

Are All Reference Interactions Created Equal?: How Gender Might Matter to Our Patrons

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The University of Michigan library system is comprised of 20 libraries located in 12 buildings across campus.¹ Two of the biggest and busiest libraries in the system are the Harlan Hatcher Graduate Library and the Shapiro Undergraduate Library. Both libraries field a significant number of in-person reference transactions over the course of a year, with the graduate library reporting 18,733 transactions for the 2009 calendar year, and the undergraduate library reporting 8,455 transactions for the same time period.² Although these numbers indicate that patrons are in fact approaching a reference desk, what they do not describe is who patrons are choosing to initiate contact with when approaching the desk, and if their choices differ for various patron groups.

Library literature has attempted to address the question of why patrons choose to approach, or not approach, the reference desk. Many factors have been identified as possibly playing a role in why people approach the desk, such as nonverbal behaviors or perceived librarian availability. These studies tend to focus on the extent to which librarians facilitate an environment of approachability. Other studies have emphasized reasons why patrons might not approach the reference desk, such as feelings of library anxiety, low self efficacy, or wishing to not interrupt a librarian. However, what has been less emphasized in the library and information literature is how social factors might influence whom a patron will approach at the reference desk, and specifically, if there are as-

sociations between a patron's initiation of approach and the gender of librarians. Thus, the authors of this paper engaged in a study to explore the potential for gendered patterns at two of the busiest University of Michigan library reference desks.

Of particular interest to this study was the role gender might play in whom a patron decides to initiate contact with when approaching the reference desk. Within library and information literature, the use of gender as a category of analysis has varied from being a minor consideration³ to being a primary variable of interest.⁴ However, these studies have primarily focused on gender's role in how patrons seek and use information, with few looking specifically at the role of gender during interactions at the reference desk. Thus, this study aimed to better understand if there were differences regarding which librarian patrons chose to approach at a reference desk (i.e., a female librarian or a male librarian) during the hours of observation, and how this choice related to additional patterns of behavior that emerged during the course of analysis.

Definition of Terms

For the purpose of this study, a patron is defined as any person who approached the reference desk during the hours of observation in fall 2009 and was not a library staff member. Given that patrons were unobtrusively observed, and were therefore not asked to disclose their affiliation, they could have been stu-

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dents, faculty members, staff members, or community members. The majority of librarians who participated in this study were professionals with a Master of Library Science, or relevant professional degree; however, some were School of Information graduate students who also worked at the reference desk. Patrons were considered to have approached a librarian at the reference desk if initial contact was made between a patron and a librarian, regardless of the reason for, or content of, the question being asked.

Literature Review

Many studies argue that the perceived approachability of a librarian may be one of the most important factors to contribute to whether or not a patron will approach someone at a service desk in a library.⁵ Research has often equated what makes a librarian seem approachable with the appearance or type of nonverbal behavior being communicated at the reference desk,⁶ although results have varied. For example, although Edward Kazlauskas found a significant correlation between nonverbal communication and librarian approachability,⁷ Marynelle Devore-Chew, Brian Roberts, and Nathan Smith, in their survey of 354 patrons who approached the reference desk, found no statistically significant correlation between librarians showing positive nonverbal communication and whom patrons chose to approach when asking for help at the reference desk.⁸

The potential correlation of nonverbal communication and librarian approachability may be linked with gender.⁹ Clare Beck discussed this issue in her article about librarianship and gender roles and argued that the expectation for librarians to be friendly and welcoming relates to the fact that librarianship has been a traditionally female profession. Beck discussed how women in the profession have been “socialized to sacrifice self” and expected to demonstrate patience, empathy, and courtesy when working with patrons.¹⁰ Marie Radford and Gary Radford also analyzed how the gendered librarian stereotype, that of the “shushing spinster with a bun,” has been used to control patron expectations of libraries and librarianship.¹¹

Several studies have discussed gender as a factor of interest when considering approachability at the reference desk. Marie Radford observed 155 patrons who approached the desk, and interviewed them afterward about their experiences. She recorded the top five factors that influenced whom they chose to ap-

proach at the desk, one of which was the gender of the librarian. Several patrons reported that they expected a female in the role of librarian, and overall, both female and male patrons more often approached a female librarian.¹² Although Devore-Chew, Roberts & Smith found that nonverbal behaviors did not appear to influence whom a patron chose to approach, they did note that patrons were more likely to notice if a female librarian demonstrated nonverbal behaviors, such as touching, leaning forward, or smiling, as compared to a male librarian.¹³

Roma Harris and Gillian Michell asked study participants to watch taped reference interviews and rate the effectiveness of librarians.¹⁴ The researchers noted the gender of the librarian, of the patron, and of the observers of these interactions. They found that observers were more likely to regard librarians as competent and professional when demonstrating warmth; however, what was perceived as professional varied by the gender of the librarian. Overall, both female and male observers tended to think that less bibliographic instruction during the reference interaction made a female librarian seem more professional, and female observers were found to more often want help from a librarian who used less instruction when answering a reference question.¹⁵

Although some studies have discovered gender connections between patrons and their perceptions of librarians and librarianship, very few studies have specifically examined how the gender of a librarian might influence whom a patron decides to approach at the reference desk. Kevin Risner controlled for the gender of librarians on a reference desk (i.e., one female and one male librarian), and recorded 100 observations of whom a patron approached when both librarians were available. Ultimately, Risner found no gender bias on behalf of patrons and whom they chose to approach at the desk, hypothesizing that the lack of a bias might be attributable to the overall approachability (e.g., friendly or personable behaviors) of librarians who staff the reference desk.¹⁶ Although Kazlauskas’ original research question did not focus on gender variables, he found that when patrons had a choice of whom to approach (i.e., a female or male service provider at service desks in the library), and the nonverbal behaviors were positive from both service providers, all patrons approached the female employee.¹⁷

