The Impact of the Academic Library on Students' Success, in Their Own Words

Sandra L. De Groote and Jung Mi Scoulas

abstract: This study explored students' perceptions of the library's impact on their academic success based on open-ended responses from a 2018 survey assessing student use and satisfaction. The qualitative findings demonstrated differences in the library resources students perceived as contributing to their achievements, based on such demographics as race, class, program, and college. Also, the results revealed that success is multifaceted and more than just a number determined by a high GPA (grade point average). More qualitative research exploring student-defined success and library impact is needed.

Introduction

Academic libraries continue to explore ways to demonstrate that the use of library resources and services positively impacts students' academic success and learning. The University of Illinois at Chicago (UIC) has a commitment to student success and retention, which means that those who enroll not only complete their program and graduate but also leave prepared for a career. The University Library at UIC has aligned itself with the broader commitment of the university. To strengthen the library's contribution, better understand students' needs, obtain feedback for improvement, and measure whether its efforts impact their success, the University Library has conducted a biennial, locally developed student survey since 2016. The survey consists of multiple-choice questions related to students' overall experience with the physical library, the library's resources (online and print), and its services.

portal: Libraries and the Academy, Vol. 22, No. 2 (2022), pp. 355–374.

Modifying the survey between 2016 and 2018 provided several benefits. It improved the ability to link library use with academic success by asking more detailed questions about how and how often students use the library.[1] For example, the 2018 survey added questions about the frequency of visits to the physical library, the library's website, and online resources, which provided an opportunity to correlate library use with GPA and to explore academic success in relation to library usage. Success is often measured using GPA because it is a constant outcome variable tracked by many institutions and across disciplines. Adding an open-ended question allowed respondents to report their perception of how the library impacted their success. The current study builds on and provides further analyses of previous data, which had explored the survey results from a primarily quantitative approach, and focuses instead on how the library affected respondents' achievement based on their comments.

The quantitative data from the 2018 student survey revealed an inverse relationship between physical library use and GPA, whereas utilization of library information resources (print books, electronic books, journals, and databases) had a positive relationship with GPA.[2] Contradictory to the many positive correlations reported through other studies, the 2018 data suggested that the more students used the physical library, the lower their grades. While analysis of the quantitative data (student-reported information) demonstrates a relationship between library use and academic success, judging the association based solely on GPA and reported frequency of library use has drawbacks. At a basic level, the findings could be interpreted to mean that the more often students enter the library, the worse they will perform in school. A more likely scenario is that the more students struggle, the more they use the library to try to improve their grades. Given that correlations do not guarantee causations, any interpretation should be done cautiously, and we cannot confirm a hypothesis just by looking at the quantitative data. If we examine the data through a different lens, we see that the greatest percentage of students who reported never using the library were those with a GPA of 3.5 or higher. That group also had the highest percentage of respondents to declare using the library once per month, once per week, and multiple days in a week (see Figure 1). Also, while students with higher GPAs report less daily use than do those who struggle, the proportion who use the library every day is nearly the same as that of the students with lower grades. Proportionally, of students using the library every day, the students having trouble are greater daily visitors than those with GPAs between 3 and 3.5.

While the use of surveys allows a large population to be studied at one time, responses depend on closed-ended, self-reported data and do not necessarily elucidate the variables influencing what is observed. They tell us the library was entered or a resource was used, but not how the resource was employed or if it impacted academic success. Nor does a GPA tell us if students perceive that they are succeeding or if they believe the library contributes to their achievements in a way that is meaningful to them. Additional analyses of our quantitative data indicated that external variables likely influence GPA and use of the library, beyond the control of the student but in part related to their academic program. For example, both GPA and physical and online use of the library vary by college (see Figure 2). Therefore, both GPA and library use are

. . . external variables likely influence GPA and use of the library, beyond the control of the student but in part related to their academic program.

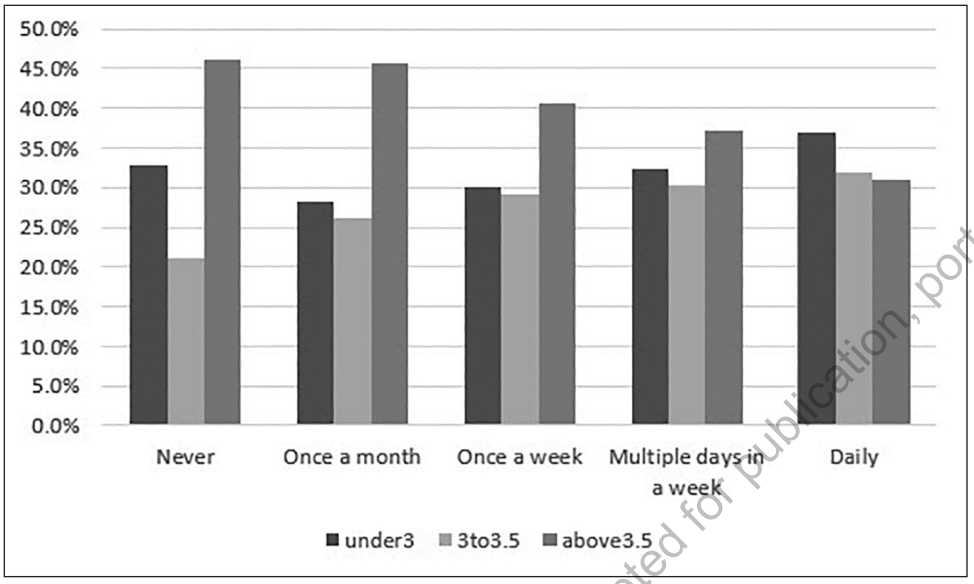

Figure 1. Percentage of users who report entering the University Library at the University of Illinois at Chicago different numbers of times, by GPA (grade point average).

