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Practice

Holistic 360 Reference Services

Revitalizing and Engaging Students Through In-Person Reference:

A Penn State Berks Thun Library Case Study

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This study focuses on how academic libraries face ongoing challenges in adapting to emerging technologies and external events like the COVID-19 pandemic. It explores a sampling of the literature on the decline in reference transactions and the growing reliance on technology-mediated reference services. It presents Penn State Berks Thun Library's approach to remediate and reverse this decline. The library aimed to enhance student access to reference services and increase librarian visibility by piloting in 2022-23 a mobile ASK desk. Data analysis from the pilot program indicates an increase in reference queries compared to previous years reversing the multiyear downward trend, suggesting the effectiveness of the ASK desk in meeting student needs. The article introduces the Holistic 360 Reference Services Model (H360 Ref), which provides a framework for delivering comprehensive reference services. Overall, it asserts that enhancing reference services can contribute to increased student engagement, solidifying the essential role of libraries in supporting learning and research endeavors.

Introduction

Academic libraries have long grappled with the challenges of evolving and adapting their services in the face of emerging technologies and external events such as the global pandemic. Academic library reference services have not been immune to these challenges and have been significantly impacted by both technological advancements and the COVID-19 pandemic. How reference services adapt in today's dynamic environment will shape their future relevance and significance in the academic landscape. This paper seeks to add to the literature on evolving reference services and provide a useful case study on the importance of utilizing many modalities to enhance the range of reference services offered, thereby increasing access and engagement with our students.

Over the past several decades, a substantial body of literature has documented the decline in reference questions in academic libraries. De Groot, Hitchcock, and McGowan's (2007) study revealed a significant decrease in both in-person and online reference services. Applegate (2008) delved into the decline of academic libraries' reference

transactions and found using the Academic Library Survey of the National Center for Educational Statistics data from 2002 and 2004 that there has been a decline in reference transactions per week on a per-library basis and on a per-student basis.

While the literature offers ample insights into the decline of reference transactions, it is equally vital to understand the impact of the recent COVID-19 pandemic on academic library reference services. Although the research in this area is still developing, there is a consensus on the pandemic's considerable influence. Mahnaz Dar's 2020 article, "How COVID-19 Has Transformed Reference Services for Public and Academic Libraries," highlights the challenges faced by libraries during the pandemic and the growing role of technology in providing access to reference services. De Groote and Scoulas (2021) note the increased importance and usage of virtual reference services during the pandemic. Charbonneau and Vardell's 2022 article, "The Impact of COVID-19 on Reference Services: A National Survey of Academic Health Sciences Librarians," offers insights into the various forms of reference services provided during the first year of the pandemic. They found that the scope of reference services provided from March 2020 to March 2021 included email-based reference services (97%), virtual reference (89%), telephone (80%), text-based (33%), and in-person (31%).

Concurrently, across higher education, the pandemic has had adverse effects on student enrollment, a trend documented by Dennis (2021) as well as Kamssu and Kouam (2021). As with many academic libraries in the United States, the Penn State Berks campus has been impacted by these challenges. It has had both a reduction in the number of students using the library (i.e. Thun Library gate counts in 2019/20 were 111,908 and in 2022/23 were 94,925, a reduction of nearly 17,000 visits) as well as the number of reference transactions (see Table 2). To address these issues and seek to enhance their local reference services, the Thun Library launched a mobile ASK Reference Desk pilot program during the fall 2022 and spring 2023 semesters. "ASK a Librarian" is the outward facing name of Penn State University Libraries Virtual Reference, which is identified on library websites by a button reading "Ask a librarian." To brand our in-person library reference services and align it with the institutional messaging, we used "ASK @ Thun" for our mobile reference desk.

This paper presents a case study of how the Thun Library implemented a mobile reference desk to enhance student access and engagement with library faculty and reference services. The Holistic 360 Reference Services model (H360 Ref) described in this article provides a helpful framework to guide the design and development of a holistic and integrated approach to reference services, which aided us with the implementation of the mobile ASK @ Thun desk.

