Empirical Analysis of Reader Satisfaction in Urban Reading Spaces (Postprint)

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Date: 2023-04-01T16:16:00+00:00

Abstract

[Purpose/Significance] This study analyzes the current advantages and disadvantages of urban reading spaces from the perspective of users, aiming to provide effective references for the overall development of urban reading spaces in China. [Method/Process] The research analyzes the construction status of urban reading spaces and constructs an evaluation index system for reader satisfaction, which includes five categories of indicators: facilities and equipment, environment, resources, service, and staff. Hefei, the provincial capital with the largest number of urban reading spaces, was selected as the case study. An empirical investigation of urban reading spaces in Hefei was conducted through field visits and face-to-face questionnaire distribution and collection from readers, based on which rationalization proposals were put forward. [Results/Conclusion] Empirical analysis reveals that reader satisfaction with urban reading spaces, ranked from low to high, is as follows: resources, facilities and equipment, service, environment, and staff. By analyzing readers' satisfaction levels with each indicator and their internal composition, targeted optimization measures for the future development of urban reading spaces are proposed, including: broadening access channels for urban reading space resources, improving digital resource construction and accelerating resource update speed, emphasizing and installing emergency lighting facilities, and striking an appropriate balance between learning and entertainment facilities.

Full Text

An Empirical Analysis of Reader Satisfaction in Urban Reading Spaces

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Abstract:
[**Purpose/Significance**] This study analyzes the advantages and disadvantages of current urban reading spaces from the perspective of users, providing effective references for the overall development of urban reading spaces in China. [**Method/Process**] The study examines the construction status of urban reading spaces and constructs a reader satisfaction evaluation index system comprising five categories: facilities and equipment, environment, resources, services, and staff. Focusing on Hefei—the provincial capital with the largest number of urban reading spaces—the study conducted an empirical investigation through site visits and face-to-face questionnaire distribution and collection among readers in Hefei's urban reading spaces, offering reasonable recommendations. [**Result/Conclusion**] Empirical analysis reveals that reader satisfaction with urban reading spaces ranks from lowest to highest as follows: resources, facilities and equipment, services, environment, and staff. By analyzing reader satisfaction levels with each indicator and their internal components, targeted optimization measures are proposed for future development, including: broadening resource acquisition channels, improving digital resource construction and accelerating resource updates, emphasizing and adding emergency lighting installations, and finding the right balance between learning and entertainment facilities.

Keywords: urban reading space; reader satisfaction; index system construction
Classification Number: G258.2
DOI: 10.13266/j.issn.0252-3116.2020.17.009

In recent years, urban reading spaces have become increasingly visible in people's daily lives. Urban reading spaces refer to new types of reading venues that feature cross-boundary business combinations, basically complete facilities and equipment, unique design, elegant environment, and free borrowing services. These spaces have blossomed across Chinese cities, including Chengdu's "Urban Reading Space" [1], Beijing's new-type reading spaces [2], Yangzhou's "24-hour Urban Study Rooms" [3], and Hefei's "Yue Study Rooms" [4]. As this new carrier of public cultural services has emerged domestically, its manifestations vary across different cities and regions, but they all share characteristics of decentralization and uniqueness. Scholarly research on urban reading spaces falls into three main categories: (1) studies on overall development characteristics and conceptual definitions, (2) research on operational models, and (3) studies on social forces' participation in construction.

Regarding overall development and conceptual definitions, Li Guoxin (2016) considers urban reading spaces to be small libraries with basically complete functions, unique decoration design, and high digitalization levels [5]. Wang Zizhou (2017) views them as new public venues providing free access to books and periodicals, characterized by "cross-boundary combination" of entities and "business mixing" of service content [6]. Liu Yan (2017) defines urban public reading spaces as open public welfare venues providing knowledge services to

the public, featuring cross-boundary cooperation in investment and operation, and restructured service businesses [7].

Concerning operational models, Duan Jingyan (2018) identifies operational patterns including cooperation between public libraries and single entity bookstores, as well as independent operation by entity bookstores [8]. Yan Beini et al. (2019) examined the cooperation case between Hefei Library and "Paul's Pocket," analyzing the "library + bookstore" model and Hefei Public Library Alliance construction [9]. Zhang Bai (2019) noted that Chengdu's urban reading spaces are uniformly managed and assessed by Chengdu Library, with inter-library borrowing and returning services implemented across the city [10].

Regarding social forces' participation, Yang Song et al. (2015) identified government leadership with broad social participation as one path for constructing urban public reading spaces [11]. Lu Hejian et al. (2017) explored the paths and concepts of social forces' participation in community cultural services [12]. Li Yang (2018) analyzed how social forces participate in public library service provision [13].