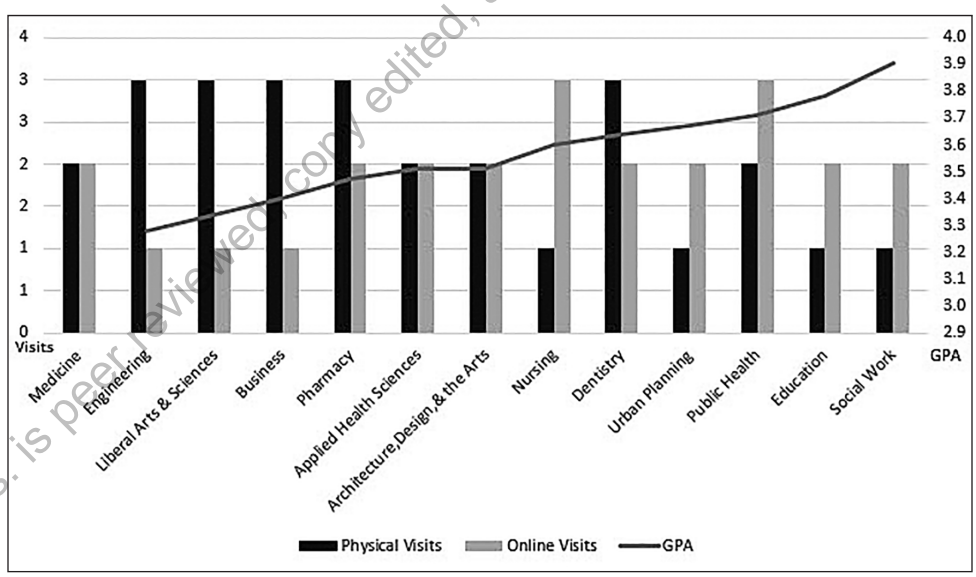

Figure 2. Average frequency of physical library visits, frequency of online library use, and GPA, by college. The scale of average visits, on the left side, ranges from 0 (never), 1 (once a month), 2 (once a week), to 3 (multiple days in a week). College of Medicine GPA data were incomplete.

not influenced solely by student characteristics but also by external variables such as the program in which the student is enrolled. Thus, analyzing a learner's perception of the library's impact beyond using the GPA as a measure will lead to better understanding of the library's role in academic achievement.

Further exploration is needed to understand the underlying factors that contribute to the correlations between GPA and library use. In addition, these associations assume that a high GPA is the measure of success and do not consider, for example, that how much grades improve also reflects success. Nor do these connections consider other measures of accomplishment beyond GPA, such as completing a course or a program. For a deeper understanding of library usage in relationship to success, this study revisits the qualitative data collected from the 2018 student survey and explores students' physical and information resource use based on their own accounts and linkages to their learning and academic success. This study also looks at how these relationships differ by student demographics (college, class, race or ethnicity, first-generation status, transfer status, and GPA).

Literature Review

Several studies focusing on usage and GPA have demonstrated a positive relationship between library use and student retention and academic success. A study at the University of Minnesota, Twin Cities noted that "first-time, first-year undergraduate students who used the library (database use, journal use, book check-out, reference interaction) have a higher GPA for their first semester and higher retention from fall to spring than non-library users."[3] A two-year study at the University of Nebraska–Lincoln examined if library-based activities (for example, circulation checkouts or off-campus database use) were related to GPA and found a positive correlation for both undergraduate and graduate students.[4] Higher GPAs were linked with more frequently logging in to online library resources at Eastern Kentucky University in Richmond.[5] At Illinois Institute of Technology in Chicago, students' GPAs were on average higher if they used the library in some way (entered the library, attended library instruction, sought help, checked out laptops, used the study rooms, or accessed online resources) compared to the GPAs of those who did not.

Not all studies have focused on measuring success through GPA comparisons. One investigation examined the library services most and least likely to help learners complete their academic work "efficiently and successfully" based on students' reports of the services they valued.[6] This study found relationships with age, gender, ethnicity, class standing, and first-generation status. It also revealed that students in different GPA groups differed in what services they rated highly. For example, the library website and reference assistance were important factors for students with GPAs between 2.6 and 3.0. Students with low GPAs and those with GPAs from 3.1 to 3.5 did not list reference assistance in their 10 most important library services. Only students with a GPA of 3.5 or above designated reference personnel as important. Librarians at the University of Minnesota explored first-year students' use of the library and their academic outcomes, including not only GPA but also engagement, participation in scholarly activities, and skill development.[7] Students who borrowed or accessed electronic books, consulted

online library resources (journals or databases), and used reference services had higher engagement and better skills than those who did not. Students who borrowed or accessed electronic books and used online library resources took part in more scholarly activities. Finally, students who used Web-based services and engaged in library instruction (workshops or curriculum-integrated instruction) had higher GPAs on average than those who did not. Using data collected by the Association of Research Libraries and the Association of College and Research Libraries, Elizabeth Mezick found that library expenditures, including spending for materials and serials and professional staffing, have a significant positive relationship with student retention.[8] A study at Curtin University in Perth, Australia, also found that library use, such as borrowing materials, logging in to computers, and utilization of library resources, was associated with student retention.[9]

The value of information literacy and library instruction as part of student success has also been investigated. A multi-institutional study of 12 research universities explored the impact of information literacy instruction on success and identified three major findings related to such teaching.[10] Retention rates were higher for students in courses that included information literacy instruction. First-year students who had courses that included information literacy had higher GPAs than first-year students who did not. Students who had such instruction completed 1.8 more credit hours than those whose courses lacked an information literacy component.

Several studies have used surveys to relate library instruction with students' confidence and success. At Our Lady of the Lake University in San Antonio, Texas, students attending in-person library sessions were also offered online video tutorials to view.[11] Course grades positively correlated with the learners who completed the online tutorials, and they also reported increased confidence in finding and using information. Similarly, students at West Virginia State University in Institute said that library instruction improved their learning experience and their faith in their ability to locate information.

