

Enhancing the Effectiveness of Social Cooperation in Public Libraries from a Supply-Demand Optimization Perspective: A Case Study of Hangzhou Library (Postprint)

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Abstract

[Purpose/Significance] Exploring public library social cooperation models helps public libraries at all levels and types to optimize these models and enhance social cooperation effectiveness. [Method/Process] By extracting the implementation models of Hangzhou Library's social cooperation, analyzing its achievements and problems in supply-demand optimization, and exploring model selection for public library social cooperation from the perspective of optimizing supply and demand. [Results/Conclusion] Forming public library social cooperation models that include introducing diverse supply entities, transforming resource supply methods, stimulating users' cultural demands, adhering to cooperation demand orientation, and dynamically adjusting supply-demand balance, based on which several suggestions are proposed to further enhance public library social cooperation effectiveness.

Full Text

Optimizing Supply and Demand to Enhance Public Library Social Cooperation Efficiency: A Case Study of Hangzhou Library

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Abstract: [Purpose/Significance] Exploring social cooperation models for public libraries helps libraries at all levels optimize their cooperation strategies and enhance cooperation efficiency. [Method/Process] By refining the implementation models of Hangzhou Library's social cooperation and analyzing its achievements and problems in optimizing supply and demand, this paper discusses

model selection for public library social cooperation from a supply-demand optimization perspective. [Result/Conclusion] The study identifies five cooperation models: introducing diverse supply subjects, transforming resource supply methods, stimulating user cultural demand, adhering to demand-oriented cooperation, and dynamically adjusting supply-demand balance. Based on these findings, the paper proposes recommendations to further improve public library social cooperation efficiency.

Keywords: public library; social cooperation model; social cooperation efficiency; supply; demand

Introduction

The library cause is a social undertaking that cannot be accomplished by any single department alone; it requires the support of the entire society to thrive [1]. Professor Wang Zizhou argues that the surge of disadvantaged groups and insufficient supply of knowledge resources in China are the practical reasons for the rise of social forces in library establishment and assistance [2]. National policy provides clear guidance for social participation in public cultural development. Article 13 of the *Public Cultural Service Guarantee Law of the People's Republic of China*, implemented on March 1, 2017, stipulates that “the state encourages and supports citizens, legal persons, and other organizations to participate in public cultural services” [3]. The *Public Library Law of the People's Republic of China*, effective January 1, 2018, explicitly states that governments should actively mobilize or encourage social forces to participate in public library construction and public library service network development [4]. Against this backdrop of internal development needs and favorable policy support, public libraries across China have actively explored social cooperation models, yielding many successful cases. This paper examines Hangzhou Library as an example to discuss how optimizing supply and demand can enhance public library social cooperation efficiency, identifying several models for reference by libraries at all levels.

1. Related Concepts and Research

1.1 Public Library Social Cooperation

According to the Online Dictionary for Library and Information Science, library social cooperation refers to various forms of collaboration and co-construction between libraries and social institutions or individuals outside their own legal entities [5]. This paper adopts this definition, conceptualizing public library social cooperation as mutual collaboration between public libraries and other types of organizations.

1.2 Related Practice and Research

The new public management movement that emerged in the late 1970s propelled the development of public cultural services worldwide. The United States, United Kingdom, and Japan pioneered reforms in public library social operation mechanisms. The U.S. government encourages various cultural organizations to be self-sustaining, allowing market competition to determine participants and providers of public services while offering certain funding and support for public service projects [6]. The UK emphasizes decentralization and co-governance in public cultural service development, highlighting social participation [7]. Japan directly adopts delegated management systems and designated manager systems, outsourcing overall library operation management and services [8].

In China's public library social cooperation practice, many distinctive models have emerged. For example, Guangzhou Library leverages local economic conditions, using crowdfunding concepts to attract increasing numbers of “partners” to transform from a “government-run” public cultural service model to a “government-led + social participation” model for co-constructing and sharing libraries [9]. Chengdu Library utilizes its advantage as China's “Bookstore Capital” to cooperate with bookstores, primarily 致力于 enhancing equalized service capacity [10]. Hefei Library seized the opportunity of building a “Scholarly Hefei” cultural brand, and with strong government support, built over 20 urban reading spaces integrating reading, activities, exhibitions, and leisure through a “government-run, citizen-assisted” model in 2018 [11].