Overall, previous research has primarily employed qualitative methods and empirical judgment, with very few quantitative studies. Moreover, current researchers tend to focus on the development characteristics and operational models of single or similar types of urban reading spaces, with scarce research examining key construction factors from the reader's perspective. Therefore, this study quantitatively analyzes reader satisfaction with urban reading spaces from the user's viewpoint, further enriching the overall research on this topic. The study selects Hefei's "Yue Study Room" urban reading spaces as a representative brand that offers valuable insights for urban reading space research [14]. In June 2017, the Hefei Municipal Government released the "Hefei Urban Reading Space Construction Implementation Plan" [15], and the assessment scheme implemented in January 2019 vigorously promoted construction. By July 2019, Hefei's government-led urban reading spaces had accumulated 1.573 million books, received 7.73 million visitors, and held 6,804 activities [16]. By October 2019, Hefei had built 80 urban reading spaces, ranking first among all provincial capitals nationwide [17]. Thus, using Hefei as a case study to explore reader satisfaction provides references for subsequent construction of urban reading spaces across the country.

2 Evaluation Index System for Reader Satisfaction in Urban Reading Spaces

Urban reading spaces increasingly serve as extensions of public library services, attracting readers through diverse services, strategic locations, and exquisite decoration. As their numbers increase, reader satisfaction has drawn widespread social attention. Reader satisfaction with urban reading spaces refers to readers' evaluation of facilities, environment, resources, services, and staff. Drawing on the LibQUAL+™ model—a highly reliable library reader satisfaction survey

model [18] covering five dimensions (library facilities, environment, collections, service effectiveness, and librarians) [19]—this study constructs an evaluation index system for urban reading space reader satisfaction, including: facilities and equipment, environment, resources, services, and staff. Specific indicators under each dimension were developed based on relevant research and current conditions, as detailed in Table 1 .

3 Data Analysis of Reader Satisfaction in Urban Reading Spaces

The questionnaire targeted readers who spent over 10 minutes in Hefei's "Yue Study Room" urban reading spaces, using face-to-face distribution and real-time collection. Staff also assisted in distribution, allowing immediate communication to resolve questions, thereby improving efficiency and quality while shortening collection time. The survey covered most urban reading spaces in Hefei from June 1-30, 2019, with data compilation and analysis conducted July 1-September 1, 2019. The Likert five-point scale was employed, with SPSS 25.0 used for analysis. A total of 450 questionnaires were distributed, with 439 returned and 399 validated (90.9% validity rate). The 40 invalid questionnaires involved omissions or uniform responses. Given the massive reader base, even a small sampling proportion can reflect satisfaction levels [48].

3.1 Reliability and Validity Testing

Reliability analysis examines questionnaire consistency. Table 2 shows Cronbach's Alpha values for all satisfaction indicators exceed 0.8, with overall reliability at 0.974, indicating high reliability. Validity analysis examines questionnaire effectiveness. The KMO value is 0.970 with significance at 0.000, suggesting strong suitability for factor analysis.

3.2 Descriptive Analysis

Descriptive analysis organizes basic data characteristics. Table 3 reveals that readers are predominantly female (152 male), aged 19-39, with high school education or below being most common and doctoral degrees rare. Most readers live within 1 km, indicating these spaces primarily serve nearby residents. Reading duration is mostly 1-2 hours, with the highest visit frequency being once weekly, suggesting moderate engagement.

3.3 Factor Analysis

Factor analysis aims to simplify complexity by selecting representative items [49]. With KMO at 0.970 and Sig at 0.000, the data are highly suitable for factor analysis. Table 4 shows total variance explanation using principal component analysis, with rotated loadings cumulatively explaining 71.012% of variance, indicating five factors adequately reflect overall satisfaction.

The five factors correspond to the index system: staff, resources, services, environment, and facilities/equipment. Staff accounts for 22.465% of variance, resources 14.636%, services 12.513%, environment 11.666%, and facilities/equipment 9.731%, indicating highest satisfaction with staff and lowest with facilities/equipment.

Table 5 presents the rotated component matrix, showing each satisfaction item's composition and factor loading. Items with loadings >0.6 were selected as representative. Staff includes 10 items such as communication timeliness and service attitude. Resources includes 7 items such as content richness and digital resources. Services includes 5 items such as art training and creative activities. Environment includes 4 items such as distance to commercial and dining areas. Facilities/equipment includes 5 items such as charging facilities and network settings.

Table 6 integrates factor loadings, Likert score means, and standard deviations. Standard deviation reflects evaluation consistency—lower values indicate greater consensus. For example, in facilities/equipment, learning facilities show low standard deviation (0.889) and high mean (4.29), indicating broad satisfaction. In environment, distance to residential areas shows standard deviation of 0.925 and mean of 4.32, indicating consistent approval of location proximity.

Factor loading normalization weights represent relative importance. For facilities/equipment, total loading is 3.206; dividing each item's loading by this sum yields normalized weights (0.231, 0.202, 0.188, 0.187, 0.192). Similar calculations produce all normalized weights in Table 6.

Satisfaction scores are calculated using weighted averages. For facilities/equipment, charging facilities scored 3.90 with weight 0.231, yielding a satisfaction value of 0.901. Other items follow similarly. The lowest dimension total is resources (3.984), while staff scores highest (4.345), indicating highest satisfaction with personnel. All dimension totals exceed 3.5, approaching 4, showing overall satisfaction.