Many of these studies demonstrated a link between quantitative library use data or predetermined survey responses and quantitative student data. As noted in the introduction, the authors of this study also made similar observations. We found a significant positive correlation between the frequency of reported online library use and GPA.[12] In contrast to other studies, we observed a meaningful inverse association between GPA and the reported frequency of use of the physical library, although the strengths of both relationships were weak. We also determined that use of journal articles, databases, print books, and e-books positively correlated with GPA. Use of textbooks on reserve, streaming media, and, for students in medical fields, patient care tools such as ClinicalKey, DynaMed, and UpToDate negatively correlated with GPA. Further details of the quantitative findings are reported in two studies.[13] However, these associations were based on closed-ended survey responses and not on students' own words.

Suggesting that success is only determined by a high GPA and quantifiable library use fails to consider many other aspects of student accomplishment.

Suggesting that success is only determined by a high GPA and quantifiable library use fails to consider many other aspects of student accomplishment. Learners might take pride in achieving what they perceive as a realistic GPA for themselves, pass-

ing a test, completing an assignment, passing a course, improving a grade, or becoming the first in their family to graduate. Thus, it is important to look at the impact of the library on success through the students' own perceptions. Researchers exploring students' views of success reported that the students' definitions focused on academic achievement, including improving grades, declaring a major, and participating in activities that were "career-oriented," although they concentrated on good grades most often.[14] In the second theme identified in the study, students also defined success socially, such as developing new friendships, strengthening existing ones, or engaging in extracurricular activities. A third theme related to success was maintaining psychological and physical health; having a strong work ethic, such as improving study skills; and balancing academic and personal life. A fourth theme was academic engagement, which involved wanting to learn new things and explore new subjects. So, while students focused on obtaining good grades, they also emphasized defining their future, socializing, preserving their health, and learning new things. A 2020 study interviewing students about the impact of the library also explored their definitions of success.[15] For the study subjects, success was making "their best possible effort," gaining knowledge, or learning "something new—regardless of their assigned grade."

To further explore how students' own perceptions of success related to their use of the library, this study focuses on the qualitative data collected through an open-ended question on how the library contributed to the students' performance at the university. The study explores which library resources and services students saw as boosting their academic achievement. It also examines how student demographics may play a role in what library resources and services they value.

Methods

Setting

The study took place at the University of Illinois at Chicago, a large, urban, public, doctoral-granting university. The university has 15 colleges offering undergraduate, graduate, and professional degrees in a broad range of disciplines, including arts, humanities, social science, sciences, and health sciences. The institution is among the top five most diverse campuses in the United States, providing access to underrepresented minority students.

Data Collection

In spring 2018, a total of 28,725 undergraduate and graduate students were invited to participate in an online survey distributed by the University Library. Students' demographic information and their GPA data were obtained from the Office of Institutional Research and imported into the online survey prior to its release. For more on how this information was acquired and how it was set up in Qualtrics, please refer to Jung Mi Scoulas and Sandra De Groote's 2019 study.[16]

A total of 2,277 students completed the survey, consisting of both multiple-choice and open-ended questions. To view the questions, refer to our publication.[17] Of those students, 995 students completed the following open-ended question at the end of the

survey: "Thinking about your overall library experience at the university, please tell us about your experiences with the library that positively impacted your coursework or research." Fifty-four responses were excluded because they were recorded as "n/a" or the content was too vague to allow for coding. For example, such answers as "it's great" were excluded from analysis. An additional 71 responses were eliminated because the students' GPA data were not available, leaving 870 responses to analyze.

Data Analysis

Qualitative content (open-ended responses) was analyzed using data analysis software (ATLAS.ti, version 8.4.4.) and by coding the data in an Excel spreadsheet. The authors recorded their ideas, thoughts, and explanations throughout the process. While both authors reviewed the open-ended responses separately, the first author initiated coding. After initial coding, codes were reviewed, revised, and condensed when possible. The final codes and themes were also reviewed by colleagues involved in the earlier survey analysis for feedback and additional refinement. To sort the data further and look for additional patterns, the identified themes and concepts derived from the students' open-ended comments and demographics were examined in a conceptually clustered matrix.

Participants

Demographic information for the respondents is displayed in Table 1. Sixty-five percent of them were female, and most (71 percent) were between age 16 and 25. Sixty percent of the respondents were undergraduate students, and 40 percent were graduate students (masters, doctoral, or postdoctoral). Thirty-eight percent were White, followed by Hispanic (22 percent), Asian (17 percent), and Black (8 percent).

Results

Students' Perceptions of the Library's Impact

Six predominant themes emerged from the data around students' perceptions and experiences involving how the library impacted their coursework or research (see Table 2). Except for "library resources used," which includes use of virtual resources and interaction with library staff and librarians, the themes relate primarily to the physical library.

Physical Library Use

Most students report they go to the library to study, work on assignments, or collaborate on group projects. Several students acknowledged that their use of online resources for their assignments and research often spared them a visit to the physical library.

Student Behavior

Students noted that the atmosphere in the library allowed them to succeed. They appreciated the quiet study space and collaborative areas. For example, students valued a peaceful place for independent study and collaborative areas where they could study with peers, even when they had no collaborative project to work on. Several students

Table 1.

Demographic information for respondents to open-ended question

	Qualitative data (N = 870)
Gender, n (%)	
Female	565 (65%)
Male	305 (35%)
Age group, n (%)	
16–25	619 (71%)
Above 25	251 (29%)
Degree program, n (%)	
Undergraduate	521 (60%)
Masters	179 (21%)
Professional doctoral	53 (6%)
Doctoral	112 (13%)
First generation, n (%)	121 (14%)
Transfer, n (%)	168 (20%)
Residency, n (%)	
Commuters	739 (85%)
Resident halls	116 (13%)
Online programs	15 (2%)
Race/ethnicity, n (%)	
White	327 (38%)
Hispanic	188 (22%)
Asian	148 (17%)
Black/African American	69 (8%)
International	100 (11%)
Other	38 (4%)

Table 2.