In theoretical research, current domestic studies on public library social cooperation primarily consider how to introduce social forces from the library's perspective to improve internal management mechanisms, expand business scope, and enrich service methods. Wang Zizhou analyzed social cooperation models for library establishment [2]. Sun Wenping and Chen Ya analyzed efficiency enhancement from the perspective of integrated development, examining cultural-tourism integration, library-museum integration, library-school integration, and “library + community” models [12]. Liu Jinjie et al. proposed strategies for reading promotion activities on new media platforms through social cooperation [13]. Studies examining public library social cooperation from resource supply and demand perspectives have mainly analyzed from single supply or demand viewpoints, lacking depth and comprehensiveness when addressing both sides. For instance, Wang Xiaoguang argued that cross-boundary cooperation paths should be explored based on libraries' own development needs, from resource construction and characteristic service integration perspectives [14]. Guo Bingying analyzed social cooperation governance models, emphasizing the need for public participation in public library social cooperation [15]. Liu Guangrong et al., based on Haken's synergetics theory, identified mutual benefits, user demand, and policy guarantees as driving forces for library social cooperation [16].

In summary, few studies specifically examine enhancing social cooperation ef-

efficiency from the perspective of optimizing both resource supply and demand. Given Hangzhou's status as a developed city leading in politics, economy, culture, and tourism, with residents having high demand for public cultural services, and considering Hangzhou Library's early adoption of social cooperation, studying its case is typical for model selection. Therefore, this paper combines the Hangzhou Library case to further refine and deepen the discussion on enhancing public library social cooperation efficiency from a supply-demand optimization perspective, providing operational cooperation models. The innovation of this study lies in: first, emphasizing demand-oriented project construction to avoid resource waste caused by supply-demand mismatch; second, proposing that social cooperation should combine long-term stable cooperation with flexible short-term cooperation to maximize social resource utilization.

2. Research Approach, Methods and Process

This study employs case analysis through field research at Hangzhou Library. A research outline was designed before fieldwork to enhance focus and efficiency. The outline covered library resource supply-demand background and social cooperation project details including names, objectives, cooperation methods, achievements, resource optimization, project sustainability, and existing problems. Data were collected through interviews with Hangzhou Library's Career Development Department staff, review of annual reports since 2008, and field investigations of all 28 thematic branches, 3 cooperative bookstores, and selected samples of 17 street (township) libraries, 5 Hangzhou Study Rooms, and 5 subway libraries. This comprehensive data collection enabled exploration and refinement of models for optimizing supply and demand to enhance public library social cooperation efficiency.

3. Hangzhou Library's Social Cooperation Model Selection

3.1 Typical Cases of Hangzhou Library Social Cooperation

With users' increasingly sophisticated cultural demands for convenience and quality in public cultural services, public library social cooperation can further expand service networks and improve service quality. Additionally, Hangzhou Library's annual book purchasing funds remain relatively stable while new paper documents added annually far exceed weeded documents. Without increased venue space, the original facilities' collection capacity has become saturated. Social cooperation to increase service outlets can divert resources from the central library, improving both user convenience and resource utilization. Furthermore, abundant online resources have affected circulation statistics and resource utilization. In this context, Hangzhou Library actively draws on domestic and international advanced experiences in public library social cooperation, promoting equalization, convenience, and differentiation of public library services through multiple cooperation pathways. Table 1 presents typical cases of Hangzhou Library's social cooperation, with data collected through December 31, 2020.

As shown in Table 1, Hangzhou Library's social cooperation approaches from both supply increase and demand stimulation perspectives. From the supply side, it increases social cooperation projects and shares partner resources to improve efficiency. From the demand side, it enhances user convenience, reduces borrowing costs, and allocates resources according to demand. When supply-demand mismatch occurs, it adopts a demand-guided supply adjustment model to restructure supply resources.

