Postprint Analysis of Questionnaire Survey Method Articles in Library Science Journals, 2017

Authors: Xu Jianhua, Lu Jinyi, Wang Hanqing

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Abstract

[Purpose/Significance] Questionnaire survey method has been relatively widely used in the field of library science, but its specific implementation remains controversial. This study aims to provide a comprehensive understanding of the state of research employing questionnaire survey method in library science in 2017.

[Method/Process] This study conducted a systematic review of 143 articles published in 2017 across 11 library science core journals indexed by CSSCI (including "Library and Information Service" and "Library and Information Science Knowledge") that utilized questionnaire survey method as the primary research approach. The analysis focused on survey subjects, research topics, sample sizes, effective response rates, demographic characteristics, funding status, standardization of questionnaire design and administration, and the employment of data analysis methods.

[Results/Conclusion] The findings reveal that despite the relatively widespread application of questionnaire survey method in library science, numerous issues persist in its utilization, particularly in the reporting of questionnaire-based research. These include: homogeneous research subjects and concentrated research topics; scarcity of large-sample questionnaire surveys; significantly higher standardization levels in scale-based articles compared to questionnaire-based ones; absence of pre-testing and neglect of sampling methods; insufficient attention to reliability and validity testing; and limited variety in data analysis methods with a lack of in-depth data exploration.

Full Text

Preamble

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Analysis of Questionnaire Survey Articles in Library Science Journals in 2017

Xu Jianhua, Lu Jinyi, Wang Hanqing
Department of Information Resource Management, Nankai University Business School, Tianjin 300071

Abstract

[**Purpose/Significance**] The questionnaire survey method has been relatively widely used in the field of library science, but the specific implementation remains controversial. This study aims to provide a comprehensive understanding of the status of questionnaire-based research in library science in 2017. [**Method/Process**] We reviewed 143 articles published in 2017 across 11 library science core journals indexed by CSSCI, including *Library and Information Service* and *Library and Information Knowledge*. These articles, which employed questionnaire surveys as their primary research method, were analyzed in terms of survey objects, research themes, sample size, effective response rate, demographic characteristics, funding status, standardization of questionnaire design and implementation, and data analysis methods using SPSS 22.0. [**Result/Conclusion**] The survey revealed that while questionnaire surveys are commonly applied in library science, significant problems persist in their use, particularly in article writing. These include relatively homogeneous research subjects and concentrated research themes; a scarcity of large-sample surveys; substantially higher standardization in scale-based articles compared to questionnaire-based articles; absence of pre-testing and neglect of sampling methods; insufficient attention to reliability and validity testing; and relatively monotonous data analysis methods lacking in-depth data mining.

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2. Detailed Analysis of 2017 Questionnaire Survey Articles

2.1 Publication Status in 11 Core Journals

In 2017, the 11 library science core journals published a total of 1,967 articles, of which 143 used questionnaire surveys as the primary research method. *Library and Information Service* published the most questionnaire-based articles (51), followed by *Library Tribune* and *Library*. In terms of proportion, questionnaire survey articles accounted for 7.27% of all articles published in these 11 journals. *Library and Information Service* had the highest proportion at 10.49%, with *Library and Information Knowledge* and *Library Tribune* following at 9.30%

and 9.13%, respectively. The proportions in *National Library Journal*, *Information and Documentation Services*, and *Journal of Library Science in China* all exceeded 8%. Furthermore, data from 2014-2017 show a year-by-year upward trend in the proportion of questionnaire survey articles, indicating increasing recognition of this method among library science journals .

2.2 Survey Object Analysis

Survey objects in library science questionnaire research typically include five categories: general public, university faculty and students, library practitioners, researchers, and government/enterprise personnel, with others classified as "miscellaneous." In 2017, articles targeting the general public accounted for 49% of all questionnaire survey articles, followed by those targeting university faculty and students at 26.6%. Articles targeting researchers and government/enterprise personnel were relatively few, with 11 and 2 articles respectively. Longitudinal data from 2014-2017 reveal that the proportion of articles targeting the general public and library practitioners increased annually, while those targeting university faculty and students decreased. Articles targeting researchers and government/enterprise personnel showed unstable proportions but remained consistently low overall .

2.3 Research Theme Analysis

Based on analysis of recent library science questionnaire research, we identified seven major research themes: user information behavior, satisfaction or needs, library utilization and management, psychological cognition, library science education and research, government and enterprise information management, and others. In 2017, articles on "user information behavior" and "satisfaction or needs" were most numerous, followed by "library utilization and management." Themes such as "psychological cognition," "library science education," and "government and enterprise information management" were relatively underrepresented . Compared with the previous three years, articles on "satisfaction or needs" increased substantially in 2017, while those on "user information behavior" decreased relatively.