Qualitative data themes and codes for students' perceptions of the library's impact on their success

Theme	Indicators	Description
Purpose of library use	Studying, completing assignments, research, group project.	Students identified academic reasons for using the library.
Student behavior	Productive: quiet, collaborative, able to focus, get work done.	Distractions: socialization, sleeping, food, Netflix, music, games, relaxation. Library allowed students to focus and be productive or provided distractions.
Space selection	Quiet, not too quiet, no distractions, group study, collaborative space, quiet study room, floor selection, computers, printers, chairs, electrical outlets, model behavior to follow.	Library space met the functional role that the student needed to complete work.
Library obstacles	Busy, no chairs, no outlets, no free computer, needed software unavailable, space misused, smells bad, too hot, confusing organization, inconvenient location, not quiet enough, not enough collaboration space, not enough journals, not safe.	Students identified unpleasant conditions at the library that diminished their perception of the library's value.
External forces	Distractions at home, no computer at home, college program.	Factors pushing students to use the library.
Library resources used	Information resources: journal articles, databases, books, interlibrary loan. Physical resources: Wi-Fi, space, printers, computers/ software, seats. Human resources: face-to-face, research consultations, chat assistance, library instruction.	Library resources and services used by students for their coursework or research.

observed they could remain focused and get their work or studying done in such surroundings. Others did not want to interact but found motivation in seeing others study. Respondents said:

> The library is extremely helpful for me when I need a quiet place to focus on studying or coursework. It allows me to complete work faster and get more work done.
> (sophomore, College of Liberal Arts and Sciences, GPA 4.00)

> It's amazing to see so many people working hard together in the quiet zone, it helps others in focusing on their stuff too.
> (masters student, College of Business Administration, GPA 4.00)

> [The] library gives me a surrounding that helps me focus on my studying and not get too distracted.
> (senior, College of Liberal Arts and Sciences, GPA 1.52)

Some students commented that studying in the library enabled them to improve their grades.

Students also indicated that they come to the library to relieve stress. Some described using the library's collaborative spaces so that they can spend time with friends as they work. Some students' comments suggested they had more interest in the socializing aspect. Others reported that they come to the library to sleep, relax, or watch videos on Netflix. Several expressed discontent with the lack of food options available at the University Library and criticized the decision to remove microwaves from one of its buildings. They explained that they had to leave the library to eat, which disrupted their studies:

. . . students valued a peaceful place for independent study and collaborative areas where they could study with peers, even when they had no collaborative project to work on.

> We can't find any food in library in the nights which force us to go away to our home or any restaurant which wastes a lot of time. Increasing the food stalls will help us.
> (masters student, College of Engineering, GPA 4.00)

Space Selection

Students expressed specific preferences for the space they occupied within the library, depending on their needs. Some wanted quiet. Others found that too much silence kept them from focusing and they needed the right amount of ambient noise. Still others used specific floors or locations depending on their need:

> The fourth floor of the library has been my saving grace this past year as I am able to concentrate without distractions. Also, I have found the normal wooden chairs to be good as I don't get too comfortable and can usually stay awake.
> (senior, College of Liberal Arts and Sciences, GPA 3.29)

> I like how each floor serves its own purpose and I can go to different floors depending on what type of space I need.
>
> (sophomore, College of Liberal Arts and Sciences, GPA 3.19)

Space selection can also depend on the availability of computers, chairs, and electrical outlets.

Library Obstacles

While students had many good things to say about how the library had favorably impacted their coursework, not all comments were positive. Several obstacles prevented students from using the library when or how they wanted. These barriers included the library being too busy; shortages of chairs, electrical outlets, or computers; a lack of needed software on the computers; and misuse of space. For example, one senior said:

> The accessibility of computers [is] great, but I do not think that there are enough computers for there to be access for all individuals, especially those who do not own a computer at home.
>
> (senior, College of Liberal Arts and Sciences, GPA 2.66)

One student commented that finding a seat in the library was competitive. Some students identified heat, odors, uncomfortable furniture, or noise as limiting their use of the library. Others did not understand how to consult library resources, which inhibited their ability to find information. A few students expressed a wish for access to more journals so they would not need to go elsewhere to meet their information requirements.

Some students identified heat, odors, uncomfortable furniture, or noise as limiting their use of the library.

External Forces

Some students commented on the many distractions at home or in their dorm that would prevent them from completing their assignments. For them, the library provided a place to work. Others remarked that they lacked a computer at home and having one to use in the library allowed them to successfully complete their coursework. In addition, the college or program in which students enrolled had an impact on what library resources they would most likely use: physical, virtual, or both.

Library Resources Used

Within the theme of library resources used, there were three categories: information resources (physical or virtual), physical resources, and human resources. Information resources included journals and journal articles (n = 163), databases (n = 127), books (print and electronic) (n = 107), and interlibrary loan (ILL) (n = 55). Overall, 315 students reported using at least one of the information resources. Physical resources included quiet space (n = 408), collaborative areas (n = 109), computers (n = 57), printing (n = 54), and whiteboards (n = 10). Overall, 487 students reported using one or more of the physical resources. Students described interactions with library staff (n = 147) through

Several students commented that getting their textbooks through the library enabled them to save money on course materials.

consultations with librarians, library instruction arranged by a course instructor, face-to-face questions, or using the chat/IM (instant messaging) service to ask a question.

Students also commented on the ways in which the library was helpful beyond providing space for study. Some appreciated that the library's computers spared them carrying a laptop around. Others noted that the computers had the specific software they needed to complete their work. A few students reported printing assignments or course materials as the main purpose for their visit to the library. Several students commented that getting their textbooks through the library enabled them to save money on course materials.

Use of the Physical Library and Information Resources, by Demographics

The coded data were further refined. Coding indicating how use of the physical library (study space, collaborative areas, and computers) had contributed to success was transformed into the broader category of "physical library use." Coding reporting how the use of information resources (ILL, books, journals, or databases) had aided academic achievement was transformed into the broader category of "information resources use." This information was then sorted and tabulated within the matrix based on college, class, traditional versus transfer status, race, and GPA to explore the use of resources between different demographics.