3.2 Public Library Social Cooperation Models

Analysis of Hangzhou Library's cases reveals five cooperation models for promoting basic service equalization and specialized differentiated services:

3.2.1 Introducing Diverse Supply Subjects This model introduces various resource supply subjects to increase supply through social resource sharing. First, it introduces service supply subjects spatially to enhance space resource supply, such as cooperating to establish street (township) library branches and urban study rooms that provide basic services by sharing both parties' advantageous resources. Second, it introduces service supply subjects in terms of resources to both fill supply gaps and enhance specialized service supply levels to meet differentiated demands. For example, Hangzhou Library's Braille Branch fills the service gap for visually impaired users; environmental protection, chess academy, and nature branches fill thematic resource supply gaps while providing professional platforms for enthusiasts to interact; cooperating with professional organizations to hold specialized user activities enhances activity professionalism. Additionally, cooperating with archives, digital processing, and technical support units builds digital libraries and improves digital resource supply levels.

3.2.2 Transforming Resource Supply Methods This model changes traditional supply approaches to improve efficiency. Specific measures include cooperating with street (township) governments to build branches in residential neighborhoods, expanding service networks, reducing user travel costs, and saving borrowing time. Hangzhou Library's express delivery service allows users to borrow and return books through postal courier. These initiatives stimulate residents' reading enthusiasm, increasing demand to enhance social cooperation efficiency.

3.2.3 Stimulating User Cultural Demand From the perspectives of improving service convenience and reducing usage costs, Hangzhou Library stimulates user demand through citizen card borrowing, credit borrowing, express borrowing, bookstore borrowing, and subway libraries in cooperation with citizen card companies, postal services, bookstores, and subway companies. These convenient services expand user demand resources and improve service accessibility.

3.2.4 Adhering to Cooperation Demand Orientation This model optimizes resource allocation based on demand. By analyzing service demands of regional user groups and understanding demand differences across areas, Hangzhou Library allocates resources accordingly, selecting branch locations and thematic branch topics to match supply with demand, thereby improving resource utilization. For branches in areas with many elderly residents, resources catering to seniors' needs are prioritized; areas with high-tech enterprises are suitable for technology-themed branches; themes with large collections and high user demand are selected for thematic branches. For commercial partners providing services beyond public library functions, reasonable fees are allowed to meet residents' personalized needs. For instance, the Sports Branch can charge for additional sports project experiences beyond providing sports literature and activities, while the Tea Culture Thematic Branch can offer paid tea services beyond basic differentiated services.

3.2.5 Dynamically Adjusting Supply-Demand Balance This model maximizes social cooperation benefits by balancing supply and demand. Hangzhou Library conducts data analysis on thematic branch effectiveness for timely adjustment, fine-tuning, or termination. Additionally, the “bookstore borrowing” program addresses supply-demand mismatch by adjusting borrowing quantities for specific book types based on bookstore and circulation feedback.

4. Hangzhou Library's Practice: Achievements and Problems in Optimizing Supply and Demand

4.1 Achievements

4.1.1 Improved Input-Output Ratio and Continuously Enhanced Service Benefits Through diversified social cooperation pathways, Hangzhou Library effectively compensated for deficiencies in venues, facilities, and personnel, improving operational efficiency. Without significant increases in financial investment, the library improved its local service system network layout, increased literature utilization, expanded cultural activities, and enhanced service benefits, effectively improving the government's input-output ratio for public libraries. Due to COVID-19 impacts in 2020, service data fluctuated significantly and lacked comparability; therefore, 2008 and 2019 data are compared in Table 2 .

