

Characteristics and Implications of Undergraduate Teaching Services in the Libraries of the UK White Rose University Consortium (Postprint)

Authors: Zhang Yuhan

Date: 2023-04-01T16:02:52+00:00

Abstract

[目的/意义] This study investigates and analyzes the specific practices and characteristics of undergraduate teaching services in the libraries of the White Rose University Consortium (UK), aiming to offer insights for domestic university libraries in developing undergraduate teaching support services.

[方法/过程] Through methods including literature review, web-based investigation, and email consultation, this research examines the services for undergraduate teaching offered by the University of York Library, University of Leeds Library, and University of Sheffield Library under the White Rose University Consortium, covering policies and guidelines, resource development, space re-configuration, information services, and innovation support services.

[结果/结论] Four implications are proposed for undergraduate teaching services in domestic university libraries: strengthening the philosophy of serving undergraduate teaching; optimizing and improving the allocation and discovery of teaching resources to promote equitable access; providing supporting services embedded in the user environment and infused with social objectives; and adopting a user-demand-oriented approach to enable library-user interaction and symbiosis.

Full Text

Characteristics and Implications of Undergraduate Teaching Services in Libraries of the White Rose University Consortium

Zhang Yuhan University of Electronic Science and Technology of China Library, Chengdu 611731

Abstract: [Purpose/Significance] This paper investigates and analyzes the specific practices and characteristics of undergraduate teaching services in libraries

of the White Rose University Consortium in the UK, aiming to provide reference for domestic university libraries in developing undergraduate teaching support services. [Method/Process] Through literature review, online investigation, and email consultation, this study examines the services provided by the libraries of the University of York, University of Leeds, and University of Sheffield for undergraduate teaching, covering policies, resource development, space renovation, information services, and innovation support services. [Result/Conclusion] The paper proposes four recommendations for domestic university libraries: strengthening the philosophy of serving undergraduate teaching; optimizing and improving the allocation and discovery of teaching resources to promote equitable access; providing supporting services embedded in user environments with social objectives; and adopting a user-demand-oriented approach to achieve symbiotic interaction between libraries and users.

Keywords: undergraduate teaching services; academic library; White Rose University Consortium

1. Introduction

In June 2018, at the National Conference on Undergraduate Education in the New Era, Minister Chen Baosheng emphasized that “undergraduate education is the foundation of higher education; without a solid undergraduate foundation, the entire structure will collapse.” On September 17, 2018, the Ministry of Education issued the “Opinions on Accelerating the Construction of High-Level Undergraduate Education and Comprehensively Improving Talent Cultivation Capacity,” outlining strategic plans for building first-class undergraduate education and enhancing talent development capabilities. These developments underscore that first-class undergraduate education constitutes the essential foundation and defining characteristic of first-class universities.

As the center of literature and information resources, university libraries serve as crucial academic institutions supporting teaching and research. In recent years, Chinese university libraries have begun recognizing the importance of resource guarantee, information support, and service assurance in creating first-class undergraduate education, exploring new service connotations and pathways through diverse reading promotion activities, library space renovation, increasing the proportion of undergraduate materials, and introducing foreign textbooks and teaching references [1]. However, overall, the level and quality of undergraduate teaching services remain relatively low, with lagging application of new technologies and insufficient fulfillment of faculty and students’ teaching resource needs [2].

In contrast, the libraries of the University of York, University of Sheffield, and University of Leeds—members of the UK’s White Rose University Consortium—have achieved notable success in proactively adapting to higher education reforms. Since the 1963 Robbins Report, UK higher education has gradually

transitioned from traditional elite education to mass education, with talent cultivation models emphasizing both research and teaching and highlighting innovation and entrepreneurship education [3]. In 2016, to underscore the foundational status of teaching, the UK government implemented the Teaching Excellence Framework (TEF) to evaluate undergraduate teaching quality in British universities. The TEF assesses institutions across three dimensions—teaching quality, learning environment, and learning outcomes—with ten refined indicators that have become widely recognized evaluation standards. These include: providing challenging and inspiring communication opportunities for students; effectively supporting student learning through hardware and digital resources; enabling access to and participation in academic frontiers, research, and professional practice; effectively fostering student independence and enhancing knowledge and understanding; and improving employability and transferable skills. These indicators essentially represent the unique demands of undergraduate education. All three universities have consistently ranked among the top performers in TEF assessments, achieving remarkable results in undergraduate teaching.

