INFRASTRUCTURE AND UTILISATION OF LIBRARY RESOURCES BY FACULTY MEMBERS AND RESEARCH SCHOLARS IN ARTS AND SCIENCE COLLEGES, AFFILIATED TO BHARATHIAR UNIVERSITY, COIMBATORE

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1. INTRODUCTION

Dr. S. R Ranganathan was the driving force behind the expansion of the Indian library system and the transition of Indian librarianship into the twentieth century. His 'Five Laws of Library Science' emphasised the use of library resources, paving the way for research on library use and user studies. Academic Libraries play a pivotal role in meeting the information needs of the user community. To meet the information needs of the academic community, libraries are acquiring documents in both print and non-print digital formats. All supported by appropriate library infrastructure facilities must be correctly organised to provide superior services to the user community. Well-planned library resources lead to improved access. Users are the ultimate beneficiaries and should be satisfied with the available resources. The library building is as important as the books it contains, and it is crucial to consider all factors before constructing a library building. Every college in India should have an attractive, spacious, well-equipped, and functional reading room and library with a balanced collection of books and periodicals. To gauge user satisfaction, user studies on library resources are periodically conducted in many colleges to understand the strengths and weaknesses of the library organisation. The present study on "Infrastructure and Utilisation of Library Resources by Faculty Members and Research Scholars in Arts and Science Colleges Affiliated to Bharathiar University, Coimbatore" draws inspiration from the monumental contributions of Dr. S.R. Ranganathan.

1.1 Higher Education System in India

India has one of the largest higher education systems in the world. The word "higher education" in the context of India refers to tertiary level education India's higher education ecosystem is composed of over 1000 universities and more than 42,000 colleges, all dedicated to delivering outstanding education. The institutions in India are furnished with state-of-the-art infrastructure, modern libraries, classrooms furnished with advanced facilities like smart class rooms, computers with laboratory, Wi-Fi-connectivity and so on modern accessories. This recognition testifies to India's emerging status as a renowned hub for higher education, attracting students from within the country and around the globe. The main authoritative entity at the tertiary level is the University Grants Commission (UGC), dedicated to maintaining high standards, providing recommendations to the government, and fostering collaboration between federal and state administrations. The National Education Policy (NEP) of 2020 aligns with this system's focus on holistic student development. The NEP is committed to fostering inclusive, technology-facilitated, cross-disciplinary learning experiences accessible to every student. The All India Survey on Higher Education (AISHE) report for the year 2020-2021 indicates that India hosts a total of 1,113 universities, inclusive of registered university-like establishments, in addition to 43,796 colleges and 11,296 independent institutions (Ministry of Education, 2021, p. 12). Notably, the count of universities has grown by 70, and colleges have seen an impressive rise of 1,453 since the previous year. This increase represents an impressive 46.4% surge of 353 universities from 2014-2015, with the total growing from 75 to 149. Moreover, the number of Institutes of National Importance (INIs) has nearly doubled, totalling 191 (Ministry of Education, 2021, p. 13). The higher education system in India has undergone a remarkable transformation, particularly in the post-independence era, and has emerged as one of the largest and most significant entities worldwide. These elements play an indispensable role in constructing a knowledge-driven society in the 21st century, ultimately influencing the trajectory of our nation.

1.2 Function of Libraries in Arts and Science Institutes

While academic libraries have a shared set of features and characteristics, their value and context can vary significantly depending on their specific setting. For instance, the libraries in arts and science colleges offer unique contributions, ranging from the development of collections to providing bibliographic access to all library materials and assisting in their interpretation for users. They also extend specific services like access to online resources and the development of new tools to improve information accessibility at local, regional, national, or

even international levels. The breadth and complexity of subjects studied and researched under the arts and science disciplines demand a library that can cater to academic as well as research needs in a context where users increasingly seek quality information. In recent times, arts and science colleges are witnessing changes on several fronts, such as modifications in course structure, rapid introduction of revised syllabi, and the shift to semester-based systems. These changes directly impact the libraries within these institutions, making continuous improvement an essential aspect of library management for overall development. Thus, it becomes crucial to study the resources, facilities, and services of these libraries, and to understand the influence of emerging ICT-based resources and services on college libraries.