Colleges whose students reported that the physical library positively impacted their coursework would less likely have students who credited information resources with the same impact (Figure 3). Colleges whose students declared that the information resources favorably affected their coursework would less likely attribute their success to the physical library. These results suggest that students' academic programs influence the resources they need to succeed. Like the quantitative data analysis (see Figure 2), use of the physical library and online resources varies by college. Some students need access to resources for assignments, while others require space for study. Students in many colleges reported quantitative data patterns like those of the qualitative data (how the library contributed to their success). Students in the Colleges of Medicine and Nursing indicated higher use of online library resources compared to use of the physical space, but they also more often credited the space with contributing to their success compared to online resources. In contrast, students in the College of Architecture, Design, and the Arts reported more frequent use of the physical library compared to online resources. However, they indicated that library resources were more important to their success compared to the space. These two sets of responses are not directly comparable as the qualitative question considered both physical and online resources, while the quantitative question focused on online resources.

Undergraduates, except those enrolled in the College of Architecture, Design, and the Arts and the School of Public Health, primarily reported physical use of the library. Undergraduates and masters students more likely referred to the physical library when describing how the library had positively impacted their coursework, whereas doctoral

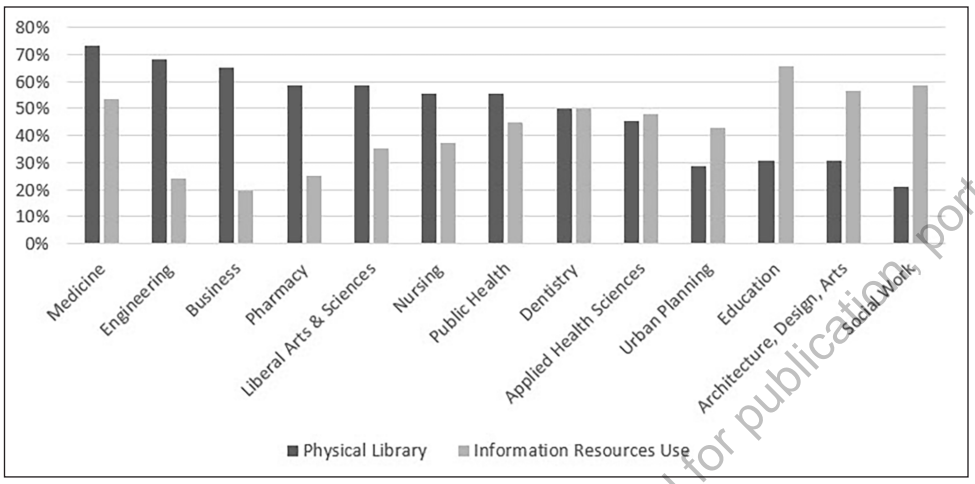

Figure 3. Percentage of physical library use and information resources use, by college.

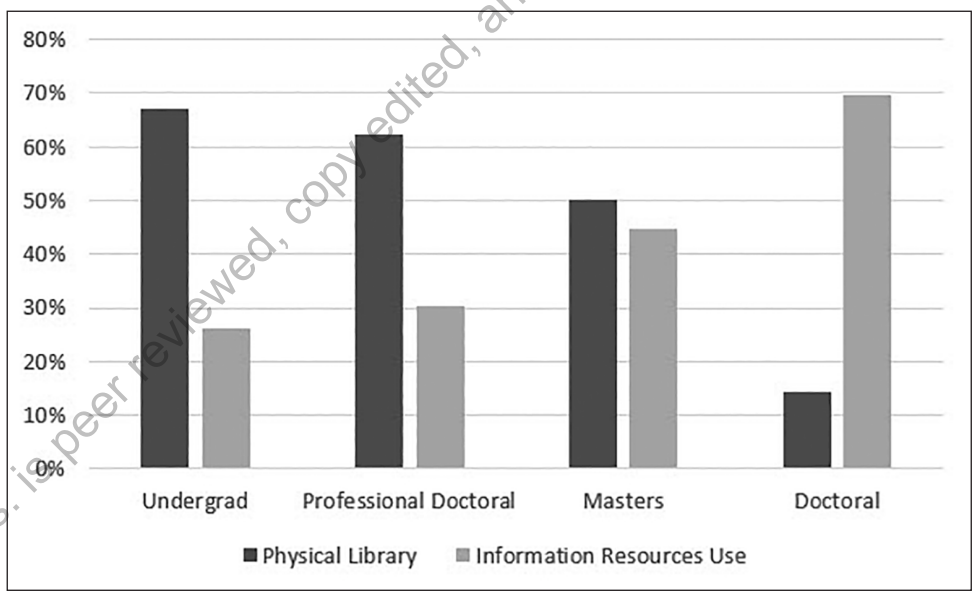

Figure 4. Physical library use and information resources use, by degree program.