As libraries of world-class research universities, these three institutions take promoting comprehensive student development as their fundamental starting point. They deeply explore, develop, and identify users' implicit needs, matching them with library service capabilities to deliver services spanning resource guarantee, space renovation, embedded information literacy, and technology-driven initiatives. Their practices represent a microcosm of how UK academic libraries are adapting to higher education transformations, reflecting the development direction of undergraduate teaching services in British university libraries. This study examines these three libraries as case studies, analyzing and summarizing their main content, models, and characteristics in serving undergraduate teaching through online investigation, literature review, and email consultation, to provide reference for Chinese university libraries.

2. Undergraduate Teaching Services in White Rose University Consortium Libraries

2.1 Strategic Planning Leading Undergraduate Teaching Services

The three libraries have elevated undergraduate teaching services to a strategic priority, clarifying objectives, priorities, and implementation pathways in their respective strategic development plans.

The University of York Library's 2015-2018 strategic plan proposed supporting the university's teaching and research strategies through knowledge acquisition, teaching assurance, and research excellence promotion. Its 2018-2020 strategy further specified delivering services through three dimensions—space, scholarship, and skills—to provide first-class collections and facilities.

The University of Leeds Library's 2016-2021 strategic plan identified creating, disseminating, and applying knowledge as one of the university's strategic goals,

with the library playing a crucial role as an important cultural center. The plan outlined four implementation pathways: improving collections to promote academic research, providing more opportunities for students, collaborating in research and innovation, and building more effective organizations [4].

The University of Sheffield Library's strategic plan emphasizes providing research-oriented teaching support services. It states that in complex information environments, libraries should facilitate knowledge discovery, learning, and creation through user-content interaction. The library should actively participate in the university's learning and teaching programs, continuously collaborating with faculty and students to improve service content, optimize facilities, transform digital channels, and equip students with essential capabilities, information, and digital literacy skills to become influential digital citizens [5].

These strategic plans reveal several key concepts: collections, space, research orientation, knowledge services, digital presentation, collaboration, and innovation. These terms clearly define the content and development direction of undergraduate teaching services—leveraging collections and space, maintaining research orientation, strengthening knowledge services, enhancing digital presentation, encouraging collaboration and innovation, with the ultimate goal of empowering students to become independent thinkers and confident global citizens.

2.2 Multi-Dimensional Resource Support for Undergraduate Teaching Beyond strategic planning, the three libraries adhere to a resource-centric philosophy, continuously expanding both collection and space resources to provide multi-faceted support.

2.2.1 Demand-Driven Collection Development Model

Demand-driven acquisition places purchasing decisions in readers' hands, fully integrating collection development with user services. All three libraries employ this model. The University of York Library allocates acquisition funds to schools based on size and historical usage, with designated liaison librarians responsible for understanding and communicating needs to acquisition staff. The annual "More Books" campaign allows readers to select books online, with demand and relevance to existing collections determining purchasing decisions. This approach maximizes respect for user needs, truly making users the decision-makers in collection development.

The University of Leeds Library employs both internal and external approaches. Internally, similar to York, it works closely with academic departments through subject liaisons to ensure purchased resources meet academic needs. For e-books, it uses evidence-based principles, cross-referencing usage data from publishers and vendors to inform purchasing decisions. Externally, it adopts an "above campus" approach through regional cooperation to coordinate print re-

sources and address shortages of non-special collections due to budget constraints.

The University of Sheffield Library launched a demand-driven e-book acquisition model in 2018. In this model, reading lists and request lists are visible in the discovery system, with acquisitions triggered only when e-book content is accessed by students. This seamless integration ensures resource utilization.