The question of gender’s role within librarianship, specifically within the context of reference services,

is certainly not a new question, and continues to be asked and explored within the field of library and information science. A more recent study by Jane Bradford, Barbara Costello, and Robert Lenholt, looked at reference service provision, specifically regarding the types of resources used by librarians (i.e. print or electronic) to answer questions at a reference desk. Included in their analyses was the frequency with which female or male patrons approached the reference desk. They found that a greater number of female patrons approached the desk, but that the percentages reflected the gender breakdown of the university population.¹⁸

The aforementioned studies have contributed to our growing understanding of information seeking behaviors, and have begun to address questions regarding gender patterns in libraries. Through the current study, the authors focused primarily on gender as a category of analysis, and accounted for a number of the limitations of previous studies. Unlike previous studies, this study controlled for several demographics (i.e., gender, race/ethnicity, and age) of the librarians serving at the reference desk, as well as accounted for the perceived gender, race/ethnicity, and age of the patrons approaching the desk. Additionally, this study incorporated a larger sample size than earlier studies, and varied the library location under observation to include two distinct reference desks (i.e., the undergraduate and graduate library reference desks). Ultimately, this study aimed to better understand if there were differences in whom patrons chose to approach at the reference desk (i.e., a female or male librarian), and if additional gender patterns were perceptible.

Methodology

In the fall of 2009, an exploratory study was conducted to discern whether there were patterns associated with gender and reference desk use at a large, academic research library. This study aimed to better understand if there were differences in whom patrons chose to approach at the reference desk (i.e., a female or male librarian), and if additional gender patterns would emerge during the course of analysis.

Building on previous studies that used unobtrusive observations to gather reference desk interaction data, the authors created a local observation protocol. This protocol expanded on prior limitations of studies of gender and the reference desk by accounting for multiple variables in addition to the librarian's gender. These additional variables included the patron's gen-

der, the position of the librarians on the desk, and the direction of the patron's approach to the desk.

Researchers controlled for the gender of the librarians available at the desk by pairing one female and one male librarian during each hour of observation. In addition, the paired librarians were of the same age range and race/ethnicity, to control for additional potential variability. The inclusion of these controls was unique to this reference study, with the pairings intended to mitigate the variability of major perceptual demographic differences.

Over the course of eight weeks, two researchers observed the in-person interactions between patrons and librarians at both the undergraduate and graduate reference desks within the University of Michigan library system. The authors assembled an observation station within view of the reference desk so that all interactions could be recorded, but not so close that the observations distracted or disturbed the reference experience for the patron or the librarian. For each interaction at the desk, the authors coded librarians for their gender, race/ethnicity, and position on the desk (i.e., seated at the left or right side of the desk). Library patrons were coded for their perceived gender, age in comparison to the librarian they approached (i.e., younger, same age, older), and race/ethnicity. Codes were also applied to which librarian each patron approached, whether both librarians were available at the time of approach (in order to present a true choice for the patron), and from which direction the patron approached the desk (i.e., left, right, or front side of the desk). Lastly, the lengths of interactions were recorded, as were the day, time, and library location. The content of the reference desk discussions were not observed or recorded.

A total of 50 hours of observation were conducted, with 408 interactions recorded. During the spring of 2010, the authors entered these data into SPSS version 18 and began to analyze findings. To clarify results and verify test choice and interpretation, the authors consulted with a university-based statistician. The following section describes the tests that were conducted and presents relevant findings. These findings include descriptive statistics that portray the demographic picture of participants in this study, as well as results of initial Pearson Chi-Square tests that were used to discern significant relationships in several key variables. Given the complex nature of the variables in this study, binary logistical regression tests were

subsequently conducted and are presented in the last section of the results.

Results

The tables presented in this section include demographics and data related to patron choices at the graduate and undergraduate reference desks. Tables 1 and 2 provide demographic information about the patron population in comparison to the student population at the university as a whole. These two tables are useful for inferring whether the observed library patrons in this study were representative of the campus population, with respect to gender and race/ethnicity. Tables 3 through 5 provide percentage breakdowns of whom patrons chose to approach at the reference desks by gender, race/ethnicity, and age. These tables give an initial picture of patron choice, and identify a consistent trend in gender selection. This trend is further explored using hypothesis testing in Tables 6 through 11. In these tables, potentially confounding variables are matched against gender to identify if trends in gender selection persist, and if there are underlying variables that may have contributed to patrons' choice of librarian at the desk.

Descriptive Statistics

Tables 1 and 2 present a demographic portrait of the study sample, by providing descriptive information of participants by gender and race/ethnicity. These numbers are compared to the University of Michigan campus as a whole.¹⁹ Given that participants were observed as they approached a reference desk, the numbers associated with the study sample reflect observer perceptions of gender and race/ethnicity, and not participant-identified data. Tables 3 through 5 provide demographic comparisons of the study sample when both librarians

Gender	Total Patron Count (one or both librarians available)	Patron Count (both librarians available)	Campus Population (students only)
	N = 408	N = 236	N = 41,674
Female	47.5%	50.0%	47.6%
Male	52.5%	50.0%	52.4%

were available to answer questions at the reference desk. Thus, these tables present a picture of which librarians patrons chose to approach, in raw percentages.

The first column in Table 1 presents the binary gender variable that was recorded by the researchers for each patron who approached a reference desk. The second column presents the total number of observed reference desk approaches, including the percentage of the total 408 participants who were recorded by the researchers as female or male. The third column presents the number of observed participants who approached the desk when both librarians were available to answer questions (e.g., neither librarian was on the phone, nor with another patron, nor away from the desk), as well as the percentage broken down by observed gender. The final column presents the total number of students at the University of Michigan campus in fall 2009, as well as a percentage breakdown by gender, in order to compare the larger campus characteristics to those in this study sample.