1.3 Library Infrastructure Facilities (Building and Space Requirements)

Library infrastructure refers to the physical and technological systems that underpin the operation of library programs and services. This umbrella term includes, but is not limited to, computer networks, wireless equipment, computer hardware, software and peripherals, along with internet and intranet access. The relationship between a library and its infrastructure could be likened to the symbiosis between a body and its soul, where the library building serves as the body and the books within it represent the soul. Every Indian college should boast an inviting, spacious, well-equipped, and functional reading room coupled with a library housing a balanced collection of books and periodicals. In other words, the library should be a conducive space for research, reference, browsing, and leisure reading.

1.4 Utilisation of Library Resources

The first and the fundamental law of Library Science is "Books are for use" and the first library service is to integrate, resources and readers. The potentialities of resources become dynamic only when they are put to use. Anthony Alaribe aptly remarked, "Library resources are essentially sources of information." Traditionally, these resources predominantly comprised books, journals, newspapers, and encyclopaedias. With the advent of the internet, digital sources of information have gained prominence. These digital resources, can be classified as valuable library resources. By embracing digital platforms and expanding their collection to encompass diverse mediums, libraries can cater to the wide-ranging needs and preferences of faculty members and research scholars.

1.5 Need for the Study

The professional education users are varied and educational structure demands providing quick access to information by using the print as well non-print media which requires use of latest ICT and networking related technology. It has become necessary to manage with the changing environment by improving continuously, the tremendous impact of information technology explosion on libraries and changing expectations of users. So to meet the users requirements for access to information by using the best practices focusing on the service quality have become today's need, will help in identifying the user demands in the present era and status of infrastructure and utilisation in the libraries of selected 28 numbers of Arts and Science colleges affiliated to Bharathiar University, Coimbatore and will guide in gathering the future demands of library services.

1.6 Objectives of the Study

- To collect data on the demographic characteristics of the respondents.
- To analyse the usage of respondents with respect to library resources, such as frequency of visit, time spent in the library, and purpose of library visit.
- To determine the opinions of respondents on physical infrastructure and Information and Communication Technology (ICT) and their use.
- To determine the respondents opinion on the library collection and services.
- To apply the Friedman rank test to rank the variables appropriately.
- To elicit the opinions of respondents on their priorities for improving the library collections.

1.7 Hypotheses of the Study

- There is no significant relationship between the frequency of respondents' visits to the library and their demographic characteristics.
- There is no significant relationship between the opinions of the respondents on the purpose of library visits, (b) the availability and use of library collections (c) library services (d) problems faced in accessing information and their demographic characteristics.
- There is no significant difference between the opinions of faculty members and research scholars on the availability and use of infrastructure facilities.
- There is no significant difference between the opinions of faculty members and research scholars on the purpose of library visits, collections, services, and perceived problems.
- The Friedman test will be applied to determine if there is a significant difference between the mean ranks of the variables and opinion on the purpose of library visits.

II. REVIEW OF LITERATURE

A literature review, an essential component of any research undertaking, serves asa panoramic exploration of extant publications related to a particular subject or topic. It assists the researcher in structuring the study, identifying fresh perspectives, methodologies, techniques, and elucidating what has previously been explored. However, only a handfulof studies concentrate on the present research subject, "Infrastructure and Utilisation of Library Resources by Faculty Members and Research Scholars in Arts and ScienceColleges Affiliated to Bharathiar University, Coimbatore." The review thus provides insight into these existing examinations pertaining to the distinctive aspects of research scholars and faculty members, drawing from a wide range of national and international sources.

2.1 Collection of Literature

For this study, literature was amassed in the field of Infrastructure and Utilisation of Library Resources by Faculty Members and Research Scholars, specifically from academic institutions and Arts and Science Colleges. A diverse range of primary and secondary information sources were referenced in the review of literature. Vital sources for this study included library resources, Shodhganga, Inflibnet – Nlist, Google Scholar, Research Gate, and other digital sources.

III. RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design and Methods

This chapter deals with Research Design, Methodology, and Limitations of the study, Data collection, Statistical tools and techniques used in the study. A brief profile of 28 selected Arts and Science Colleges and Profile of Library Resources with ICT facilities available in their libraries affiliated to Bharathiar University, Coimbatore were studied. The method followed for the study is Random Sampling Technique were used, based on Questionnaire Collected primary data are useful tools in gathering descriptive data for answering the research questions and testing the hypotheses.

3.2 Limitations of the Study

The study was limited to only 28 arts and science colleges affiliated to Bharathiar University, Coimbatore, These colleges include those granted 2(f) and 12(B) status Autonomous, Non-Autonomous and Government Aided colleges that have been established for a period ranging from 12 to over 25 years. The respondents of the study comprised both faculty members and research scholars only. The data used for the study was collected the year between 2019-2020 and based on the conditions and circumstances that existed at that time.

3.3 Validity and Reliability of the Survey Instrument

The validity and reliability of the survey instrument were established through a pilot study conducted on a limited number of the sample. Any items in the questionnaire found to be ambiguous or otherwise inappropriate were revised in the final instrument. The reliability of the survey instrument was determined using the test coefficient, a commonly used method in statistics, which it is free from any systematic error.

3.4 Population and Sampling Techniques

A primary investigation into secondary information sources from Bharathiar University website provided a number of institutions offering Arts and Science programs. Through this research, it was identified that there are 28 Arts and Science Colleges, of which 11 are Autonomous, 11 are Non-Autonomous and 6 are Government Aided Self Financing Arts and Science Colleges in Coimbatore under Bharathiar University. A two-stage sampling process was used in the study. Faculty Members and Research Scholars (pursuing M.Phil. and Ph.D. programme) were selected from this pool by using Simple Random Sampling Technique. Secondary sources provided information about the details of these 28 Arts and Science Colleges.

3.5 Questionnaire Construction

The questionnaire for the study was personally created by the researcher. To ensure its validity and reliability, existing questionnaires from earlier and related studies ones with established credibility were carefully scrutinised. Their key elements were then integrated into the new questionnaire, although with necessary adjustments to align it with the context and objectives of the present study.

3.6 Data Collection

The researcher personally visited the selected 28 Colleges, after informing the librarians of the upcoming visit and requested their assistance for distributing the questionnaire to the faculty members and the research scholars in their college. Data collection was done through Google Form and email from the respondents who could not be personally reached.

3.7 Statistical Tools and Techniques used

The acquired data were organised, categorised, encoded, reviewed, and tabulated using Excel. The finalised, cleaned, and encoded data was then imported into the SPSS software for analysis. Both descriptive and inferential statistics were utilised. The reliability of the survey instrument was established by calculating Cronbach's Alpha. Tabulations, charts, and graphs were utilised to highlight key findings. Using SPSS, Statistical Tools analyses were conducted such as weighted Average Scores. Cross tabulation, Analysis of Variance, Chi-square test, t-tests, Friedman's Mean Rank test, and Factor analysis.

IV. DATA ANALYSIS AND INTERPRETATIONS

The purpose of the study was to identify the collection of resources, variety of services offered, infrastructure – both physical and digital mode library resources, information of communication technology, utilisation method of library resources by faculty and scholars of selected Arts and Science Colleges. Total of 550 questionnaires were distributed in person and by sending through Google Form to the respondents. After eliminating the incomplete questionnaires, 250 were selected from each category of respondents (faculty members and research scholars). This chapter presents a detailed investigation of their responses under different heads, such as Demographic factors, Library infrastructure, Utilisation of library resources, Library collection, Library services, Users' difficulties in accessing information, Views on quality improving aspects etc.