As shown in Table 2 , over the decade, Hangzhou Library's annual literature purchasing funds grew very limitedly, and total annual fiscal investment increased modestly except for inflation factors. However, activity sessions and participation growth rates far exceeded government funding growth rates. Circulation and borrowing growth rates were relatively modest due to objective impacts from online and digital resources. According to digital resource service surveys, Hangzhou Library's digital resource visits increased from 5.6932 million

in 2011 to 19.679 million in 2019, a growth rate of 245.7%. This confirms that Hangzhou Library's significant service improvement, beyond tapping its own potential, critically depended on improving resource supply-demand conditions through social cooperation.

4.1.2 Expanded Service Space Promoting Equalization and Convenience of Public Services Through co-constructing branches, 173 street (township) libraries and 28 thematic branches spread across Hangzhou, complemented by express borrowing and bookstore borrowing services, greatly extending library service space and promoting equalization and convenience. This reduced public time and travel costs for accessing library resources, stimulating cultural demand growth.

4.1.3 Innovative Service Content Responding to Differentiated Cultural Demands Building upon initial achievements in “full coverage and equalization” of Hangzhou's public library service system, Hangzhou Library actively promoted thematic library projects through social cooperation. By December 2020, 28 thematic libraries had been established through social cooperation, covering Braille, Go, technology, poetry, music, tea culture, and other specialized services. These provide professional services and exchange platforms for in-depth thematic cultural development, meeting citizens' differentiated spiritual and cultural needs.

4.2 Problems

4.2.1 Dilution of Core Public Library Resources While increasing service supply subjects and total supply, rapid and continuous growth of cooperation projects and branches inevitably dilutes core resources such as professional staff and paper documents, potentially causing service quality decline. If overall user benefits are simply converted to the product of service quantity and quality, when quality decline exceeds quantity growth, overall user benefits decrease. In practice, some Hangzhou Library cooperation projects received minimal central support and had low attractiveness. Additionally, some highly specialized documents were diverted from central library circulation to meet thematic branch needs.

4.2.2 Lack of Long-term Stability of Social Cooperation Supply Subjects In library social cooperation, both parties' invested assets are clearly divided and difficult to change, and cooperative public product services require no distribution, resulting in weak interest integration that affects cooperation stability. Factors such as leadership changes, budget cuts, operational right changes, and enterprise dissolution affect long-term stability. Hangzhou Library has encountered such issues: Health Branch, Auto 4S Shop Branch, Seal Studies Branch, and Southern Song Dynasty Art Branch terminated cooperation contracts for various reasons, while Sports Branch faces uncertainty about

contract renewal as the partner's real estate project has sold out, undermining the win-win foundation.

4.2.3 Some Differentiated Services Failing to Meet Expected Effects

Some cooperation projects, due to location and publicity issues, limit the library's public attributes and differentiated service roles. For example, Hangzhou Library's Health Branch is located in the Jiangnan Health Culture Village within a health town core project, and the Environmental Protection Branch is located in Tianziling Vein Town—both remote locations resulting in few users and limited service radiation. The Seal Studies Thematic Branch project also terminated due to overly niche demand. Some thematic branches intended to provide higher-quality differentiated services for specific populations failed to attract expected user numbers initially due to insufficient targeted publicity. Additionally, while these specialized projects serve as beneficial supplements to comprehensive libraries, their highly targeted service objects require providers with high professional qualifications, creating gaps between staff services and user demands.

4.2.4 Difficulty Maintaining Consistent Alignment Between Cooperation Partners

Whether within or outside government systems, both parties have good cooperation intentions but different interests or goal pursuits, potentially causing goal conflicts during implementation. Some partners provide venues and personnel shared with their main business, creating priority conflicts. Some projects overemphasize commercial promotion, deviating from public service goals.

5. Recommendations for Further Optimizing Supply and Demand to Enhance Public Library Social Cooperation Efficiency

5.1 Build Reserves to Improve Cooperation Project Service Levels

If core public library resources are compared to the engine of social cooperation projects, as projects multiply and systems expand, engine power must increase through greater reserves in management, talent, literature, and other core resources. While actively seeking more government investment, internal potential must be tapped through training to improve management and expand professional talent pools, statistical analysis for rational resource allocation, and establishing smooth feedback mechanisms to drive partner service improvements. Additionally, local advantageous resources can be integrated to increase reserves, such as Chengdu Library's use of its "Bookstore Capital" advantage to increase literature reserves through bookstore integration [12].