Percentages from this comparison demonstrate a small difference in the total number of female and male patrons who approach a reference desk; however, these numbers reflect the student population on campus, and thus appear to be a demographically representative sample (with the understanding that while

Race/Ethnicity	Total Patron Count (one or both librarians available)	Patron Count (both librarians available)	Campus Population
	N = 408	N = 236	N = 41,674
African American/Black	6.6%	5.9%	6.1%
Asian American/Asian	10.3%	10.6%	13.2%
Latina/o	4.4%	3.4	4.5%*
Other	13.0%	14.4%	7.5%
White	65.7%	65.7%	68.7%

* UM uses the term Hispanic American

patrons could be students, faculty, staff, or community members, most were likely students).

The first column in Table 2 presents the race/ethnicity variable that was recorded by the researchers for each patron who approached a reference desk. The second column presents the total number of observed reference desk approaches, including the percentage by race/ethnicity of the total 408 participants. The third column presents the number of observed participants who approached the desk when both librarians were available to answer questions (e.g., neither librarian was on the phone, nor with another patron, nor away from the desk), as well as the percentage broken down by observed race/ethnicity. The final column presents the total number of students at the University of Michigan campus in fall 2009, as well as a percentage breakdown by race/ethnicity, in order to compare the larger campus characteristics to those in this study sample.

It is apparent that there are differences in who approaches the desk by race/ethnicity; however, when compared to the campus as a whole, this table appears to present a fairly representative sample of study participants. The largest difference in the number of patrons who approach the desk is evidenced in the overrepresentation of people in the “Other” category. This discrepancy may be due to the fact that the authors coded this variable through unobtrusive observation and thus were unable to solicit patron self-identified demographic data, while self reporting is reflected in the campus comparison.

Patron Gender	N = 236*	Librarian Gender	
		Female	Male
Female	118	68.6%	31.4%
Male	118	55%	45%

* Both librarians available

Table 3 presents a comparison of the gender of patrons who approached the desk by the gender of the librarian they approached. In particular, these data refer to observations of reference desks when both librarians were available to answer questions, and thus patrons had a choice of whom to approach. As evidenced below, when both librarians were available at the reference desk, more than half of observed participants approached a female librarian. This finding holds true for both female and male patrons, although

there is a greater percentage disparity among female patrons, who approached a female librarian 68.6% of the time while approaching male librarians only 31.4% of the time.

Patron Race/ Ethnicity	N = 236*	Librarian Gender	
		Female	Male
African American/ Black	n=14	71.4%	28.6%
Asian American/ Asian	n=25	76%	24%
Latina/o	n=8	62.5%	37.5%
White	n=155	60%	40%
Other	n=34	55.9%	44.1%

* Both librarians available

Table 4 presents a comparison of the race/ethnicity of patrons who approached the desk by the gender of the librarian they approached, when both librarians were available to answer questions, and thus patrons had a choice of whom to approach. Demonstrated in the following table is that when both librarians were available at the reference desk, participants of varying racial or ethnic backgrounds more often approached a female librarian. The greatest difference was evidenced among patrons who were identified by the researchers as African American/Black, Asian American/Asian, and Latina/o.

Librarians at the desk were matched so that they were of a similar age. Table 5 presents a comparison of the age of patrons who approached the desk by the gender of the librarian they approached, when both librarians were available to answer questions, and

Patron Age	N=236*	Librarian Gender	
		Female	Male
Patron younger than Librarian	n=178	63%	37%
Patron same age as Librarian	n=27	56%	44%
Patron older than Librarian	n=31	58%	42%

* Both librarians available

thus patrons had a choice of whom to approach. The following table demonstrates that when both librarians were available at the reference desk, participants more often approached a female librarian regardless of the patron's age relative to the librarian. This finding was especially true of patrons who were recorded as younger than the librarian approached, and may have implications for the level of comfort or confidence embodied by patrons who are younger than the librarian at the desk.

Inferential Statistics

Given the perceived patterns of preference toward female librarians that emerged in each demographic comparison, the researchers conducted Pearson Chi-Square tests to determine if any of the comparisons were statistically significant. These comparisons not only included the observed patron's age, race/ethnicity, and gender compared to the approached librarian's gender, but also included comparisons to other recorded variables, such as the librarian's position at the desk, the patron's direction of approach to the desk, and the duration of interaction (see Table 6). These tests were performed for only those patrons who had a choice of which librarian to approach (unless otherwise noted). Four comparisons produced significant results: observed patron's gender by librarian's gender, observed patron's gender by librarian's position at the desk, librarian's gender by librarian's position at the desk, and patron's direction of approach by librarian's position at the desk. Tables 7 through 10 present each of these significant Pear-

son Chi-Square analyses. A binary logistic regression was used to assess the likelihood of approaching a female librarian (or male librarian) as a function of the potential predictor variables that were identified through the Chi-square tests. This technique allowed us to determine the impact of multiple predictor variables presented simultaneously while controlling for potential confounding variables, and the results are displayed in Table 11.

Table 6 presents the range of Pearson Chi-Square tests that were conducted to determine if any of the descriptive comparisons were statistically significant (i.e., unlikely to have occurred by chance). Tables 7–11, and Figures 1–4, expand on the results that were significant.

Demonstrated in Table 7 is a significant relationship between the gender of the patron and the gender of the librarian. Both female and male patrons were more likely to approach female than male librarians. However, we see different patterns for men and women who approached the desk, with a much larger proportion of female patrons approaching female librarians than male patrons approaching female librarians.