2.2.2 Networked Construction of Teaching Reference Resources

The digitization and networking of teaching reference resources maximize their integration and utilization. Reading lists are common course bibliographies in UK universities. Libraries build the system platform, faculty provide textbook and reference lists for their courses, and subject librarians or catalogers match resources. Students can then access these lists upon logging into the platform.

All three libraries have established their own Reading List systems. York and Sheffield integrate their systems into the university's Virtual Learning Environment (VLE), significantly enhancing visibility and impact. Leeds places its Reading List prominently on the library homepage for easy access.

In content development, all three libraries emphasize resource classification. York categorizes resources as “essential” or “recommended”; Sheffield marks core resources; Leeds divides course lists into core texts, general texts, and key journal articles. This classification helps students quickly locate needed resources, saves time, and facilitates time management. Additionally, York requires faculty to specify edition information when submitting lists, avoiding confusion from version differences.

For resource updates, subject librarians contact academic departments 1-2 months before each semester ends to remind faculty to update course lists and initiate system support services. All three libraries provide targeted online and offline training for faculty and students, with detailed system guides and supplementary video materials available on their homepages. At York, faculty can schedule one-on-one training sessions online, and subject librarians can conduct departmental training. Leeds uses a self-built system with a joint consultation window with relevant departments. During the pandemic, Sheffield provided training to faculty through webinars.

2.2.3 Dual Approaches to Ensure Equitable Access to Popular Print Resources

Beyond digital resources, the three libraries employ dual strategies to promote orderly circulation and equitable access to print collections. First, they implement separate management for textbooks and teaching references. York and Leeds have established core book reading rooms and high-demand collection areas, primarily housing materials from Reading Lists, with loan periods of 4 hours and 1 day respectively [6]. Sheffield has a core book duplicate system, with green-labeled books that cannot be borrowed, ensuring at least one copy remains in the library [7].

Second, all three libraries have adjusted print book loan rules to dynamically adjust loan periods based on reservation demand. At York, when a borrowed book is reserved, the system dynamically adjusts its loan duration and sends recall notices. During non-vacation periods, faculty must return books within 7 days of notification, while students and external borrowers must return them within 3 days [8].

These measures enable libraries to implement demand-based resource scheduling, ensuring equitable access to popular resources, improving circulation efficiency, and significantly enhancing user satisfaction. York Library's user satisfaction increased from 70% in 2012 to 90% in 2013 after implementing flexible loan policies [9].

2.3 One-Stop Learning, Sharing, and Leisure Spaces White Rose University Consortium libraries view their facilities not merely as buildings but as integrations of architecture, resources, and technology. Based on sharing principles and centered on user needs, they have created one-stop “virtual + physical” learning spaces that support learning, communication, and knowledge sharing.

The University of York Library categorizes reading spaces into silent zones, quiet zones, and studious buzz areas based on different learning needs. Discussion areas are equipped with large screens, computers, whiteboards, and self-service printing, copying, and scanning facilities. Dedicated spaces and services are provided for disabled readers.

The University of Sheffield Library combines space, resources, and facilities to create information commons that include study seats, individual learning spaces, and group study rooms, equipped with course books and self-service facilities. Consultation and visit areas are staffed by professional librarians who provide services to students, creating a new platform for learning and exchange.

The University of Leeds Library continuously improves space facilities and types based on student needs. In the West Building's study pods, it has added power outlets on reading tables, individually controllable lighting, and USB ports. It has also created a Researcher Hub tailored for researchers and conducts related studies to improve space utilization and promote interdisciplinary communication.

Beyond physical spaces, creating collaborative virtual spaces is a continuous effort. York Library provides 24/7 virtual services directly to users' desktops, understanding their online learning needs and offering customized services. Leeds Library improves its discovery system's search functionality based on user research, integrating the LibKey tool in its portal for easier PDF access and consolidating different editions of the same title for citation tracking [10]. Sheffield Library has created an inclusive learning webpage for disabled users, integrating print and digital resources, accessible spaces, assistive software, and facilities, with online virtual tours and how-to guides.

2.4 Information Support Services Covering In-Class and Out-of-Class Activities The three libraries use information services as a medium to extend their reach from inside to outside the classroom, covering both teaching and research to form a complete service chain.