Literature Review

Over the past century, the traditional academic library reference desk has been a stalwart feature of higher education institutions. However, the landscape of information-seeking and access to resources has transformed significantly due to technological advancements. In response to these shifts, academic libraries have been exploring various approaches to meet the evolving information needs of students and faculty. Several notable reference service model approaches include:

1. **Merging Desks:** Some libraries have taken the path of merging reference and circulation desks, as exemplified in Meldrem, Mardis, and Johnson's (2005) article, "Redesign Your Reference Desk: Get rid of it!" This approach suggests that combining these services can streamline operations and enhance user experiences. Sheffield, Silver, and Todorinova (2013) delve further into exploring both the benefits and challenges of this integration.
2. **Peer-to-Peer Services:** Another approach involves training student workers to provide peer-to-peer reference services. This method is explored by Scripa and Spencer (2023), Nea et al. (2010), Faix (2014),

and Faix et al. (2010). These studies shed light on the potential advantages of harnessing the expertise of fellow students.

3. **Alternative Models:** Some libraries have adopted alternative models for reference services. Bowron and Weber's (2019) case study, "The Evolving Reference Desk," discusses the transition to an 'On Call' model, where librarians are available as needed rather than stationed at a fixed public desk. Arndt (2010) explores this shift away from traditional desk-bound reference services.

A review of the literature reveals many approaches to providing reference services in academic libraries. It is apparent that there is no one-size-fits-all solution applicable to all college and university libraries. Instead, libraries must adapt to emergent needs and gaps in their reference services.

Thun Library Reference Services Background

The Thun Library is part of the Penn State Berks campus. It is a public, four-year, residential and commuter campus of Pennsylvania State University on 258 acres in Spring Township, Pennsylvania, near the city of Reading. Penn State Berks has nearly 2,000 students and offers baccalaureate in addition to associate degrees. The Thun Library is part of Penn State University Libraries, one of the largest Association for Research Libraries (ARL) libraries in the United States. Penn State University Libraries is a network of 36 libraries across 24 locations, providing access to over 9 million books, millions of electronic resources, and a wide variety of research and study spaces.

Due to the COVID-19 pandemic, Penn State University moved to a temporary remote instruction mode, thereby suspending all in-person reference in spring 2020. Over the subsequent years, the number of in-person reference transactions significantly decreased even as students, faculty, and staff returned to on-campus instruction at the Penn State Berks campus. During this period, technology-mediated modes of providing reference transactions trended downward as well; however, technology-mediated reference transactions decreased less than in-person reference transactions at the Thun Library.

A decade ago, the Thun Library eliminated a librarian-staffed reference desk and moved to a librarian liaison reference model that connects librarians to students directly in classes. It emphasizes student instruction as the most critical aspect of the services that library faculty provide. While it is not required, faculty often work directly with their librarian liaison to schedule instructional sessions covering relevant topics (e.g., information literacy, library resources) that can help their students successfully complete their course assignments, learn research skills, and further develop critical thinking skills. This librarian liaison model also supports reference services through drop-in and appointment consultation referrals in the library.

This model works well for students who have courses integrated into the librarian liaison process and have librarians actively providing instructional sessions and embedded into the Canvas Learning Management System (LMS) courses. However, not all courses have an identified liaison librarian. Also, the liaison librarian model emphasizes embedding librarians in the majors and associated programs across the Penn State Berks curriculum. This means there are students in courses who do not have an identified liaison librarian and may not necessarily have much, if any, interaction with a librarian outside of visiting the library.

In summer 2022, the Thun Library began to consider how to evolve reference services to better meet the current and emerging needs of students. In their article "Reference Is Not Dead," Holm and Kantor (2021) found that the move away from a visible reference desk makes it hard to gauge the demand for reference services. In addition, library user satisfaction with reference increases as staff increases, and the greatest facilitator of asking questions was the ability to identify and access librarians. They suggest that in planning services, academic libraries should be thoughtful with the models selected, because students may have difficulty finding the services on their own.