Variable 1	Variable 2
Patron Age	Librarian Gender
Patron Gender	Librarian Gender*
Patron Gender	Position of Librarian at Desk*
Patron Gender	Library Location
Patron Gender	Duration of Interaction
Patron Gender	Direction of Patron Approach
Patron Race/Ethnicity	Librarian Gender
Librarian Gender	Position of Librarian at Desk*
Direction of Patron Approach	Librarian Gender
Direction of Patron Approach	Position of Librarian at Desk*

Patron Gender (N = 236)*	Librarian Gender	
	Female	Male
Female (n = 118)	81	37
Male (n = 118)	65	53

Pearson Chi-Square = .032, (<.05 is significant)
*Both librarians available

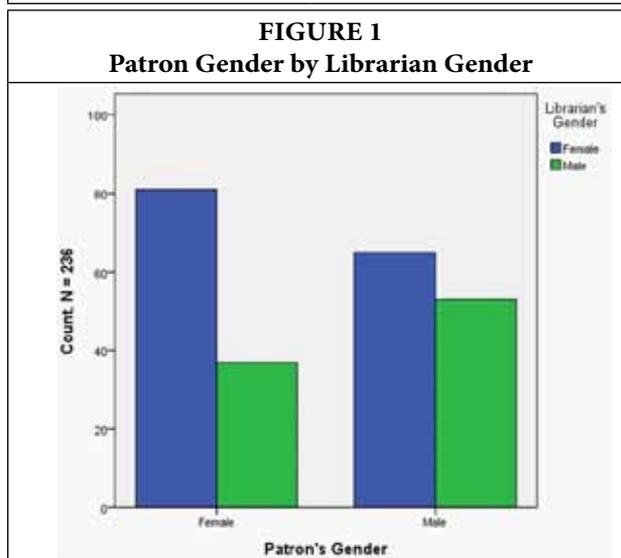


Table 8 demonstrates that there is a significant relationship between the gender of the patron and the seated position of the librarian. Both female and male patrons were more likely to approach a librarian sitting on the left side of the reference desk (i.e., left-side from the patron's view). A much larger proportion of female patrons approached the left side of the desk than male patrons approaching that same side.

Patron Gender (N = 236)*	Librarian Position at Reference Desk	
	Left	Right
Female (n = 118)	84	34
Male (n = 118)	67	51

Pearson Chi-Square = .021, (<.05 is significant)
* Both librarians available

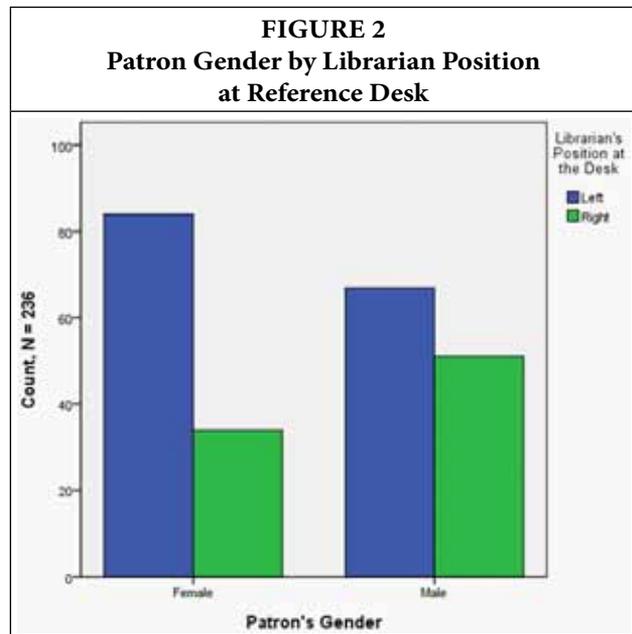
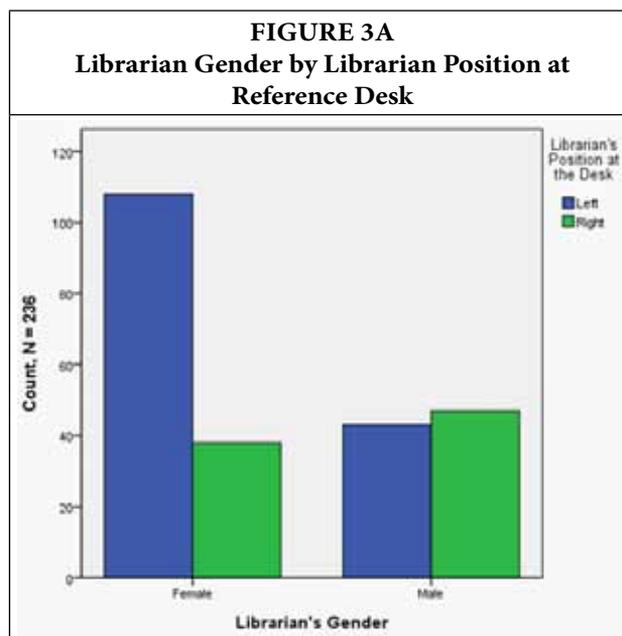


Table 9a demonstrates that there is a highly significant relationship between the gender of the librarian and the seated position of the librarian at the reference desk. Female librarians, when approached by a patron, were more likely to be sitting on the left side of the desk than the right side of the desk. Male librarians, when approached by a patron, were seated in almost equal proportions on the right and left sides of the desk.

Librarian Gender (N = 236)*	Librarian Position at Reference Desk	
	Left	Right
Female	108	38
Male	43	47

Pearson Chi-Square <.001, (<.05 is significant)
* Both librarians available



When we look at the entire sample of 408 participants who approached the desk (i.e., when either one or both librarians were available), the difference is even more striking, with female librarians predominantly seated on the left side of the desk, and male librarians predominantly seated on the right side of the desk.