2.4.1 Embedded Information Literacy Instruction in Curriculum Systems

Unlike Chinese university libraries that typically offer separate literature retrieval courses, York, Leeds, and Sheffield libraries embed information and digital literacy instruction into corresponding courses.

York Library employs diverse teaching methods to enhance student engagement, including flipped classrooms, blended learning, Kahoot-based online quizzes, and online lectures. Embedded content is customized based on audience needs, covering subject resource overviews, literature search skills, spreadsheet basics, time management, critical thinking, and research data design and management.

Leeds Library provides Skills@Library services for faculty, assigning learning advisors to collaborate with instructors in analyzing needs, identifying required information skills for each course through targeted diagnostic services, and co-designing course content with joint instruction by faculty and subject librarians [11].

Sheffield Library offers various forms of embedded teaching for academic departments, including in-class lectures, seminars, and demonstrations [12], as well as online tutoring through its “Information Skills Resources” program. The library has developed an information and digital literacy framework covering six dimensions and three levels [13], integrating embeddable content including subject guides, the literacy framework, and online guides and videos, with operational steps and videos for embedding into VLEs.

2.4.2 Skills Tutoring Throughout the Learning Process

The three libraries extend support from pre-class to post-class, providing process-wide skills tutoring covering various assignment types.

Leeds Library’s skills tutoring covers all assignment stages: pre-assignment preparation, writing and revision, and post-assignment presentation, including assignment planning, essay writing, reference annotation, editing and proofreading, oral presentations, and poster displays (see Figure 1 [Figure 1: see original paper]).

Sheffield and York libraries not only develop students’ resource discovery, acquisition, and academic writing abilities but also emphasize integrated presentation skills using images, audio, video, and visualization, as well as online and offline poster and social media presentation capabilities (see Figure 2 [Figure 2: see original paper]).

2.5 Research Support Services Focused on Innovation Capacity Enhancement

White Rose University Consortium libraries emphasize exploratory and research-based learning, using resources and services to enhance students' research interest, capabilities, practical skills, employability, and innovation capacity.

In terms of service content, York Library provides solid and transferable skills covering research management and leadership, work-life balance, partnerships, collaboration and civic engagement, career development and employability, and public engagement and communication [14]. Leeds Library assists students with research needs in academic skills, thesis writing, research ethics, data protection, career development, funding acquisition, and publication [15]. Sheffield Library provides research support from three dimensions—planning, practice, and sharing—covering information resources, systematic reviews, research data management, copyright advice, citation management, open research, text and data mining, data visualization, heritage collections, academic publishing, open access, and data fairness [16].

In service delivery, all three libraries combine workshops and events. Workshops are typically small-scale (20-30 participants) to facilitate interaction. Sheffield Library collects and displays relevant industry activities on its homepage. Leeds Library offers a “Shut Up and Write” program addressing procrastination, using contextualized approaches to help participants understand and master coping techniques. York Library launched a Digital Creativity Week in 2019, where archivists, librarians, and students collaboratively explored special collections, learning image editing, audio/video editing, visualization, coding, app creation, and augmented reality skills to digitally present personal interpretations of collection materials.

In service methods, all three libraries embrace digital+, network+, and new media+ approaches. During COVID-19, they expanded virtual space services beyond physical boundaries, offering online services such as institutional repositories, MOOCs, webinars, online tutorials, and online consultations. York Library's MOOC “Becoming a Digital Citizen” has enrolled nearly 9,000 learners, with content adopted by other teaching programs. Leeds Library's MOOC “Critical Thinking at University: An Introduction” ranks among the top 100 free online resources and MOOCs.

2.6 Other Teaching Support Services To better support undergraduate teaching, the three libraries conduct needs assessments and provide support through specific services and research projects.

To help students cope with examinations, libraries offer personalized services. Leeds Library collaborates with the student union and student affairs department to offer mindfulness coloring projects for stress reduction. Sheffield Library introduces short exercise and stretching courses during exam periods to encourage healthy learning. York Library has established an Exam Papers database

providing electronic versions of past exam papers for various courses.