The Thun Library decided to use the Holistic 360 (H360) Reference Services Model to identify all the modalities being used to engage students who needed reference assistance. The only identified gap at the Thun Library in this model was the lack of a dedicated, librarian-staffed reference desk in the library (see Figure 1). This, coupled with the return to high student traffic in the library (i.e., Monday to Thursday daily gate counts between 700 – 900), presented an opportunity for librarians to increase their visibility and in-person interactions with students by re-establishing a visible reference desk.

Holistic 360 Reference Service Model

The Holistic 360 Reference Services Model (H360) is a conceptual framework the Thun Head Librarian created in consultation with the Thun Library faculty and staff to guide library practitioners in reflecting on the various modalities that facilitate communication, provide access to reference support services, and meet students' information-seeking needs. This paper uses the Penn State University Libraries Reference Team definition of reference as "the use of expertise (knowledge, use of information, recommendations, referrals, interpretation, or informal instruction) in response to a user-initiated information need" (Reinsfelder et al., 2022).

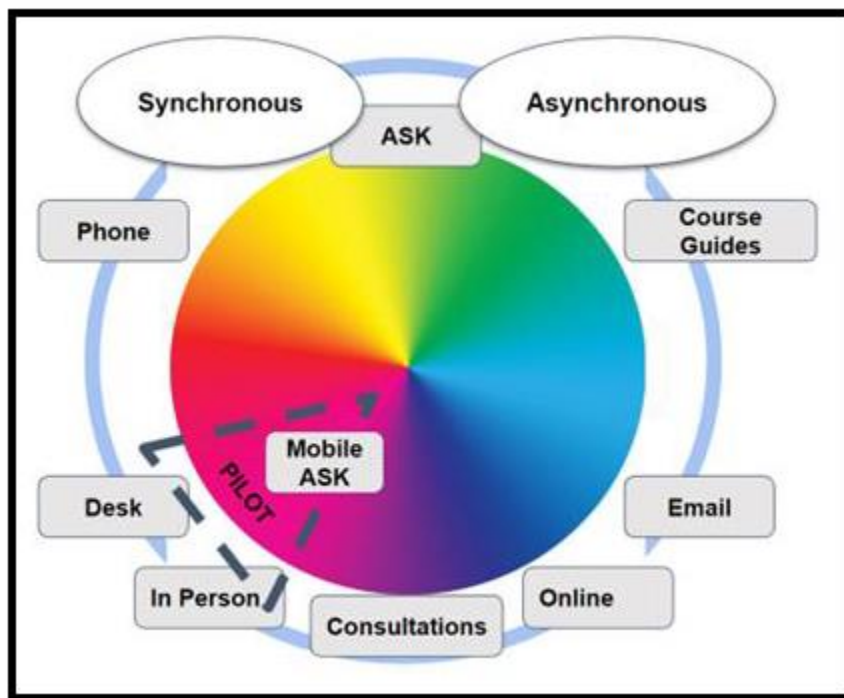


Figure 1
Holistic 360 Reference

The above model depicts the numerous means by which librarians can provide access points to students' educational information-seeking needs. It encompasses both synchronous and asynchronous modalities on a spectrum from in-person, face-to-face interaction to fully online, synchronous, computer-mediated (web-based), and face-to-face video conference interaction.

These modalities of communication and interaction include:

- Scheduled or on-call reference consultations from in-person meetings to online, synchronous, web-based meetings

- A staffed (librarian, staff, or student peer worker), in-person library 'reference' desk that can receive calls, emails, chats, text messages, etc.
- A staffed, online, virtual, real-time reference service that can provide live chat support or synchronous, web-based meeting capabilities
- An unstaffed, online, virtual real-time reference service that can provide chatbot, artificial intelligence (AI), or computer-guided (e.g., library course guides) assistance
- An embedded librarian liaison who provides reference services both synchronous (instruction sessions or real-time drop-in office hours) and asynchronous (e.g., course guides & message boards) through a course-linked learning management system (e.g., Canvas, Blackboard, Moodle, D2L, Google Classroom, etc.)