3.4 Correlation Analysis

Correlation analysis examines relationships between the five indicators and overall satisfaction. Table 7 shows all correlations are positive and significant at the 0.01 level. Overall satisfaction correlates highest with staff (0.868), followed by services (0.854), environment (0.838), facilities/equipment (0.788), and resources (0.759). Despite resources being the second principal component, its correlation with overall satisfaction is lowest, suggesting readers perceive less differentiation in resources across spaces.

Inter-indicator correlations are also positive, with a minimum of 0.652, all significant at 0.01, indicating mutual positive influence. Services and staff show the strongest correlation (0.849), suggesting readers view them as inseparable.

4 Strategies for Improving Reader Satisfaction

Based on data analysis, this section proposes targeted strategies. Table 6 shows dimension totals and item-level satisfaction values, while Table 7's correlations validate these findings. Strategies are ordered by satisfaction values from low to high, addressing weaker areas to enhance overall service quality. Although data derive from Hefei, these recommendations apply nationally.

4.1 Resource-Related Strategies

Resources show the lowest satisfaction total (3.984). While content richness scores moderately higher, resource acquisition diversity (0.565), digital resource types (0.559), and update speed (0.502) score lowest. The correlation with overall satisfaction (0.759) is also lowest.

(1) Broaden resource acquisition channels. Resources include physical collections accessible through two channels: in-space browsing and external access via WeChat public accounts and reader groups. External channels are limited. Urban reading spaces should establish official websites detailing collections, borrowing status, and holdings, and develop Weibo platforms to broaden access.

(2) Improve digital resource construction and accelerate updates. Digital resources include e-books and e-journals. While rapid improvement is challenging, spaces can cooperate with public libraries to share digital resources while building their own systems. They should also utilize big data analytics to identify reader preferences and provide targeted collections, accelerating updates for both physical and digital resources.

4.2 Facilities and Equipment Strategies

Facilities/equipment show low satisfaction (4.086). Charging facilities and network settings score higher, while emergency lighting (0.802) and entertainment facilities (0.760) score lowest. Correlation with overall satisfaction (0.788) is relatively low.

(1) Emphasize and install emergency lighting. Low satisfaction requires action: install comprehensive emergency lighting covering entire spaces, and ensure equipment is visible in public areas to enhance reader security awareness. This also suggests adding other emergency facilities.

(2) Balance learning and entertainment facilities. Entertainment facilities scored lowest. As "third spaces" supplementing public libraries, urban reading spaces combine leisure and culture. Improvements should: (a) distinguish between "entertainment development" and "excessive entertainment" [53], ensuring activities prioritize knowledge transmission over pure entertainment; (b) physically separate entertainment and learning facilities using soundproofing, floors, or spatial divisions to prevent mutual interference.

4.3 Service-Related Strategies

Services show moderate satisfaction (4.113). Art training and creative activities score higher, while life lectures (0.796) and knowledge competitions (0.747) score lower. Correlation with overall satisfaction (0.854) is moderate.

(1) Enrich life lecture content. Low satisfaction partly reflects age structure—few middle-aged and elderly readers attend, and lecture topics may not suit all ages. Spaces should expand topics to engage diverse age groups.

(2) Jointly organize competitive activities. Knowledge competitions suffer from limited participation due to small reader pools. Multiple spaces should collaborate to expand coverage and create a joint activity atmosphere, combining prize incentives to encourage participation and enhance practical skills.

4.4 Environment-Related Strategies

Environment shows higher satisfaction (4.226). Proximity to dining and commercial areas scores well, while transportation convenience (0.992) and residential distance (0.985) score lower. Correlation with overall satisfaction (0.838) is relatively high.

(1) Ensure reader mobility. Location should prioritize transportation access near bus stops, subway exits, or landmarks. Public transport locations offer high foot traffic and affordability. Spaces hidden within residential complexes or shared buildings without clear signage increase search difficulty.

(2) Scientific site selection and construction. While proximity to residences reduces travel costs, spaces should not be located deep within residential areas, which inconvenience external readers. For example, Hefei's Qingxiu Book City is located underground within a residential complex, accessible only via internal paths. Site selection should balance residential proximity, public transport access, and distance to dining/commercial areas to maximize cultural 辐射 (radiating) effects.

4.5 Staff-Related Strategies

Staff show highest satisfaction (4.345). Communication timeliness and language accuracy score well, while work form novelty (0.379) and service efficiency (0.355) need improvement. Correlation with overall satisfaction (0.868) is highest.

(1) Enhance work form novelty. Staff should not wait at service desks but actively engage readers, guiding reading and recording feedback. Spaces could divide staff into two groups: one for routine desk service, another for active floor engagement demonstrating self-service functions. Recruitment should consider personality traits.

(2) Improve service efficiency. This requires simplified regulations that are reader-friendly and executable, plus enhanced staff professionalism through

training in space knowledge, shelving, etc., with assessments to provide feedback and improve capabilities.

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Author Contributions:

Yan Beini: Conceived the research framework, designed the questionnaire, and revised the manuscript.

Liu Qingqing: Collected and compiled questionnaire data and drafted the manuscript.

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