Sheffield Library integrates collection development with reading promotion through its Reading for Diversity project, which uses social media each month to feature specific themes (people of color, ethnic minorities, international authors) and invites students and staff to recommend related books to elevate the status and voice of underrepresented groups.

In 2020, due to the pandemic, many students could not study on campus. To recreate the library atmosphere, York Library launched the “Library Home From Home” project, integrating images of library areas, a virtual “feedback wall,” and nighttime sound collections from the main library [17], making the library’s ambiance constantly available to students.

3. Characteristics of Undergraduate Teaching Services in White Rose University Consortium Libraries

3.1 Balanced Development with Diversified and Comprehensive Infrastructure Resources and space serve as fundamental infrastructure ensuring effective service delivery. White Rose libraries adopt a dual approach: first, developing physical infrastructure including space and print resources, creating diverse physical spaces that integrate resources and facilities to foster collaborative innovation environments, continuously extending library semantics to make libraries not only learning and information centers but also experience, sharing, leisure, and development centers. Second, they develop digital infrastructure, focusing on standard digital resource discovery, virtual space creation, and using crowdsourcing for descriptive content of special collections. All three libraries have established comprehensive digital resource collections on their websites, with guides and manuals available online. During COVID-19, they intensified digital infrastructure development, using internet and cloud storage technologies, interlibrary loans, virtual learning environments, and cooperative agreements to expand online resource collections, providing 24/7 virtual services directly to users’ desktops to meet the demands of the fourth paradigm of data-intensive scientific research.

With information technology development and changing information environments, library infrastructure must balance physical resources and spaces with digital resources and virtual spaces. The COVID-19 pandemic, as a black swan event, has sounded an alarm for academic libraries, making digital resource standardization and discovery and digital ecosystem cultivation future priorities.

3.2 Demand-Driven, Flexible, and Precise Service Delivery Guided by demand-driven philosophy, White Rose libraries fully utilize information and network technologies to break through traditional interaction modes within library premises, engaging with users across broader temporal and spatial dimensions. They guide users to express explicit and implicit needs through multiple

channels, mine and understand these needs, match them with library service functions and capabilities, identify service entry points, and deliver flexible and precise solutions that align with and satisfy needs. York Library's flexible loan policy was introduced based on feedback-identified needs, through decomposing and identifying demands and repeatedly soliciting input from multiple user groups. Leeds Library identifies entry points in users' research lifecycles through collaboration and conversation with researchers. Sheffield Library's e-book acquisition seamlessly integrates into users' usage processes, where clicking represents the beginning of resource access without requiring separate recommendation forms.

These practices demonstrate that demand-driven services mean needs are real but hidden, requiring identification and redefinition. The resulting flexible and precise solutions represent optimal responses under fully understood preconditions. Achieving this virtuous cycle requires demand as the foundation, identification as the key, dialogue as the channel, collaboration as the driver, and technology as the guarantee. Demand-driven philosophy extends service reach to wherever needs exist, becoming a new ecosystem for library services.

3.3 Context-Integrated, Integrated, and Granular Service Dimensions

Embracing open and inclusive service philosophies, the three libraries have transformed their services from comprehensive but broad to comprehensive and detailed, achieving full coverage of teaching and research. They support faculty and student research needs based on teaching, forming complete service chains. From basic teaching and reference resource construction to core collection management, from embedded information literacy to skills tutoring covering the entire assignment process, from research ethics to research data management, from research collaboration to career development, their services are carefully designed to progress from basic to advanced levels. Breaking through physical space limitations, they integrate services into users' usage contexts, continuously expanding service coverage.

On the basis of comprehensive content, the libraries segment user groups, extract demand characteristics based on user feedback and data analysis, and establish scientific and reasonable user service frameworks to enhance service granularity. York and Sheffield libraries use project-based approaches to analyze information literacy needs of students from first to fourth year, providing targeted, course-embedded information literacy instruction at different levels to meet personalized needs with granular services.

Integration emphasizes comprehensiveness and integration, while granularity pursues personalization and customization. The three libraries demonstrate that customizing services based on points and lines, expanding dimensions across surfaces and volumes, integrating into usage contexts, and embedding into user environments will become a new paradigm for library services.