This model can be used to help identify gaps in modalities of reference services. For example, a library can identify if there are specific modalities of reference services that are not offered as a means by which students can seek reference assistance. The library can then determine if this gap may be creating a barrier to students' ability to connect with a librarian who can address their reference needs.

The H360 model can also be a useful tool in assessing the level of interaction and engagement engendered when providing reference services to students via different modalities. For example, just-in-time reference services provided via email tend to be low context and transactional in nature. This means that this form of computer-mediated communication can create a sense of connectedness but does not often lend itself nor promote early relationship and community building. In contrast, in-person reference services can promote deeper relationship building and a sense of connectedness and belonging via being collocated and present with the student, which allows for nonverbal communication and less formal and more personable interactions.

Lastly, the model could be utilized as part of an assessment effort to better understand and evaluate how students are interacting and engaging with the various reference service modalities offered by a library. The evaluation aspect of the framework could be useful in guiding further studies and research into the benefits and challenges of each of the various modalities. This, in turn, would allow libraries to strengthen their reference services by having a clearer understanding of the strengths and weaknesses of the different modalities and thereby be more strategic in how they reach out to students across their institutions.

Thun Library Case Study

The idea of re-establishing a visible reference desk did present challenges. There were concerns that having a staffed reference desk again would create inefficiencies as well as strain the staffing capacities of the Thun Library. Additionally, because the library already has a very visible main service desk, where circulation staff and student workers check out materials and study rooms, there was a lack of consensus that students would be better served by having a dedicated reference desk staffed by librarians. It was suggested that providing more reference and referral training for the professional circulation staff and the student workers could accomplish the goal of meeting student reference needs.

To address the concerns about a lack of staffing capacity and the desire to best equip the staff at the main service desk, the Thun Library decided to pilot a mobile ASK Reference Desk that would be staffed on a volunteer basis by library faculty as well as increase the training for circulation staff and student workers. The library ASK @ Thun desk was piloted during the 2022/2023 academic year. It was staffed by two librarian volunteers during the most trafficked times of the week in the library: Mondays through Thursdays from 10 am to 3 pm, covering the busiest hours and the four busiest days of the week.

The goals of piloting the mobile ASK desk were to:

1. Fill an identified gap in having a librarian visible and available to meeting the immediate information-seeking needs of student and faculty at the point of contact/service in the library
2. Increase the visibility of the library reference services and facilitate contact with liaison librarians on campus
3. Identify student trends and educational needs through direct, in-person reference interactions and observations not mediated by technology, staff, or student workers

The ASK @ Thun mobile reference desk was launched at the start of the fall 2022 semester on August 22. This mobile reference station, located adjacent to the Collaboration Commons and the primary service/circulation desk near the main entrances of the building, provides a visible place for students and staff to receive immediate help from a librarian (see Figure 2 and Figure 3).