5.2 Adopt Flexible and Diverse Cooperation Models

Long-term cooperation projects should be primary, but flexible short-term cooperation is also effective. From partners' perspectives, some need stable cooperation to achieve long-term development goals; some seek cooperation for stage-specific objectives; some wish to participate through unique resources or sponsorships for one-time activities; others may simply want to leverage public welfare advertising effects. These motivations are all reasonable, and such partners are needed for expanding public service subjects. Reasonable fees should be allowed for commercial partners providing services beyond public library functions to ensure win-win outcomes.

5.3 Ensure Full Communication to Maximize Win-Win Cooperation

Before project implementation, public libraries should anticipate potential goal conflicts through research and clearly constrain library service bottom lines in cooperation agreements through full communication. Violations should be promptly addressed. For general conflicts, partners' interests should be respected to seek common ground while reserving differences, maximizing win-win cooperation. For "library + homestay" models with cultural-tourism integration characteristics, partners should be required to guarantee free basic cultural services while allowing reasonable charges for characteristic cultural services beyond basic services.

5.4 Conduct Demand-Oriented Cooperation to Meet User Needs

From a planning perspective, projects with large and urgent demand should be prioritized in construction sequence and site selection. Cooperation activities should focus on locally popular cultural events. Online and bookstore borrowing should consider improving user return convenience and reducing borrowing costs. For newly established projects, vigorous targeted publicity to specific user groups is crucial for integrating library services and resources into society and enabling projects to achieve effectiveness quickly. Additionally, during cooperation, user suggestions, opinions, appeals, and complaints should be prioritized to timely adjust supply structures and achieve supply-demand matching.

5.5 Analyze Effectiveness Through Scientific Evaluation of Overall Cooperation Benefits

Without evaluation, there are no standards, making scientific project effectiveness assessment crucial. Beyond evaluating individual projects against benchmarks, overall assessment of the public library service system with social cooperation participation is the ultimate measure of success. Currently, few mature overall evaluation schemes exist. This study proposes using resource input-output analysis: using total effective library assets (all 账面 assets minus ineffective assets, excluding assets whose property rights remain with partners,

with depreciation for long-unborrowed eliminated documents) as total input indicators, and using system-wide user visits, borrowing volumes, and activity participation as total output indicators. Comparing ratios of total input to total output across different years or libraries enables vertical and horizontal comparison after incorporating social cooperation elements, revealing problems and adjusting cooperation directions timely.

To improve efficiency and reduce costs, market mechanisms or external forces can be employed. For example, offline “You Select, I Purchase” bookstore cooperation projects can introduce online bookstore partners through bidding mechanisms to break single-partner limitations, such as Zhejiang Library’s “U-Book” Express [18]. Market operations can also solve single-source investment problems. Credit borrowing projects should introduce dishonesty feedback mechanisms to constrain user misconduct and improve efficiency.

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Research on Improving the Social Cooperation Efficiency of Public Libraries From the Perspective of Optimizing Supply and Demand—Taking Hangzhou Library as an Example

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Abstract: [Purpose/significance] To explore the social cooperation model of public libraries is helpful for public libraries at all levels to optimize their social cooperation models and improve the efficiency of social cooperation. [Method/process] By refining the implementation model of Hangzhou Library's social cooperation, analyzing the effectiveness and problems of Hangzhou Library's social cooperation practice in optimizing supply and demand, this paper discusses the model selection of public library social cooperation from the perspective of optimizing supply and demand. [Result/conclusion] The paper forms five public library social cooperation models: introducing multiple supply subjects, changing resource supply methods, stimulating users' cultural needs, adhering to cooperative demand orientation, and dynamically adjusting the balance between supply and demand. Based on this, it puts forward several suggestions to further improve the efficiency of public library social

cooperation.

Keywords: public library; social cooperation model; social cooperation efficiency; supply; demand

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

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