4. Implications for Domestic University Libraries

Since the 19th National Congress of the Communist Party of China, Chinese higher education has entered a new stage of connotative development, with comprehensive revitalization of undergraduate education at its core. University libraries, as vital support departments for teaching and research, must align their construction and development with the overall development of their institutions.

4.1 Upholding Undergraduate Education as the Foundation, Strengthening Service Philosophy

First, conceptually, libraries must strengthen the “undergraduate education as the foundation” service philosophy, deeply understanding current tasks and requirements of undergraduate education to identify connection points and alignment between undergraduate education and library services. The core university mission revolves around discipline construction and talent cultivation, with both being equally important. Service approaches should highlight new technology applications to meet needs of new teaching methods such as flipped classrooms, blended learning, and small-class instruction, stimulating student interest and potential. Surveys indicate that Chinese university libraries’ undergraduate teaching services suffer from low levels, lagging technology application, and tendencies to prioritize research over teaching [19]. Most services cannot meet all undergraduate teaching needs, focusing on basic rather than innovative work [20]. Service content and methods reflect service philosophy. University libraries must focus on institutional missions, understand and decompose main objectives, specific requirements, core tasks, key points, and weaknesses of their institutions’ undergraduate education, and redefine core functions based on learning and adaptation.

At the organizational level, libraries should reconstruct service and management systems centered on teaching support, strengthening communication and cooperation between institutions and departments to enhance cross-boundary integration capabilities. At the service system level, they should integrate learning resources and spatial resources based on literature assurance and user environment embedding to improve resource-service integration. At the technical level, they should fully utilize modern information technology to achieve deep integration between library services and modern IT, addressing service model innovation.

4.2 Optimizing and Improving Teaching Resource Allocation and Discovery to Promote Equitable Access

White Rose libraries meet faculty and student teaching resource needs through multiple approaches: demand-driven acquisition, integrating e-reference systems into teaching management platforms, establishing core resource reading rooms, providing subject guides, and creating exam paper databases, ensuring resource comprehensiveness, timeliness, and fairness.

For teaching resources, domestic university libraries primarily offer resource recommendations, e-reference services, online teaching platforms, reference reading rooms, and subject guides. The author surveyed the websites of 36 “Double First-Class” universities (Table 1):

Table 1. Teaching Resource Services in “Double First-Class” University Libraries

Service Type	Number of Institutions	Percentage
Resource recommendation	36	100.00%
E-reference platform	18	50.00%
Subject navigation	13	36.10%
Flexible loan periods	9	25.00%
Online teaching platform	8	22.22%
Reference reading room	6	16.67%
Exam paper database	0	0.00%

While libraries have achieved varying degrees of coverage, overall service coverage needs improvement. Resource recommendation achieves 100% coverage as a link between readers and libraries, but other services lag behind. Only 50% provide e-reference platforms, and even fewer offer subject navigation, flexible loans, online teaching platforms, or reference reading rooms. No libraries provide exam paper databases. In terms of service quality, most e-reference systems and online learning platforms function in isolation, with low integration with course selection systems and the overall teaching framework, except for a few universities like Shanghai Jiao Tong, Tsinghua, and Xiamen [21]. In 2015, 31 of 985 university libraries had built various subject service platforms, but by 2020, only 13 Double First-Class university libraries maintained such platforms. Some libraries provide subject navigation but only aggregate web resources without deep content mining [22].

With adequate funding—Double First-Class university libraries averaged 37.68 million RMB in resource procurement fees in 2019, with Sun Yat-sen University Library reaching 130 million RMB [23]—collection development should be discipline and undergraduate teaching goal-oriented. Libraries should conduct multi-channel investigations of course information, subject resources, and user needs, and comprehensively plan from basic knowledge, professional knowledge, and disciplinary frontiers perspectives. They should coordinate digital and print resources, supplement conventional resources with web resources, and develop both self-built and collaboratively-built resources, balancing systematicity and completeness, academic and practical value, independence and interdisciplinarity, and dynamism and novelty. They should strengthen discovery, analysis, integration, and visualization of print, digital, and hybrid collections to enhance resource visibility and usability, bringing collections to life. Through strengthened resource sharing, they should embed library collections into on-

line teaching platforms and integrate them into teaching systems to provide effective literature assurance and technical support for undergraduate education. Based on optimized resource acquisition and discovery, they should investigate needs, plan scientifically, and rationally layout borrowing systems and spaces to improve teaching resource utilization and promote equitable access.