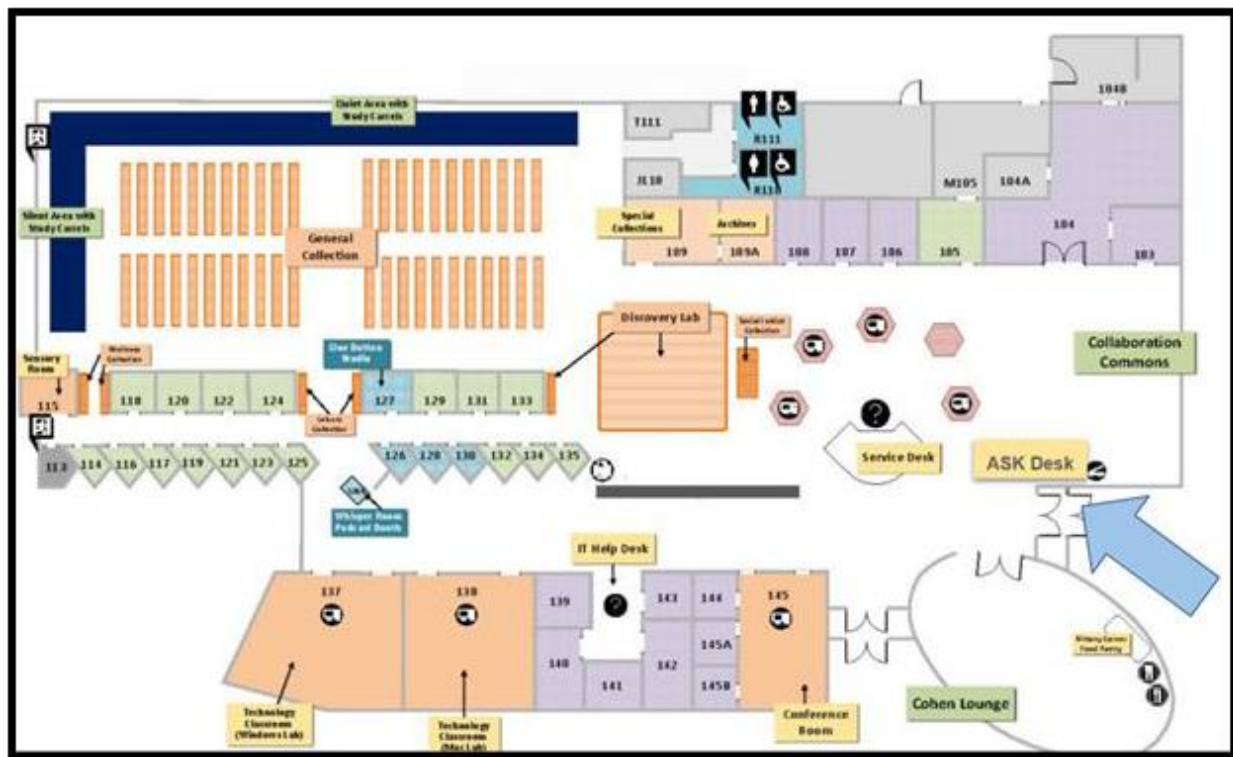


Figure 2
Thun Library Floor Plan

To create the mobile ASK desk, an existing unused table that had wheels and could be moved or relocated at any time to any place in the library was used. This decision helped keep costs down and increase the flexibility in situating the new reference service. The table was adorned and branded with Penn State University Libraries tablecloth and signage. To make the desk functional, friendly, and visible, it included a campus-branded speaker podium to allow students to stand next to the librarians. Additionally, seats were available so that students could sit next to a librarian for more involved and time-intensive reference transactions. The librarians who worked at the desk would bring out their laptops during their shift, which enhanced the security of the desk by negating the need for a separate computer to be stationed at the desk.



Figure 3
Mobile ASK @ Thun Desk

Fall 2022 Reference Log

Start of Semester

On the first day, we received more than 30 inquiries, many from new students who were unfamiliar with the library and required directional assistance. The brief interactions with the ASK desk provided opportunities to introduce ourselves as well as demonstrate that the library is a welcoming environment with staff available to assist as needed.

During the first week of service, we also provided informal instruction on how to use the library catalog, read a call number, locate a title on the shelves, and locate course guides and databases. The following next few weeks of classes, we began to receive questions from students working on First Year Seminar (FYS) assignments. These assignments involved learning about basic library services and receiving a simple orientation to the building. We also received inquiries about other services on campus, including tutoring and financial aid.