Table 4.1
Friedman Rank test
Respondents' Opinion on the Purpose of Library Visit

S. No	Variables	Faculty Members		Research Scholars	
		Friedman's Mean	Rank	Friedman's Mean	Rank
1	To borrow and return the books	7.29	3	10.77	3
2	To read Newspaper	8.91	1	11.56	2
3	To read National Journals	7.24	4	9.49	5
4	To read International Journal	6.45	7	9.18	7

5	To read National Magazine	6.72	5	9.88	4
6	To read International Magazine	6.16	8	9.18	8
7	Access e-resources	4.39	12	7.85	10
8	Internet Access	5.08	11	8.65	9
9	Photocopy of ref. Materials	5.66	9	7.50	11
10	For Teaching purpose	8.18	2	Not applicable	
11	For Research work	6.69	6	11.91	1
12	Publication work	5.23	10	9.49	6

The Freidman's Rank table reflects and confirms the conclusions from the weighted average analysis. It lists the rank of each variable and determines if the ranking differs across variables. The topmost priority for the purpose of the visit by the faculty members is given to "to read Newspapers" followed by "Teaching Purpose, to borrow and return the books and to read National Journals". The least priority is accorded to "access e- resources and internet access.

The topmost priority for the type of information sought by research scholars is given to "research work," followed by "to borrow and return books and to read newspapers". The least priority is according to information on "Photocopy of reference materials, and access e-resources" 7.50 and 9.18. The table helps to compare the views of faculty and research scholars at a glance.

Ho: There is no significant difference between mean ranks for variables and opinions on the purpose of library visits.

Table 4.2
Chi-Square test
Test of Association between Purpose of Library Visit and various Demographic factors
Faculty Members

Particulars	Calculated value	Df	p-value	S/NS	Remarks
Gender	22.321	4	.000 **	S	Rejected
Age	106.996	20	.000 * *	S	Rejected
Educational Qualification	17.295	8	.027**	S	Rejected
Teaching Experience	90.577	20	.000**	S	Rejected
Designation	28.812	12	.004**	S	Rejected

Research Scholars

Particulars	Calculated value	Df	p-value	S/NS	Remarks
Gender	5.454	4	.244	NS	Accepted
Age	31.953	20	.044**	S	Rejected
Educational Qualification	39.453	4	.000**	S	Rejected
Part-Time / Full Time	39.344	4	.000**	S	Rejected

*** P< 0.05   S-Significant   NS - Non Significant*

It is clear that if the p-value is less than 0.05, the null hypothesis is rejected at Five per cent level of significance. The faculty member table shows that the null hypothesis, "there is no significant relationship between demographic factors and purpose of library visit," is rejected in all the factors. Hence there is a significant relationship between personal factors and the purpose of library visits in all five characteristics.

The research scholar's table shows that the null hypothesis, "there is no significant relationship between personal factors and library visit," is rejected except for gender. Hence there is a significant association between the purpose of library visits and age, education and mode of study (part-time/full-time), except gender.

Table 4.3
Friedman Rank test
Respondents' Opinions on Library Infrastructure

The following table reveals the extent of agreement of the respondents about the library infrastructure.

S. No.	Variables	Faculty Members		Research Scholars	
		Friedman Mean	Rank	Friedman Mean	Rank
1	Space facilities	9.99	4	11.07	2
2	Seating arrangements	8.89	7	4.44	8

3	Environment (Cleanliness, Noise-free)	10.47	1	10.52	3
4	General facilities (Air,Light,Water, Ventilation)	6.34	9	4.39	13
5	Interior decoration	4.97	10	3.90	14
6	Accessibility	10.16	2	10.47	1
7	Books arrangements	9.79	6	9.35	6
8	Printing/ Spiral	4.12	12	6.28	10
9	Automation	10.03	3	9.62	5
10	Photocopier (Xerox)	4.76	11	7.36	9
11	Binding Lamination	3.88	14	4.57	12
12	Digital resources	9.85	5	9.77	4
13	WI-FI	7.85	8	8.53	7
14	CD Writing /Scanning	3.91	13	4.74	11

The faculty members and research scholars table lists the mean rank of each variable. The Friedman test determines if the average ranking differs across variables. The highest satisfaction of the faculty is given to Environment (cleanliness and noise-free), followed by "Accessibility, Space facilities, Automation, digital resources". In ranking the order of satisfaction concerning availability and use of infrastructure, Faculty members have given lower order to "CD Writing/Scanning and binding lamination."