Librarian Gender (N = 408)*	Librarian Position at Reference Desk	
	Left	Right
Female	159	65
Male	73	111

Pearson Chi-Square <.001, (<.05 is significant)
* Both librarians available

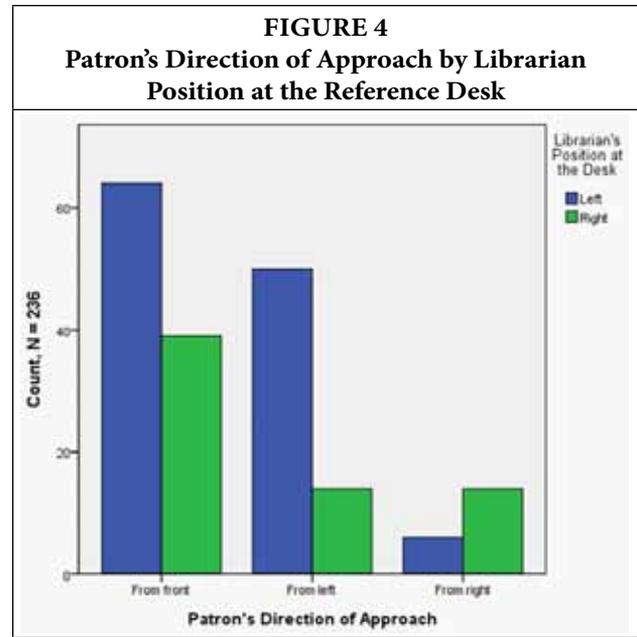
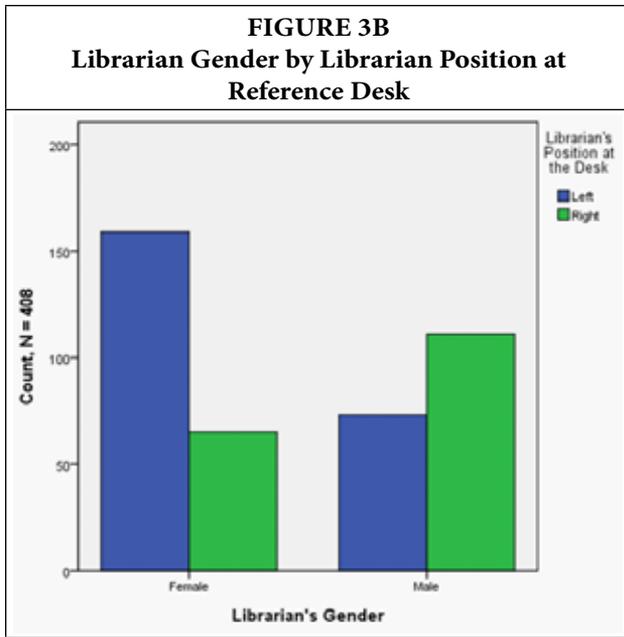


Table 10 demonstrates that patrons approaching from the front of the desk or the left of the desk approached the librarian seated in the left position more frequently than they approached to the librarian in the right position. Patrons approaching from the right of the desk approached the librarian sitting on the right side of the desk more frequently than the librarian sitting in the left position. It is apparent from these results that most patrons approach the desk from the front, followed by a large number of approaches from the left (and the largest percentage differential), and the least number of approaches from the right side of the desk. The number of recorded observations (N=187) is slightly lower than in previous tables given that there were times when the researchers were unable to determine a patron's direction of approach.

The Pearson Chi-square tests from above indicate that there are a number of variables that are significantly related to the gender of the librarian approached in this study. A binary logistic regression is the appropriate technique to use when modeling a binary outcome (librarian gender) and a series of independent predictors (e.g., patron's gender, direction of approach). Here, we've used this technique to determine the impact of the potential predictor variables on librarian gender, while controlling for potential confounding variables.

The initial Hosmer and Lemeshow goodness of fit test was not significant (i.e., produced no significant differences that would mandate further attention), which meant the authors were able to move forward with the binary logistic regression test. They proceeded to compare the dependent variable (i.e., librarian gender) to additional variables of interest: patron's gender, patron's age, patron's race/ethnicity, librarian's position on the desk, patron's direction of approach, and library location (i.e., graduate or undergraduate desks). Multiple variables emerged as low in importance (i.e., least significant) and were dropped from the regression when it became clear that they did not add to the model in a significant way. As a result, the binary logistic regression was conducted multiple times, with the removal of the following least significant variables at each iteration: library location, then patron's age in relation to the librarian, and finally, patron's race/ethnicity.

Patron Direction of Approach (N = 187)*	Librarian Position at Reference Desk	
	Left	Right
Front of desk	64 (62%)	39 (38%)
Left of desk	50 (78%)	14 (22%)
Right of desk	6 (30%)	14 (70%)
Pearson Chi-Square <.001, (<.05 is significant)		
* Both librarians available		

TABLE 11
Binary Logistic Regression (Variables in the Equation, N=187)

		B	S.E.	Wald	Df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
								Lower	Upper
Step 1(a)	Patron Gender	.465	.318	2.145	1	.143	1.592	.854	2.967
	Position	1.102	.344	10.239	1	.001	3.009	1.532	5.910
	Direction (General)			4.010	2	.135			
	Front Direction	-.870	.561	2.410	1	.121	.419	.140	1.257
	Left Direction	-1.200	.601	3.982	1	.046	.301	.093	.979
	Constant	.417	.513	.659	1	.417	1.517		

The final model (presented in Table 11) has the librarian seated position, the patron direction of approach, and patron gender as predictors of librarian gender. The librarian’s seated position at the desk is a highly significant predictor of librarian gender (significance=.001, odds ratio=3.009). This finding indicates that the odds of approaching a female librarian increase by a factor of 3.009 when patrons approach from the left side of the desk while controlling for the other predictors in the model. Put another way, this finding demonstrates that the odds of approaching a female librarian increase threefold when a patron approaches the left side of the desk (when compared to the right side).