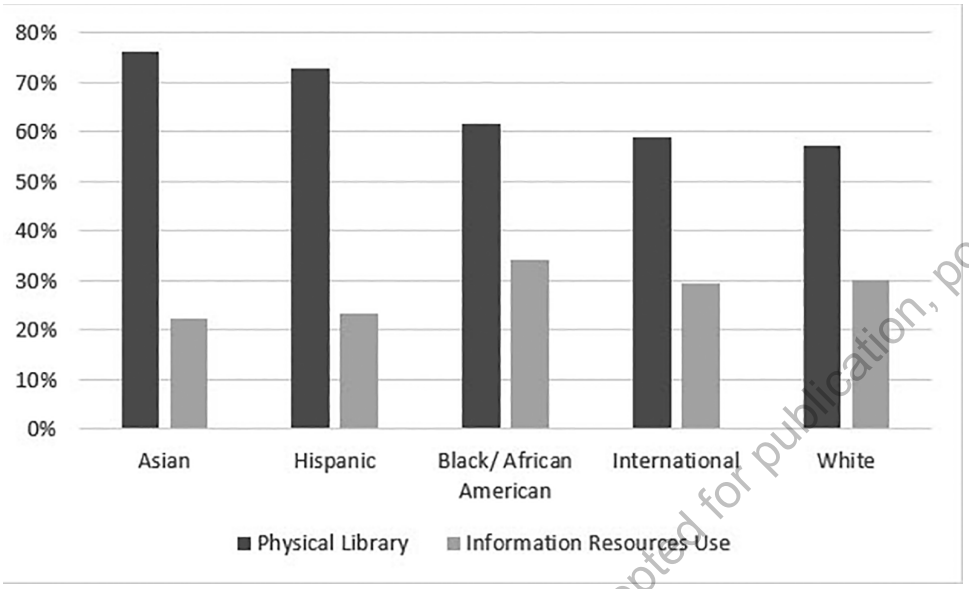

Figure 5. Undergraduates' physical library use and information resources use, by race or ethnicity.

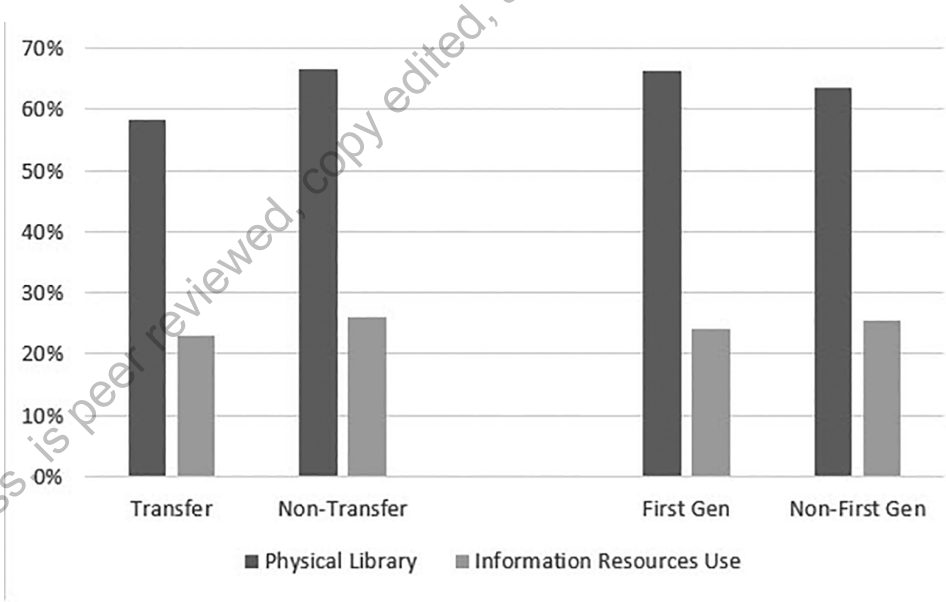

Figure 6. Undergraduates' physical library use and information resources use, by transfer student or first-generation status.

candidates would most likely report the use of information resources when answering the same question (see Figure 4).

Factors related to race or ethnicity also appeared to play a role in whether the physical library or information resources had a greater impact on the success of undergraduates. All groups would more likely credit the physical library with aiding their academic achievements, though African Americans would most likely mention information resources as also contributing to their accomplishments (see Figure 5).

Transfer students would less likely report that the physical library or information resources supported their success. First-generation students were more likely than non-first-generation students to credit the physical library with aiding their achievements (see Figure 6).

Relationship of Library Use to Student Success

Comparing the GPAs of students who declared that the physical library contributed to their academic success to those of students reporting that the library's information resources helped them revealed higher GPAs for those using information resources (see Figure 7). Overall, those who indicated that the physical library aided their accomplishments had a mean GPA of 3.35 (n = 488), while those who reported that the library's information resources helped their success had a mean GPA of 3.60 (n = 314). Representative remarks from an undergraduate with a low GPA and from one with a high GPA are:

> Having the library available to me has helped me a lot because when I come and find a conformable [comfortable?] space, I am able to focus on my studies and complete my work.
>
> (junior, College of Liberal Arts and Sciences, GPA 2.26)

> I appreciate how many journals I can access online, I wish there were the same amount of e-books since I very rarely have time/want to go to the library and track down a book between classes, work, and commuting.
>
> (senior, College of Liberal Arts and Sciences, GPA 3.90)

Students with the highest GPAs (3.80 to 4.00) would least likely report that use of the physical library contributed to their success and would most likely indicate that the information resources aided their accomplishments. For example, one undergraduate with a high GPA who used both the physical library and information resources commented:

> I have found multiple books online which helped me with research and studying. The . . . reading room is a very nice quiet study area as well.
>
> (junior, College of Liberal Arts and Sciences, GPA 4.00)

Figure 7 further demonstrates the relationships. Overall, for the groups with a GPA of 3.00 or higher, the lower the GPA, the more likely the students would report that the physical library contributed to their success, and the less likely they would indicate that information resources aided their achievement. For groups with a GPA lower than 3.00, the lower the grade average, the less likely they would attribute their success to the physical library, and the more likely they would report that the information resources helped them.