Mid-Semester

As students settled into the semester, the questions we received decreased in number and frequency but increased in complexity. For example, one student inquired about an LSAT preparation guide. Through the reference interview, the student revealed interest in meeting other students who intend to study law. The ASK desk librarian reached out to a political science professor on campus, provided a link to pre-law resources, and shared information about upcoming spring courses at Penn State Berks. This interaction exemplifies the kind of connection we aspire to make through the ASK desk service. While the librarian worked with this student, the information desk continued to be busy with students seeking course reserves, study rooms, circulation or related service, and directional questions. Through the ASK desk, the library offered help without the student needing to email a liaison and provided campus-

specific resources. Most importantly, it was an opportunity to demonstrate to a student that they were welcome and belong at the Thun Library and Penn State Berks Campus.

In October, we began to have less predictable reference questions. Students from diverse disciplines were seeking sources for assignments and personal or recreational needs, including health issues, graphic novels for leisure reading, and guides to time management. We had opportunities for informal instruction, teaching students how to use the catalog, navigate course guides, and cite sources. In addition, we continued to receive directional questions and inquiries related to document scanning, printing, use of the device charging station, and making study room reservations. These interactions, even when brief and seemingly minor, potentially contribute to students' sense that the library is a place where they are welcome and can receive assistance.

By keeping regular and consistent desk hours, we have been able to notice students who habitually spend time in our space. Students who visit the library most days began to approach the desk if they were stuck in their search process or if a question arose while they were working. This supplemented the other reference and instruction librarians' reference coverage, which was less predictable, because they had schedules full of instruction classes, faculty meetings, and student research consultations. Consequently, on many days the ASK desk provided the only option for an in-person, librarian-led reference interview.

End of Semester

Towards the end of the first semester pilot program, we received multiple requests for help selecting or locating recreational reading and provided readers' advisory for print materials including graphic novels, young adult fiction, and wellness titles. Additionally, we had a few students who were working on their final projects or assignments that were seeking additional resources and guidance. This allowed us to connect these students with their appropriate liaison librarian to schedule more in-depth consultations when needed.

In addition to supporting students, we helped campus employees locate information resources. One employee had questions about the resources of our libraries and whether they were only available for students. During our conversation, we guided the employee to resources that could meet the professional and personal needs they expressed. This employee left the library with a deeper understanding of our services and received assistance that required the skills of a trained library professional. While they could have emailed the library and received a written response to their questions, the in-person encounter provided an opportunity to make a personal connection and to encounter the resources in a direct manner.

Spring 2023 Reference Log

Start of Semester

In January, our first task was to finalize a basic student feedback questionnaire. This gave us an opportunity to receive feedback from students about the ASK @ Thun desk reference service. This questionnaire included three questions presented in a Google form and was launched via email on the third day of classes (1/11/23). We also posted flyers in the library's foyer area to alert students about the opportunity to provide feedback. A follow-up email was sent after one week. We closed the survey on 1/20/23 and received 51 student responses.

Summary of findings:

- Did you receive help at the ASK desk in the Fall 2022 semester?
 - 59% chose yes

- The ASK desk was staffed from 10:00 a.m. to 3:00 p.m. Monday through Thursday in the fall 2022 semester. Were these hours convenient for you?
 - 83% chose yes
- Do you have any questions about the ASK desk?
 - “As a commuter I wasn’t really in the library I didn’t really know this existed. Maybe you guys could advertise it on campus more?”

As expected, many of the questions during the first week of spring classes were about locating course reserves. We also demonstrated how to use the catalog to locate materials and navigate the Penn State Berks website for academic support services, assisting students who needed to connect with the writing center and tutoring. There were many opportunities to converse with students who were between classes or taking a study break, laying a foundation for developing positive relationships. The most notable interaction was with an adult transfer student who indicated they were returning to school after a long absence. They had many questions about the types of services the library offers. In general, we found that the number of conversations with transfer students points toward an area for possible service enhancements.

Mid-Semester

The foot traffic in the library was lighter at the start of the spring semester than it was in the fall, averaging approximately 700 gate counts per day, Monday through Thursday, though students continued to gather in the Cohen Lounge, the Collaboration Commons, and to utilize all study areas. Less foot traffic naturally results in fewer opportunities to address student needs in person. However, we continued to assist students with learning to use the catalog, locating resources, and preparing citations for papers. An unusual reference question included talking with a student about their interest in pursuing a career in libraries.