In ranking the order of satisfaction with the availability and use of infrastructure, research scholars have given the following opinion: "Accessibility," "space facilities", "Environment (Cleanliness and noise-free")", Digital resources, Automation, Books arrangements, Wi-Fi, "seating arrangements" General facilities (air, light, water, and ventilation)" and Interior decoration 4.39 and 3.90.

Ho: There is no significant difference between mean ranks for variables and opinions on library infrastructure.

Table 4.4
Association between the Opinion on Library Collection and Faculty Members'
Demographic Characteristics

Gender

Gender and Library Collections	Calculated value	Df	p- value	S/Ns	Remarks
Books	3.715	4	.446	NS	Accepted
Periodicals	11.768	4	.019**	S	Rejected
Reference Materials	21.462	4	.000**	S	Rejected
Non-Book Materials	11.867	4	.456	NS	Accepted
Information and Communication Technology (ICT)	6.413	4	.170	NS	Accepted

** $P< 0.05$ S-Significant   NS - Non Significant

It is clear that the P-Value is less than 0.05; the null hypothesis is rejected at 5 per cent level of significance. The null hypothesis, "there is no significant relationship between gender and opinion on library collection," is accepted for Books, Non-book materials and ICT-based collections. Hence there is no significant relationship between gender and opinion on Books, Non-Book materials and ICT-based collections. The null hypothesis is rejected in the case of the other two variables, namely, Periodicals and Reference materials which show significance at 0.05 level.

4.1 Respondents' priority to improve quality of resources

The responses received from the respondents for priority areas to improve quality of collection were analyzed using Garret Ranking Technique Faculty members' priority areas to be improved to ensure quality of library collection ranked as per Garret ranking: e-journals and e-books; Online databases; Printed journals; Printed books and Theses and Dissertations, Research Scholars priorities: Printed books; Printed journal; e-journals and e-Books; Theses and Dissertations and Online Databases.

V. FINDINGS FROM DEMOGRAPHIC CHARACTERISTICS

5.1 Gender: Among the 250 Faculty members, 59.2% are men and 40.8% are women. Out of 250 Scholars, 38.8% are men, while 61.2% are women.

5.1.1 Age: 76.8% are below 40 years and 23.2% are above 40 years of age among the Faculty members. Among the Research scholars 94%— are below 40 years of age and the remaining 6% are above 40 years of age.

5.1.2 Educational Qualifications: Out of 250 Faculties, 74 (29.6%) have PG, 98 (39.2%) have (M.Phil.) and 78 (31.2%) have Ph.D. The majority of the respondents have completed M.Phil. 152 (60.8 %) Research Scholars have completed their PG, and the remaining 98 (39.2%) respondents are M.Phil. Scholars.

5.1.3 Designation: 41.6% of respondents are Assistant Professors, 14% are Associate Professors, 28.4% are Professors, and 16% are Directors or Principals.

5.1.4 Experience: Majority of the faculty members 59.6% have experience in the range of 3-10 years while 32.4% have experience.>10 years.

5.2 Frequency of Visit to the Library: Out of the 250 faculty members from various Arts and Science Colleges, 44.8% visit the library daily, 24.8% visit three times a week, 10.0% visit twice a week, and 20.4% visit once a week. In contrast, of the 250 research scholars, 9.2% visit daily, 19.6% visit three times a week, 19.6% visit twice a week, 49.2% visit once a week, and 2.8% (all female) visit as and when required.The Chi-square results show that factors such as gender, age, experience, and designation have a significant association withthe frequency of library visits by faculty members. There is no significant relation between educational qualification and frequency of visits. In the case of research scholars, the nullhypothesis is rejected concerning gender, age, educational qualification, and mode of study(part-time or full-time).

5.2.1 Time Spent: On average, 42% of faculty members spend one hour per day, 36.8% spend less than one hour, 12% spend two hours, 4% spend three hours, and 5.2% of respondents spendmore than four hours utilising the library. It is also observed that 28% of research scholars spend less than one hour, followed by 35.6% who spend one hour, 20.4% who spend two hours, 5.6% who spend three hours, and 10.4% of respondents who spend more than four hours in the library.