2.4 Sample Size Analysis

Sample size significantly determines the scientific rigor and reliability of data analysis, particularly the effective sample size. Among the 143 questionnaire survey articles, 141 reported effective sample sizes. As shown in [Figure 1: see original paper] and , most articles (103) had sample sizes between 0-500; 22 articles had 500-1,000 samples; and only 16 articles exceeded 1,000 samples. Sample sizes ranged from 5 to 7,134, with a mean of 583.38, indicating that large-sample surveys remain rare in library science research.

2.5 Effective Response Rate and Questionnaire Format Analysis

Questionnaire surveys rarely achieve 100% effective response rates, which typically measure sample representativeness—higher rates generally indicate less bias [2]. Analysis of 2017 articles shows that most had effective response rates above 70%, with only a small portion below this threshold, demonstrating generally high response rates in library science questionnaire research [Figure 2: see original paper]. Regarding format, 78 articles specified their distribution method: 25 used paper questionnaires, 27 used electronic questionnaires, and 26 used a combination of both, showing relatively even distribution. Paper questionnaires were typically distributed on-site during field research, while electronic questionnaires were mostly distributed via platforms like Wenjuanxing through email, QQ groups, or WeChat groups using links .

2.6 Demographic Characteristics Analysis

Demographic characteristics are essential questionnaire items and frequently analyzed factors. Among the 143 articles, 95 described demographic characteristics [Figure 3: see original paper]. Nearly 30 articles included four demographic items (the highest proportion), while 19 included three items and 17 included five items. The most frequently mentioned characteristics were “gender” (90 times) and “age” (73 times). Education-related characteristics, including “education level,” “educational attainment,” and “educational background,” were mentioned 35, 28, and 11 times respectively.

2.7 Institutional Affiliation and Funding Analysis

Analysis of institutional affiliations shows that the College of Management at Jilin University published the most questionnaire survey articles (9), followed by the Department of Information Resource Management at Nankai University Business School and the School of Information Management at Sun Yat-sen University . In terms of funding, 120 of the 143 articles received project support: 43 were funded by National Social Science Foundation projects, 33 by provincial/municipal projects, and 24 by National Natural Science Foundation projects. Additional funding sources included Ministry of Education humanities and social science projects, university-level projects, central university basic research funds, and China Postdoctoral Science Foundation grants, indicating increasing recognition of questionnaire methods in library science research .

3. Questionnaire Design and Data Analysis

3.1 Standardization of Questionnaire Design and Implementation

All social science research methods require adherence to established standards. For questionnaire surveys, standardization is crucial during both design and implementation. To assess the standardization level in 2017 library science articles, we analyzed 143 articles using four indicators: pre-testing, reliability

testing, validity testing, and sampling methods. Since published articles rarely include the actual questionnaire and research design details are not the focus, we relied on descriptions of implementation processes.

Pre-testing is essential because initial questionnaire designs, typically theory-based, may contain flaws that are difficult for researchers to detect themselves. The most effective validation method is practical testing through pre-tests to identify and correct unreasonable items [3]. However, our analysis reveals low pre-testing rates: only 22% of questionnaire-based articles (11 of 50) and 40.9% of scale-based articles (38 of 93) reported conducting pre-tests .

Reliability and validity are critical indicators of questionnaire quality. Reliability refers to the consistency of measurements, while validity reflects the extent to which measurements capture the intended concepts, including face validity, criterion-related validity, construct validity, and content validity [2]. In 2017 articles, reliability testing was reported in 26% of questionnaire-based articles (13 of 50) and 71% of scale-based articles (66 of 93). Validity testing was reported in 24% of questionnaire-based articles (12 of 50) and 65.5% of scale-based articles (61 of 93), showing significantly higher standardization in scale-based articles .

Sampling involves selecting survey objects and significantly impacts sample representativeness. Methods include probability sampling (simple random, systematic, stratified) and non-probability sampling (convenience, purposive, quota, snowball). Only 4 questionnaire-based articles (8%) and 11 scale-based articles (11.8%) specified their sampling method—a notably low rate. Among the 15 articles that did mention sampling methods, 5 used random sampling, 6 used stratified sampling, 2 used purposive sampling, 2 used quota sampling, and 1 used snowball sampling (with one article using both stratified and quota sampling). The neglect of sampling methods can introduce errors, compromise representativeness, and limit generalizability. While some researchers may have used standardized procedures without reporting them, omission affects academic evaluation of the work [6].

3.2 Data Analysis Methods

Statistics are widely used in both natural and social sciences, with descriptive and inferential statistics being the two main phases [4]. Descriptive statistics involve data expression and organization (e.g., means, modes, medians, standard deviations, percentages, frequencies), while inferential statistics require rigorous mathematical theory and include hypothesis testing, ANOVA, correlation and regression analysis, non-parametric tests, and structural equation modeling.