The only other significant predictor in the model is the patron’s direction of approach (significance=.046, odds ratio=.301). Specifically, the significant comparison was a patron’s approach from the right side of the desk versus a patron’s approach from the left side of the desk, as evidenced by “Left Direction” in Table 11. Thus, approaching from the left (when compared to approaching from the right) decreases the odds of approaching a female librarian by a factor of .301, when holding the other variables in the model constant.

Discussion

As mentioned in the Results section, the descriptive comparison of all library patrons who approached the desk (N=408) demonstrated that there was a small difference in the total number of female and male patrons who approached a reference desk. More noticeably, when both librarians were available to answer questions (N=236), the numbers of female and male patrons approaching the desk were equivalent. This result reflects similar findings in other reference desk studies that resulted in a fairly even mix of females

and males approaching the desk.²⁰ Overall, this study showed that there were no conspicuous gender differences in who approached the desk when gender was the variable under consideration (i.e., female or male library patrons).

Where gender differences clearly emerged was in the descriptive statistics that explained which librarian patrons generally chose to approach. When looking at the breakdown by patron’s gender, race/ethnicity, and age, the number of patrons approaching a female librarian was consistently higher than the number of approaches to her male counterpart. However, once Pearson-Chi-Square analyses were conducted to discern statistical significance among the comparisons, the only statistically significant demographic comparison was the patron’s gender by librarian’s gender. This finding indicates that both female and male patrons more often approached a female librarian, but that the patterns for each gender group differed. In particular, a much larger proportion of female patrons approached female librarians than did male patrons. However, when other variables were considered alongside patron’s gender in the binary logistic regression, this significant relationship between patron’s gender and librarian’s gender did not persist (i.e., neither female nor male patrons were more likely to approach a female librarian).

The Pearson Chi-Square data showed additional significant results that confounded the gender relationship. Patrons more often approached the left side of the desk, and female librarians more often sat on the left side of the desk (and males on the right). The latter finding was not only true for the sample of patrons who approached the desk when both librarians were available (N=236), but also for the entire sample of interactions (N=408). The binary logistic regres-

sion further demonstrated that the librarian's position on the desk drove the significant relationship associated with whom patrons approached at the reference desk. Thus, patrons were more likely to approach a female librarian when approaching the left side of the desk. Of importance to note is that the librarians' position on the reference desk was not controlled or randomized; rather, the choice of where to sit was made by the librarians upon taking their shifts. Thus, these findings raise the question as to whether patrons were actually choosing the female librarian, or preferring a particular side of the desk (i.e., the left), or both. It is possible that the left side of the desk corresponded to outcomes not controlled in this study, such as structural differences (e.g., the layout of items on the desk, proximity to a preferred exit) that created a physical environment appealing to library patrons. It is also possible that there were cultural or psychological factors driving these behaviors that were unaccounted for in this study, such as positive nonverbal behaviors.

However, given that female librarians more often chose the left side of the desk for their shift (i.e., the side of the desk that received the most attention from patrons), and male librarians more often chose the right side of the desk (i.e., the side of the desk that received the least attention from patrons), the data may say more about the potential gender differences among librarians staffing the reference desks than the gender of the patrons or their choices of whom they approach. For example, female librarians may be selecting the more engaging side of the desk in order to interact more frequently with patrons. On the other hand, similar to patrons' choice of the left side of the desk, there may be structural preferences associated with the behavioral choices of librarians, such as the arrangement of materials on the desk (e.g., location of stacks guides or access to the telephone), or the surrounding architecture like bookshelves or seating, that may make the left side of the desk more appealing. It appears that the librarian's position at the desk may play a larger factor in how patrons perceive the reference desk, or how librarians perceive their workflow, depending on which side they choose for their approach or shift, respectively. Thus, additional research would benefit from the distinction of the librarian's position versus the librarian's gender, and the myriad underlying factors that may be at play.

Additionally, there was a significant Pearson Chi-Square relationship in the direction of the patron's ap-

proach when compared to the librarian's position on the desk. In other words, patrons approaching from the right more often approached the librarian sitting on the right side of the desk, and patrons approaching from the left more often approached a librarian sitting on the left side of the desk. However, patrons approaching from the front more often approached the librarian on the left, which may demonstrate a clearer choice than those approaching from the right or the left (i.e., someone approaching from the right might be more inclined to approach a librarian sitting on the right, and vice versa, for reasons of convenience). It was also apparent that most patrons approached the desk from the front, followed by a large number of approaches from the left (and the largest percentage differential), and the least number of approaches from the right side of the desk. This finding may illuminate a patron preference for a leftward approach when a desk is arranged to accommodate three directions of approach. On the other hand, it may reinforce the finding that patrons prefer to approach the left side of the desk, with a possible implication being the preference for a female librarian.

Lastly, the binary logistic regression revealed that the odds of approaching a female librarian decreased 70% when a patron approached the desk from the left (versus the right), when controlling for the patron's gender and the librarian's position on the desk. While this finding may seem counterintuitive, a review of the Pearson Chi-Square test of librarian gender by direction of approach reminds us that there was not a significant relationship between these two variables. This finding may be an artifact of the study's lack of control for the librarian's position on the desk. On the same token, it could reflect the influence of latent characteristics that contributed to the additional variability in the model, which could be remedied in future research by randomizing the librarian's position on the desk and incorporating additional controls.