5.2.2 Library Timings: 96% faculty members and 92.8% research scholars find library timings suitable.

5.2.3 Other Library Visits: 52.8% faculty and 72.8% research scholars visit other libraries.

5.2.4 Using OPAC (Open Public Access Catalogue): Approximately 50.4% of faculty and around 46% of scholars use OPAC. Majority of respondents from faculty and research scholars find that it is easy to use OPAC.

5.3 Cronbach's Alpha: All constructs applied to both faculty members and research scholars achieved an excellent coefficient alpha value of 0.849 and 0.793 respectively, indicating the acceptable reliability of this part of the questionnaire.

5.3.1 Factors Influencing Opinions: Identified 4 main factors that shape how faculty and scholars feel about library infrastructure: Accessibility, space facilities, automation, digital library, book arrangement and seating arrangement follow in order with mean values of 4.14, 4.08, 4.07, 4.02, 4.02, and 3.83 respectively.

5.4 Library Collection: The Cronbach's alpha values of 0.899 and 0.839 for faculty members and research scholars respectively, indicate a high reliability of the instrument.

5.4.1 Overall Satisfaction of resources by Faculty and Scholars: Highly satisfied with books, periodicals, reference materials and online resources and less satisfied with collection of CD's.

5.4.2 Respondents' Use of Networks and Consortiums: The extent of utilisation of the services of networks and consortium by faculty and scholars is approximately the same for both groups. As revealed by the respondents, the mean values are 2.82, 2.53 and 2.21 for Delnet, Inflibnet and Consortium respectively.

5.5 Priority Suggestions:
    By Faculty Members: Based on findings the priority suggestions by the faculty members the following library resources
- Improve e-journals and e-books,
- Enhance online databases
- Increase printed journals
- Add more printed books
- Expand theses and dissertations

    By Research Scholars: Based on findings the priority suggestions by the research scholars the following library resources
- Add more printed books,
- Increase printed journals
- Improve e-journals and e-books
- Expand theses and dissertations
- Enhance online databases

VI. SUGGESTIONS

Based on the findings, the following suggestions and recommendations are made:
- Arts and Science College libraries should implement ICT facilities to the Faculty and Scholars with sufficient number of computers with latest technology and a Wi-Fi enabled campus for e-resources accessibility.
- Frequently conduct orientation programs for scholars and faculty members to increase awareness of academic study materials, online database and UGC/MHRD sponsored online resources such as Inflibnet Nlist, Delnet and National Digital Library.

- Librarians should create awareness on using open archives, open access publishing, article publishing and plagiarism detection software to the users.
- Library groups on social media platforms like Facebook, WhatsApp and email group activities should be encouraged and promoted.

VII. CONCLUSION

Academic libraries, while having unique characteristics, share common features, contributing significantly to the education provided by Arts and Science Colleges. This education system places higher demands on students and the curriculum necessitate looking beyond classrooms for the development of creative thinking and leadership qualities. At present, Arts and Science Colleges face changes on several fronts, including course structure alterations, introduction of revised syllabus, New Education policy etc., these changes directly impact the libraries within these institutions, necessitating the development of collections, the provision of Infrastructure and utilisation of library resources access to all library materials, and interpreting for all users. In this study is in response to these changes, continuous improvement has become necessary for these institutional libraries, as they must adapt to new management techniques for overall development and will assist library professionals in planning their future activities. Therefore, the resources, facilities and services of these libraries, as well as the impact of emerging ICT-based resources and services on the libraries, need to be studied periodically. This will contribute significantly to the development of the academic community.

VIII. SCOPE FOR FURTHER RESEARCH

The present study is restricted to 28 Arts and science colleges affiliated to Bharathiar University, Coimbatore only. Further the scope can be extended to Engineering, Medical, and other areas of education across various districts to get a broader perspective. More factors can be compared across different types of institutions like government colleges, autonomous colleges, deemed universities etc. which will give more comprehensive insights. Additional stakeholders like librarians, policy makers, and college management can be included to get their perspectives on the research issues explored in this study. More parameters can be added to identify user satisfaction levels, the impact of library resources on academic performance, emerging technology needs etc. This can make the study more holistic. Periodic revisions to the study framework can be incorporated as per the changing trends to information access, technologies and user needs over period of time.

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