Analysis of 2017 articles shows descriptive statistics were used far more frequently than inferential methods: 90% of questionnaire-based articles and 87.1% of scale-based articles used descriptive statistics . Among questionnaire-based articles, inferential method usage was low: hypothesis testing and structural equation modeling (2% each), ANOVA (4%), non-parametric tests (8%), correlation and regression analysis (10%), and other methods (24%). In contrast,

scale-based articles showed higher usage: hypothesis testing (49.5%), structural equation modeling (34.4%), correlation and regression analysis (25.8%), non-parametric tests (20.4%), ANOVA (11.8%), and other methods (18.3%). Compared with the previous three years, the number of articles using structural equation modeling increased substantially in 2017, indicating this has become a major trend in library science questionnaire research.

4. Discussion and Analysis

4.1 Homogeneous Research Subjects and Concentrated Research Themes

Our analysis reveals that nearly half of the 2017 questionnaire survey articles targeted the general public to investigate satisfaction, needs, information behavior, and library utilization. However, research from perspectives of library staff, institutional managers, researchers, and special populations remains limited, indicating relatively homogeneous subject selection. Regarding research themes, 2017 articles concentrated heavily on user information behavior, satisfaction/needs, and library utilization/management—all topics that have maintained high research popularity in recent years. While researchers should indeed focus on hot topics, they should also broaden their scope, expand research object ranges, discover new research areas, and enhance research value [5].

4.2 Scarcity of Large-Sample Surveys

Approximately 72% of 2017 questionnaire survey articles had sample sizes below 500, with only 11% exceeding 1,000 samples—and some of these represented duplicate surveys from the same study. Large-sample surveys remain rare. Sample size directly relates to sampling error, which affects survey efficiency. While sample size should be determined by specific survey circumstances including target population, budget, and acceptable error rate, it is not the sole indicator of research quality; rather, appropriate sampling methods that ensure representativeness are crucial.

4.3 Absence of Pre-Testing and Neglect of Sampling Methods

Regardless of how carefully researchers design questionnaires, errors are inevitable and certain to exist [2]. For example, items may be incomprehensible to respondents or ask unanswerable questions. Pre-testing is the most effective method to identify such errors, yet our survey found low pre-testing rates in 2017 articles. Pre-testing serves as a preventive measure; without it, problems discovered after formal distribution entail greater costs.

Researchers must engage in selective observation to generalize about unobserved populations, which involves choosing observation objects—sampling [2]. However, sampling is often the most neglected aspect of questionnaire implementation. The extremely low usage rate of sampling methods in 2017 articles can

introduce errors, compromise representativeness, and limit generalizability. Researchers should prefer methods that enhance representativeness; for instance, stratified sampling provides broader coverage than random or systematic sampling and is more suitable for library science research. While some researchers may have used standardized procedures without reporting them, such omissions affect academic evaluation [6].

4.4 Insufficient Attention to Reliability and Validity Testing

Reliability testing examines questionnaire consistency, while validity testing assesses whether the instrument measures the intended constructs. Both are essential conditions for ensuring data quality in questionnaire research and should be conducted before formal distribution, with items adjusted based on results to ensure persuasive data. Our findings show that scale-based articles demonstrated significantly higher standardization than questionnaire-based articles, not only in design and implementation indicators but also in data analysis methods.

4.5 Higher Standardization in Scale-Based Articles Than Questionnaire-Based Articles

Questionnaires are collections of questions designed to measure respondents' behaviors, attitudes, and values, using everyday language to express standardized measurement schemes [6]. Scales are tools that use numerical symbols to represent specific characteristics according to established rules. A questionnaire may contain one or multiple scales or none at all [7]. Both are measurement tools, yet our research reveals substantially higher standardization in scale-based articles across all indicators.

4.6 Monotonous Data Analysis Methods and Lack of In-Depth Data Mining

As shown in Table 9, descriptive statistical methods were used far more frequently than inferential methods in 2017 library science questionnaire articles. Description represents the first, most basic step in data analysis, conveying surface-level meanings including respondents' apparent cognitions and attitudes. To understand deeper meanings and analyze intrinsic relationships and differences among data, inferential statistical methods are necessary. Researchers should select the most appropriate statistical methods, standardize their application, and mine data for valuable conclusions. The predominance of descriptive over inferential statistics indicates missed opportunities for deeper insights.

In summary, while questionnaire surveys have achieved widespread use and development in library science, numerous problems persist, primarily due to researchers' insufficient understanding of questionnaire characteristics and the importance of standardized implementation. Researchers should approach questionnaires with seriousness, standardize every implementation step, and appropriately combine descriptive and inferential statistical methods to uncover data

内涵. Regardless of the research method employed, scholars should maintain reverence for methodology, respect its principles, and fully leverage its potential to achieve research value [8].

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Author Contributions

Xu Jianhua: Responsible for topic selection, later-stage writing, and revision.
Lu Jinyi: Responsible for initial drafting.
Wang Hanqing: Responsible for partial writing and later-stage revision.

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