As is evident from this discussion, this study enhances our awareness of the complexities of reference desk interactions, with implications for information seeking (and provision). Additionally, this study contributes to our understanding of librarian approachability and presents opportunities for further scholarship in this domain.

Areas for Further Research

The two sample sizes used in the study are much larg-

er than previous studies that incorporated gender as a variable of interest in reference interactions. However, a multi-institutional study that incorporated diverse institution types and student populations would yield more generalizable results, as would the incorporation of patron-identified demographic data.

This study focused on demographic variables of librarians and patrons, such as age, race/ethnicity, and gender, without controls for variables associated with body language or nonverbal communication. While some of the library and information literature about librarian approachability and gender has considered these factors, results have varied. Thus, additional research about gender and the reference desk could benefit from the inclusion of nonverbal behaviors. Similarly, this study did not account for structural differences that may have influenced patrons' preference for a particular side of the desk, such as the layout of items on the desk or the physical environment that varied from one side of the desk to the other (e.g., proximity to books, computers, or chairs). Consideration of these factors may be able to narrow the amount of variability present in studies of approachability and the reference desk.

Lastly, the researchers in this study did not anticipate that librarians would have preferences for a particular position on the desk (i.e., left or right side). Thus, future research should control for which side of the desk a librarian is sitting while also considering variables incorporated into this study (e.g., gender, age, race/ethnicity, direction of approach, library location), among others.

Notes

1. University of Michigan, "Libraries," MLibrary, <http://www.lib.umich.edu/libraries> (accessed December 3, 2010).

2. Unpublished data of reference desk transactions as reported by librarians in Desk Tracker software.

3. Jane Bradford, Barbara Costello, and Robert Lenholt. "Reference Service in the Digital Age: An Analysis of Sources Used to Answer Reference Questions." *The Journal of Academic Librarianship* 31, no. 3 (2005): 263–72; Marynelle DeVore-Chew, Brian Roberts, and Nathan Smith. "The Effects of Reference Librarians' Nonverbal Communication on the Patrons' Perceptions of the Library, Librarians, and Themselves." *Library & Information Science Research* 10 (1988): 389–400; Edward Kazlauskas, "An Exploratory Study: A Kinetic Analysis of Academic Library

Public Service Points." *The Journal of Academic Librarianship* 2, no. 3 (1976): 130–34; Marie L. Radford, "Approach or Avoidance? The Role of Nonverbal Communication in the Academic Library User's Decision to Initiate a Reference Encounter." *Library Trends* 46 (Spring 1998): 699–717; Ethelene Whitmire, "Cultural Diversity and Undergraduates' Academic Library Use." *The Journal of Academic Librarianship* 29, no. 3 (2003): 148–61; Ethelene Whitmire, "Epistemological Beliefs and the Information-Seeking Behavior of Undergraduates." *Library & Information Science Research* 25 (2003): 127–42.

4. Clare Beck, "Reference Services: A Handmaid's Tale." *Library Journal* (April 1991): 33–37; Laura Katherine Brendon, "Women as Information Seekers During Initial Encounters With The World Wide Web." (PhD diss., The Ohio State University); Tracey Burdick, "Success and Diversity in Information Seeking: Gender and the Information Search Styles Model." *School Library Media Quarterly* 20, no. 5 (1996): 19–26; Dolores Fidishun, "Women and the Public Library: Using Technology, Using the Library." *Library Trends* (Fall 2007): 328–43; Ann M. Fields, "Self-Efficacy and the First-Year University Student's Authority of Knowledge: An Exploratory Study." *The Journal of Academic Librarianship* 31, no. 6 (2005): 539–45; Roma Harris, and Gillian Michell, "The Social Context of Reference Work: Assessing the Effects of Gender and Communication Skill on Observers' Judgments and Competence." *Library & Information Science Research* 8, (1986): 85–101; Roma Harris, and Gillian Michell, "Home Insulating and Home Births: Do Patrons' Sex-Typed Questions Influence Judgments About The Competence of Reference Librarians?" *RQ* 28, no. 2 (1988): 179–84; Rosie Heimrath, and Anne Goulding "Internet Perception and Use: A Gender Perspective." *Program* 35, no. 2 (2001): 119–34. Sue Curry Jansen, "Gender and the Information Society: A Socially Structured Silence." *Journal of Communication* 39, no. 3 (1989): 196–215; Marie L. Radford, and Gary L. Radford, "Power, Knowledge, and Fear: Feminism, Foucault, and The Stereotype of the Female Librarian." *Library Quarterly* 67, no. 3 (1997): 250–66; Kevin Risner, "Seeking Assistance at The Reference Desk: A Study to Determine Gender Bias." (master's thesis, Kent State University); Micaela Waldman, "Freshmen's Use of Library Electronic Resources and Self-Efficacy." *Information Research* 8, no. 2 (January 2003), <http://informationr.net/ir/8-2/paper150.html>.

5. DeVore-Chew, "Effects of Reference Librarians"; Gail Eckwright, Tom Hoskisson, and Mike Pollastro. "Reference Etiquette: A Guide to Excruciatingly Correct Behavior." *American Libraries* 29 (May 1998): 42–45; Kazlauskas,

"An Exploratory Study"; Daniel Page, "The Importance of Nonverbal Communication in Information Services." *Library Mosaics* (November/December 2004): 11; Lorraine Pellack, "Interpersonal Skills in the Reference Workplace." *The Reference Librarian* 40, no. 83/84 (2004): 57–70; Marie L. Radford, "Approach or Avoidance? The Role of Nonverbal Communication in the Academic Library User's Decision to Initiate a Reference Encounter." *Library Trends* 46 (Spring 1998): 699–717; Risner, "Seeking Assistance".