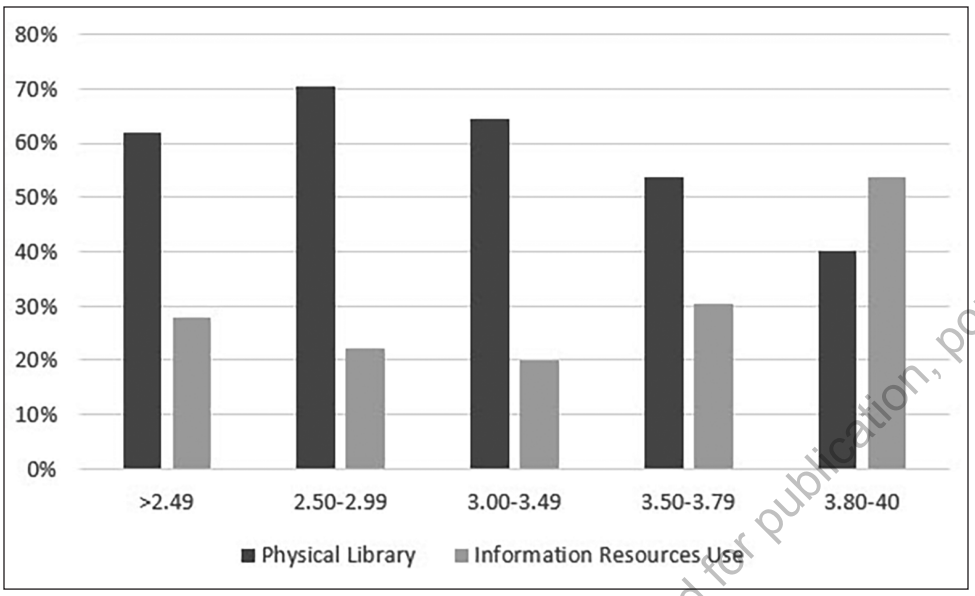

Figure 7. Percentage of students who report physical library use and information resources use, by GPA.

The mean GPA of undergraduates who reported that use of the physical library contributed to their success was 3.23 (n = 350), compared to 3.30 (n = 137) for those who declared that use of information resources aided their academic achievement. Forty of the undergraduate students credited use of both and had a mean GPA of 3.28. Undergraduate students who never consulted information resources had a mean GPA of 3.22, and undergraduates who never used the physical library also had a mean GPA of 3.22. Those who never used either had a GPA of 3.21.

Although the survey did not specifically request students to define success when asking them how the library contributed to their coursework or research, several students provided their own definition. For example, one student reported that studying in the library resulted in a 4.00 GPA, and another ended the semester with a 3.70 average. Still another spoke of straight A's a result of using the quiet space in the library, while another credited use of library resources as producing A's on research papers. Others were more general, saying the library helped them do well on a test, pass their exams, or improve their grades. Still others noted that they could focus, complete work, or do their research.

Discussion

Qualitative analysis revealed themes identifying the perceived role of the library in supporting students' coursework or research. The themes included academics, behavior, space, and resources. These themes resemble the four themes identified by Jennifer Mayer, Rachel Dineen, Angela Rockwell, and Jayne Blodgett as related to the perceived role of the library in academic success: space, people, place, and resources and services.[18] Some

students in the current study regarded the library space as a positive contributor to their learning, providing quiet areas where they could concentrate and learn independently as well as collaborative spaces where they could study with peers or complete group assignments. Many students utilized both types of spaces, depending on their needs. Previous studies had similar conclusions. The library was where students engaged in "self-directed learning"[19] as well as "social learning" by meeting and talking informally out of class.[20] The students also wanted areas to concentrate when studying, and they valued visiting the library with their friends. Students perceived library resources as having a positive impact on their learning, in addition to the support provided by library staff. This finding aligned with past quantitative studies showing that various types of library resources and services (for example, interlibrary loan, library instruction, and research consultations) promoted students' learning.[21] The qualitative analysis not only confirmed the quantitative findings but also provided insights not gained from closed-ended responses. For example, the qualitative analysis revealed external factors that pushed students to use the library, contributing to their success. In addition, it uncovered hindrances. About 10 percent of the students reported unpleasant conditions at the library (such as bad smells, noise, shortages of chairs and computers, and lack of understanding) that, at times, negatively influenced their perception of the library's value.

As in Ying Zhong and Johanna Alexander's findings, students from distinct GPA groups and demographics diverged in what they valued.[22] In the current study, students in different programs, classes (undergraduate or graduate), and race or ethnicity groups varied in their use of the library. Many factors appeared to influence use of the physical library and information resources. How grades related to what library resources students credited with their success also differed. Some programs depend less upon students writing papers, and thus there is little requirement to consult information resources. Other programs rely upon testing to measure achievement, and thus activities such as studying in the library will more likely be seen as contributing to academic success. Students from different backgrounds may have had different experiences preparing them for university, which may impact the resources they use and those they credit with aiding their success.

Students who attribute their academic accomplishments to use of the physical library rather than information resources have lower GPAs than those who do not. This is similar to the findings from the same survey exploring the quantitative data, indicating that students who reported greater use of the online library (information resources) had higher GPAs compared to students who used the physical library more.[23] Because the request for input on how the library contributes to success did not ask students for their definition of success, further analysis is limited to comparing academic achievement through GPAs, which limits understanding of the relationship. Students who struggle academically may study more in the library but may also improve their grades. Another explanation is that learners who need additional information literacy skills to

Students who attribute their academic accomplishments to use of the physical library rather than information resources have lower GPAs than those who do not.

find what they need increase their library use, much as more successful students do. Further research is needed to understand these relationships.

The library's impact on success is less clear when looking at frequency of library usage compared to grades, particularly when the measurement of success is a high GPA. But in accordance with students' own reports of how the library contributes to their achievement, a broader and richer understanding of students' perceptions of the role of the library is revealing. The findings also illustrate differences in the perception of which library resources contribute to the students' success based on such demographics as race, class, program, and college. The qualitative content analysis in relation to demographics and GPA reveals that these factors all influence grades. Tying the value of the library to students' success directly through GPA overlooks a multitude of other variables that affect academic performance, including the programs and courses in which the students enroll and their own backgrounds. Moreover, success is multifaceted and more than just a high GPA. Some define it as achieving a higher grade or a good grade, rather than the highest possible. Future distribution of our survey should also ask students their definition of success, not just how they perceive the library contributing to it. More qualitative research is needed to understand the variances in use of resources and use of the physical library, and their relationship to students' perceptions of success. This knowledge can be applied to further support students' academic achievement. For example, when promoting the library, perhaps an additional focus on how information resources increase success could boost the use of these resources and result in better grades.

Tying the value of the library to students' success directly through GPA overlooks a multitude of other variables that affect academic performance, including the programs and courses in which the students enroll and their own backgrounds.