4.3 Providing Supporting Services Embedded in User Environments with Social Objectives White Rose libraries attach great importance to integrating library resources by discipline or course, creating a multi-dimensional, three-dimensional support system that runs through the entire teaching process, embeds in user environments, operates both online and offline, and encompasses resource acquisition, mining, and evaluation, as well as communication skills, presentation abilities, critical thinking, multimedia knowledge, innovation, practical skills, and employment competencies. The core is cultivating, promoting, shaping, and developing people.

Chinese undergraduate education has long conducted research and practice on talent cultivation, yet society still perceives university students as lacking innovative consciousness and creative potential [24]. Developing competence through science represents a basic characteristic of modern university talent cultivation. Solid disciplinary foundations, broad perspectives, communication and practical skills, and scientific methodologies constitute essential competencies for university students, with interdisciplinary collaborative innovation representing an important pathway for cultivating innovative spirit and capacity. University libraries must adhere to a “student-centered” approach, helping students develop these abilities through diverse resources and services that become internalized as fundamental competencies through research and practice.

In recent years, Chinese university libraries have actively diversified services for undergraduate teaching, primarily focusing on reading promotion and information literacy services, with relatively fewer services directly supporting classroom teaching and limited involvement in new resources and services that promote undergraduate creativity, innovation, hands-on practice, and expanded thinking [1]. Libraries should not limit themselves to providing learning resources and spaces or improving learning abilities. According to undergraduate education needs and teaching cycle changes, they should adopt a “goals + embedded process + integrated resource service” philosophy to design service frameworks. With the cultivation goal of developing students with intellectual grounding, learning capacity, practical motivation, innovation vitality, employment strength, integration potential, and development drive, they should adhere to integrated resource-service philosophy, ensuring resources accompany services and services accompany resources. They should embed services into user environments for seamless, dynamic, and interactive integration, extending service reach wherever needs exist, continuously expanding scope, increasing quantity, improving quality, and innovating, transforming toward guaranteeing high-quality talent cultivation, ensuring abundant teaching resources, and ex-

tending educational functions.

4.4 User-Demand-Oriented Symbiotic Interaction Between Libraries and Users White Rose libraries use technological means to guide users in reasonably expressing explicit and implicit needs, accurately identifying and precisely matching them to find optimal service entry points. They continuously tap user potential, 赋予 users more roles, with students and faculty playing active parts as resource users, experiencers, and builders in areas such as embedded information literacy, loan rule adjustment, collection development, and learning space creation.

By contrast, Chinese university libraries have incomplete positioning of reader roles, conduct limited surveys of faculty and student needs, lack deep cooperation with teaching departments, have imperfect information feedback systems, and fail to organically integrate teaching reference resources with faculty and student needs, preventing the formation of a “readers as resource builders” philosophy and making it difficult to meet personalized needs [26].

In the information and big data era, library service scenarios for undergraduate education no longer confine themselves to physical spaces. Service environments, operational patterns, methods, and means have undergone profound changes toward ubiquitous service environments, integrated service patterns, multi-directional service channels, diversified service methods, and pluralistic service approaches. In this context, users are both service recipients and creators, with service subjects and objects continuously transforming. University libraries should strengthen a user-demand-oriented service philosophy, promoting two-way feedback between service providers and users to facilitate interconnectedness and symbiotic coexistence. Based on this symbiotic concept, they should optimize resource allocation from spatial, resource, service, and technological dimensions to ensure precise, professional, flexible, and personalized services that truly match needs and align services with teaching.

References

[1] Cai Yingchun. Innovative paths for university library services for first-class “undergraduate education”[J]. *Library Science Research*, 2020(19): 72-80.