6. DeVore-Chew, "Effects of Reference Librarians"; Harris, "Social Context of Reference"; Kazlauskas, "An Exploratory Study"; Page, "Importance of Nonverbal Communication"; Radford, "Approach or Avoidance".

7. Kazlauskas, "An Exploratory Study".

8. DeVore-Chew, Roberts, and Smith, "Effects of Reference Librarians".

9. Harris and Michell, "Social Context of Reference"; Beck, "Reference Services".

10. Beck, "Reference Services", 36.

11. Radford and Radford, "Power, Knowledge, and Fear", 253.

12. Radford, "Approach or Avoidance".

13. DeVore-Chew, Roberts, and Smith, "Effects of Reference Librarians".

14. Harris and Michell, "Home Insulating".

15. *Ibid.*

16. Risner, "An Exploratory Study".

17. Kazlauskas, "An Exploratory Study".

18. Bradford, Costello, and Lenholt, "Reference Service in Digital Age".

19. University of Michigan, "Total Enrollment Overview," Office of the Registrar, <http://www.ro.umich.edu/report/09exec.pdf> (accessed December 4, 2010).

20. Bradford, Costello, and Lenholt, "Reference Service in Digital Age"; DeVore-Chew, Roberts, and Smith, "Effects of Reference Librarians"; Harris and Michell, "Social Context of Reference"; Radford, "Approach or Avoidance"; Risner, "An Exploratory Study".

Bibliography

Beck, Clare. "Reference Services: A Handmaid's Tale." *Library Journal* (April 1991): 33–37.

Bradford, Jane, Barbara Costello, and Robert Lenholt. "Reference Service in the Digital Age: An Analysis of Sources Used to Answer Reference Questions." *The Journal of Academic Librarianship* 31, no. 3 (2005): 263–72.

Brendon, Laura Katherine. "Women as Information Seekers During Initial Encounters With The World Wide

Web." PhD diss., The Ohio State University, 2003.

Burdick, Tracey. "Success and Diversity in Information Seeking: Gender and the Information Search Styles Model." *School Library Media Quarterly* 20, no. 5 (1996): 19–26.

DeVore-Chew, Marynelle, Brian Roberts, and Nathan Smith. "The Effects of Reference Librarians' Nonverbal Communication on the Patrons' Perceptions of the Library, Librarians, and Themselves." *Library & Information Science Research* 10 (1988): 389–400.

Eckwright, Gail Z., Tom Hoskisson, and Mike Pollastro. "Reference Etiquette: A Guide to Excruciatingly Correct Behavior." *American Libraries* 29 (May 1998): 42–45.

Fidishun, Dolores. "Women and the Public Library: Using Technology, Using the Library." *Library Trends* (Fall 2007): 328–43.

Fields, Anne M. "Self-Efficacy and the First-Year University Student's Authority of Knowledge: An Exploratory Study." *The Journal of Academic Librarianship* 31, no. 6 (2005): 539–45.

Harris, Roma, and Gillian Michell. "The Social Context of Reference Work: Assessing the Effects of Gender and Communication Skill on Observers' Judgments and Competence."

Library & Information Science Research 8, (1986): 85–101.

———. "Home Insulating and Home Births: Do Patrons' Sex-Typed Questions Influence Judgments About The Competence of Reference Librarians?" *RQ* 28, no. 2 (1988): 179–84.

Heimrath, Rosie, and Anne Goulding. "Internet Perception and Use: A Gender Perspective." *Program* 35, no. 2 (2001): 119–34.

Jansen, Sue Curry. "Gender and the Information Society: A Socially Structured Silence." *Journal of Communication* 39, no. 3 (1989): 196–215.

Kazlauskas, Edward. "An Exploratory Study: A Kinetic Analysis of Academic Library Public Service Points." *The Journal of Academic Librarianship* 2, no. 3 (1976): 130–34.

Mellon, Constance. "Library Anxiety: A Grounded Theory and its Development." *College & Research Libraries* 47 (March 1986): 160–65.

Page, Daniel. "The Importance of Nonverbal Communication in Information Services." *Library Mosaics* (November/December 2004): 11.

Pellack, Lorraine. "Interpersonal Skills in the Reference Workplace." *The Reference Librarian* 40, no. 83/84 (2004): 57–70.

- Radford, Marie L., and Gary L. Radford. "Power, Knowledge, and Fear: Feminism, Foucault, and The Stereotype of the Female Librarian." *Library Quarterly* 67, no. 3 (1997): 250–66.
- Radford, Marie L. "Approach or Avoidance? The Role of Nonverbal Communication in the Academic Library User's Decision to Initiate a Reference Encounter." *Library Trends* 46 (Spring 1998): 699–717.
- Risner, Kevin. "Seeking Assistance at The Reference Desk: A Study to Determine Gender Bias." Master's thesis, Kent State University, 1990.
- University of Michigan, "Libraries," MLibrary, <http://www.lib.umich.edu/libraries> (accessed December 3, 2010).
- University of Michigan, "Total Enrollment Overview," Office of the Registrar, <http://www.ro.umich.edu/report/09exec.pdf> (accessed December 3, 2010).
- Waldman, Micaela. "Freshmen's Use of Library Electronic Resources and Self-Efficacy." *Information Research* 8, no. 2 (January 2003), <http://informationr.net/ir/8-2/paper150.html> (accessed August 23, 2010).
- Whitmire, Ethelene. "Cultural Diversity and Undergraduates' Academic Library Use." *The Journal of Academic Librarianship* 29, no. 3 (2003): 148–61.
- . "Epistemological Beliefs and the Information-Seeking Behavior of Undergraduates." *Library & Information Science Research* 25 (2003): 127–42.