, lamenting the death of Belinsky and having an attack of 'falling illness'—the term for epilepsy at the time—at Vanovsky's house. can you give me a citation for this letter so i can order it on ill?"
41. David Ward, Erin Kerby, Cara Bertram, Carissa Phillips, Alex Krogman, Melanie Emerson, Joe Lenkart, and Beth Sheehan are members of the Reference Management Team. "Reference Management Team," Library Committee Handbook, University of Illinois at Urbana-Champaign, accessed March 14, 2017, http://www.library.illinois.edu/committee/Reference_Management_Team/Charge.html.