[2] Huang Xiaobin, Yang Min. Practices and implications of world-class university libraries serving undergraduate teaching[J]. *Library Forum*, 2019, 39(7): 136-143.

[3] Huang Xingsheng. Development characteristics, trends, and implications of British higher education in recent years[J]. *World Education Information*, 2019, 32(7): 7-13.

[4] Library strategic plan[EB/OL]. [2020-08-14]. https://library.leeds.ac.uk/info/1605/strategy_{{and}}{{pol

- [5] Student learning and success[EB/OL]. [2020-07-23]. <http://librarysupport.group.shef.ac.uk/strategicplan/in-learning-and-success/>.
- [6] What can I borrow?[EB/OL]. [2020-07-23]. https://library.leeds.ac.uk/info/1201/borrow_{{{renew}}}{{{return}}}{return}
- [7] Guide to borrowing[EB/OL]. [2020-08-15]. <https://www.sheffield.ac.uk/library/services/borrow>.
- [8] Borrowing[EB/OL]. [2020-08-14]. <https://www.york.ac.uk/library/borrowing/#tab-4>.
- [9] Flexible loans[EB/OL]. [2020-08-15]. https://www.sconul.ac.uk/sites/default/files/documents/4_{12}.pdf.
- [10] Library strategic plan[EB/OL]. [2020-08-14]. https://library.leeds.ac.uk/info/1605/strategy_{{{and}}}{{{p}}}{and}{p}
- [11] Library support for your teaching online[EB/OL]. [2020-07-20]. <https://library.leeds.ac.uk/news/article/1000/library/114/library-support-for-your-teaching-online>.
- [12] Developing your students' research skills[EB/OL]. [2020-10-20]. <https://www.sheffield.ac.uk/library/teach/idl>.
- [13] Information and digital literacy framework[EB/OL]. [2020-12-20]. https://www.librarydevelopment.group.shef.ac.uk/idl_{framework}/idl_{framework}.pdf.
- [14] Research student training[EB/OL]. [2020-12-20]. <https://www.york.ac.uk/staff/research/training-forums/research-excellence-training-team/research-students/>.
- [15] Study and research support[EB/OL]. [2020-12-20]. <https://library.leeds.ac.uk/info/1407/workshops/126/st>
- [16] Information for researchers[EB/OL]. [2020-12-20]. <https://www.sheffield.ac.uk/library/research>.
- [17] Library home from home[EB/OL]. [2020-12-20]. <https://www.york.ac.uk/library/home-from-home/>.
- [18] Chinese Government Website. Ministry of Education releases “National Undergraduate Education Quality Report (2018)”[EB/OL]. [2020-12-10]. http://www.gov.cn/xinwen/2020-06/28/content_{5522305}.htm.
- [19] Chen Juntian. User satisfaction evaluation of university library services for undergraduate teaching[J]. *Library Science Research*, 2015(17): 66-71.
- [20] Xu Chun, Zhang Jing, Bian Zuwei. Research on current status and development strategies of university library teaching support services under the “Double First-Class” construction background[J]. *Library Research*, 2020, 50(4): 50-58.
- [21] Chen Ming, Ye Jiyuan. Progress and issues of electronic teaching reference services in university libraries[J]. *Journal of Academic Libraries*, 2017, 35(5): 66-73.
- [22] Xiao Ximing, Yin Yanli. Information resource construction in university libraries serving the “Double First-Class” initiative[J]. *Library Construction*, 2018(4): 79-84.

[23] 2019 University Library Basic Data Rankings[EB/OL]. [2020-12-21]. <http://www.scal.edu.cn/tjpg/202011160231>.

[24] Li Yanbao: How to position talent cultivation goals in universities under the “Double First-Class” background[EB/OL]. [2020-12-21]. <https://learning.sohu.com/20161210/n475495999.shtml>.

[25] Yang Fujin. Evolution of university library educational functions in the new era[J]. China Education Journal, 2015(S2): 266-267.

[26] Peng Rui, Wang Chunlan. Investigation and analysis of current status of local university library services for undergraduate teaching[J]. Library Science Journal, 2016, 38(11): 57-61.

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv — Machine translation. Verify with original.