Conclusions

By revisiting the previous qualitative data collected, this study sought to understand what students perceived as the resources and services offered by the academic library that contributed to their success. Instead of exploring frequency of use of library resources in correlation with GPA, the authors analyzed what students regarded as impacting their success, based on their comments. The study also sought to understand how demographics may play a role in the library resources and services that learners value. Further analysis of the qualitative data allowed the authors to discover differences in the students' perception of what library resources contribute to their success based on such demographics as race, class, program, and college. Those who credit use of the physical library rather than information resources with supporting their academic accomplishments have lower GPAs than those who do not. However, it remains unclear why there is a relationship between physical library use and lower GPAs. Factors not captured by the current data might give further insight. For example, employment sta-

tus, commute time, time spent in the library, study skills, implicit knowledge, program requirements, understanding of academic expectations, and home environment (such as too many distractions or lack of a computer at home) could further contribute to our understanding of who uses the library, why, and how. In addition, this research needs to expand to other similar institutions, and more specific questions need to be asked related to students' definition of success when exploring how the library may aid their accomplishments. Overall, this study demonstrates the value of the library in contributing to academic performance as evidenced by the students' own words.

Sandra L. De Groote is a professor and the head of the Assessment and Scholarly Communications Department in the University Library at the University of Illinois at Chicago; she may be reached by e-mail at: sgroote@uic.edu.

Jung Mi Scoulas is a clinical assistant professor and the assessment coordinator of the Assessment and Scholarly Communications Department in the University Library at the University of Illinois at Chicago; she may be reached by e-mail at: jscoul2@uic.edu.

Notes

1. Beyza Aksu Dunya and Sandra De Groote, "Revision of an Academic Library User Experience Survey," *Performance Measurement and Metrics* 20,1 (2019):48–59, https://doi.org/10.1108/PMM-10-2018-0026.
2. Jung Mi Scoulas and Sandra L. De Groote, "The Library's Impact on University Students' Academic Success and Learning," *Evidence Based Library and Information Practice* 14, 3 (2019): 2–27, https://doi.org/10.18438/eblip29547.
3. Krista M. Soria, Jan Fransen, and Shane Nackerud, "Library Use and Undergraduate Student Outcomes: New Evidence for Students' Retention and Academic Success," *portal: Libraries and the Academy* 13, 2 (2013): 147–64, https://muse.jhu.edu/article/504593/pdf.
4. Dee Ann Allison, "Measuring the Academic Impact of Libraries," *portal: Libraries and the Academy* 15, 1 (2015): 29–40, https://muse.jhu.edu/article/566421.
5. Karen Brown and Kara J. Malenfant, "Documented Library Contributions to Student Learning and Success," ACRL, 2016, http://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/value/contributions_y2.pdf.
6. Krista M. Soria, Jan Fransen, and Shane Nackerud, "Beyond Books: The Extended Academic Benefits of Library Use for First-Year College Students," *College & Research Libraries* 78, 1 (2017): 8, https://doi.org/10.5860/crl.78.1.8.
7. Soria, Fransen, and Nackerud, "Library Use and Undergraduate Student Outcomes."
8. Elizabeth M. Mezick, "Return on Investment: Libraries and Student Retention," *Journal of Academic Librarianship* 33, 5 (2007): 561–66, https://doi.org/10.1016/j.acalib.2007.05.002.
9. Gaby Haddow and Jayanthi Joseph, "Loans, Logins, and Lasting the Course: Academic Library Use and Student Retention," *Australian Academic & Research Libraries* 41, 4 (2010): 233–44, https://doi.org/10.1080/00048623.2010.10721478.
10. Joni Blake, Melissa Bowles-Terry, N. Shirlene Pearson, and Zoltan Szentkiralyi, "The Impact of Information Literacy Instruction on Student Success: A Multi-Institutional Investigation and Analysis," Greater Western Library Alliance, 2017, https://scholar.smu.edu/libraries_cul_research/13/.
11. Brown and Malenfant, "Documented Library Contributions to Student Learning and Success."
12. Scoulas and De Groote, "The Library's Impact on University Students' Academic Success and Learning."

13. Scoulas and De Groote, "The Library's Impact on University Students' Academic Success and Learning."
14. Nancy Jennings, Suzanne Lovett, Lee Cuba, Joe Swingle, and Heather Lindkvist, "'What Would Make This a Successful Year for You?' How Students Define Success in College," *Liberal Education* 99, 2 (2013): 40–47.
15. Jennifer Mayer, Rachel Dineen, Angela Rockwell, and Jayne Blodgett, "Undergraduate Student Success and Library Use: A Multimethod Approach," *College & Research Libraries* 81, 3 (2020), https://crl.acrl.org/index.php/crl/article/view/24367/32192.
16. Scoulas and De Groote, "The Library's Impact on University Students' Academic Success and Learning."
17. Scoulas and De Groote, "The Library's Impact on University Students' Academic Success and Learning."
18. Mayer, Dineen, Rockwell, and Blodgett, "Undergraduate Student Success and Library Use."
19. Danuta A. Nitecki, "Space Assessment as a Venue for Defining the Academic Library," *Library Quarterly* 81, 1 (2011): 27–59.
20. Stephen R. Acker and Michael D. Miller, "Campus Learning Spaces: Investing in How Students Learn," *EDUCAUSE Center for Applied Research Bulletin* 2005, 8 (2005): 1.
21. Karen Brown and Kara J. Malenfant, "Academic Library Contributions to Student Success: Documented Practices from the Field," Association of College and Research Libraries (ACRL), 2015, www.acrl.ala.org/value.
22. Ying Zhong and Johanna Alexander, "Academic Success: How Library Services Make a Difference," in *Conference Proceedings: ACRL 13th National Conference, March 29–April 1, 2007, Baltimore, Maryland*, Hugh A. Thompson, ed. (Chicago: ACRL, 2007).
23. Scoulas and De Groote, "The Library's Impact on University Students' Academic Success and Learning."