The library also serves users from the local community beyond campus, and these users do not have a connection to a liaison librarian. With a visible librarian providing reference services, visitors could readily receive assistance with their information needs. For example, one visitor wanted to conduct research on an aspect of local history and was unsure how to connect with the necessary resources. We were able to get them started by sharing library guides to state and local history. Another visitor was an employee at our institution and had queries requiring the help of a special collections librarian. We were able to conduct a reference interview that helped discern their information needs and received verbal feedback that they were grateful for our guidance.

End of Semester

Unlike the fall semester, we did not receive as many requests for help with selecting or locating recreational reading. However, similar to the end of the fall semester, students did have questions about their final projects and assignments that we could immediately address or, when a more detailed consultation was required, we referred them to the appropriate liaison librarian.

Data and Discussion

The number of reference questions increased considerably during the pilot of the mobile ASK desk, more than doubling the previous academic year (i.e. 2021/22). For the purposes of this analysis, we are differentiating ‘general questions’ which are basic informational/directional questions (i.e. technical problems, referrals, directional, as well as policy and services) from the academic/curricular questions that focus on assignments, course content, and research which we are classifying as ‘reference questions.’

In total, 489 reference questions were recorded during the 2022/23 academic year (See Table 1) versus 195 in 2021/22, and 261 during 2020/21 (See Table 2). While the number of reference queries did not return to pre-pandemic levels (i.e., 503 in 2019/20 and 943 in 2018/19 respectively), the Penn State Berks campus has also experienced a significant drop in student enrollment, going from 2,482 in fall 2019 to 2,077 in fall 2022. Correspondingly, the level of student visits/traffic in the library has been impacted by the declining enrollment. Visits to the library dropped from 111,908 in 2019/20 to 94,925 in 2022/23, a drop of nearly 17,000 visits per academic year to the library.

Table 1

Thun Library Questions from Fall 2022 (8/22-12/08) & Spring 2023 (1/9-4/28)

General & Reference Questions	Fall 2022	Spring 2023	Academic Year Total
General Circulation Questions	187	248	435
General ASK Questions	107	70	177
General Liaison Questions	223	187	410
Total General Questions	517	505	1,022
Reference Circulation Questions	29	47	76
Reference ASK Questions	43	41	84
Reference Liaison Questions	167	162	329
Total Reference Questions	239	250	489

The aforementioned student feedback from the questionnaire indicates that students aware of the ASK desk used it. It also shows that most of these students found the hours convenient. Finally, the questionnaire, through asking an open-ended question, demonstrates that not all students were aware of the ASK desk and that students who do not visit the library are unlikely to know the reference service is available.

The data collected by the Thun Library indicates that the mobile ASK desk contributed to a rise in the number of reference queries at the Thun Library in 2022/23 (see Table 1 & Table 2). This also indicates that the ASK desk was successful in raising awareness of in-person reference services and enabling students in the library to have easy access to librarians on a first-come, first-served basis as needed.

Table 2

Thun Library Historical Reference Transactions from Entire Academic Years

	Fall 2018	Spring 2019	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022
Thun Library Reference Questions	449	494	266	237	124	137	100	95

What the data collected cannot indicate is how many of these student reference queries would have been asked through another Thun Library reference service modality or if these student reference needs would not have been serviced at all. Also, data on student satisfaction was not solicited beyond the librarians who worked with the students querying them at the end of the reference transaction to confirm that they were satisfied with the quality of assistance provided. Also, due to lack of librarian capacity, the Thun Library did not try to extend the hours that the mobile ASK desk was staffed. Consequently, it is difficult to extrapolate or even guess how many students reference questions were not asked because of this.

Successes, Challenges, and Future Enhancements

Overall, the goals of the mobile ASK Reference Desk pilot were met. The Thun Library filled an identified gap and provided a visible librarian available to meet the reference needs of students who were physically present at the point of contact in the library on 84 occasions in the 2022/23 academic year. Based on the year-long pilot, the Thun Library was successful in increasing the visibility of the library reference services in the building and facilitated contact with students who did not necessarily have access to liaison librarians in their courses - and did so immediately and without delay. Lastly, the Thun Library was able to identify trends in student reference needs and gain deeper insights into the educational needs of students at Penn State Berks through direct reference interactions and observations not mediated by staff and student workers.

All these goals contribute to Penn State Berks's mission of supporting student success. Also, this pilot helped enhance the welcoming library environment and facilitate connections between students and the librarians. The mobile ASK desk enabled us to reach students that might not yet be enrolled in a course with a faculty member who has a strong relationship with their assigned liaison librarian. We believe that the ASK @ Thun desk helps contribute to creating the type of welcoming library environment that can increase the sense of inclusion and belonging that students feel towards librarians, the library, and even the campus.

While the ASK desk was visible to all library visitors, we cannot know whether additional outreach might have increased the usage of this service. In general, all library services were promoted through customary channels, such as monthly student newsletters and periodic emails to faculty. The ASK desk was not given any separate or special promotional treatment. The library took all opportunities to promote services in our staffing capacity. However, other institutions might want to consider explicitly promoting reference services through non-traditional outreach to potentially reach students who do not visit the library. Creative outreach and student engagement efforts could benefit our students.

There are several future considerations on how to improve the Thun Library's mobile ASK desk reference services that could potentially benefit other academic libraries that are considering a library traffic-targeted, professionally staffed reference desk. These include:

- Maximizing the location and hours of the desk (further refine the use of patron traffic data to strategically place the desk at the most convenient, visible, and accessible location in the library)
- Increasing the promotion of the service to raise student awareness (partnering with other student support units on campus, such as student affairs and academic affairs, connecting with the campus's Student Government Association, partnering with the liaison librarians who are embedded in many courses at the college, and placing promotional materials in dorms and other key campus locations)

To continue to grow and improve reference services such as the ASK desk, it will be important to build student feedback, evaluation, and assessment components that can further inform the evolution of the Thun Library's reference services.

The H360 reference model offered an effective framework of modalities to meet the challenges impacting the Thun Library reference services. We believe that this model could be helpful across all academic libraries. Each academic library will have a unique set of needs based on its student population, staff size, and other institutional factors. For example, large universities with graduate student workers may be able to effectively use these student workers to provide peer-to-peer, in-person research consultations. However, in our library, with an undergraduate student worker population comprising first- and second-year undergraduates, this model is not as feasible. Additionally, our liaison librarians often are engaged in classroom instruction and research consultations, reducing their availability for answering drop-in questions at the point of need.

The biggest challenge in offering a complete suite of reference services across multiple modalities is staffing. Given the current economic climate across higher education, it is likely that most academic libraries will be short-staffed, lacking in librarians, professional staff, and potentially student workers as well. The H360 model could contribute to an evaluation process that identifies and prioritizes which reference modalities are most effective for the student populations that academic libraries serve.

There is a great deal of research that still needs to be done. Future studies that look at the various modalities of reference could examine the benefits and challenges that each of these modalities offers. Additionally, future studies need to examine how various reference modalities support and align with DEIA (Diversity, Equity, Inclusion, and Accessibility) efforts in higher education.

Reference services have long been a foundational and core service of academic libraries. The downward trend in students utilizing these services is clearly tied to technological innovations and environmental challenges, most recently the pandemic. Nonetheless, as demonstrated in this case study, it is possible to leverage the various reference service modalities and reverse this downward trend. Specifically, the Thun Library was able to revitalize in-person librarian-led reference services with the pilot of the mobile ASK @ Thun desk. This approach increased student engagement and established librarian connections with students that would not have otherwise occurred. This gives us hope that academic libraries across higher education that successfully revitalize their reference services may find that they have increased relevance to their students as well as play a vital role in helping the institutions they serve increase student engagement.

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