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Engineering College Library Services in The Digital Era: A Statistical Analysis of User Expectations and Satisfaction

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Abstract:

Engineering college libraries play a critical role in supporting academic learning, research, and digital literacy. With rapid growth in ICT-based resources, end-users increasingly expect fast, seamless, and high-quality library services. This study analyses the expectations and satisfaction levels of engineering college library users across ten major service parameters, using statistical scores derived from user responses. Results show that while users express high expectations across all services—especially in digital databases, research journals, staff support, and reading spaces—their satisfaction varies widely. A significant gap exists in core areas such as internet/Wi-Fi, digital databases, and library timings. The study offers data-driven recommendations to enhance library performance in the digital environment.

Keywords: ICT Resources, Digital Databases, Statistical Score.

I. INTRODUCTION

Engineering college libraries play an essential role in supporting academic learning, research productivity, and technological advancement within higher education institutions. As engineering education increasingly integrates digital tools, online learning platforms, and research-driven pedagogy, the expectations of library users—primarily UG/PG students, research scholars, and faculty—have evolved significantly. Modern engineering libraries are no longer limited to physical collections; they now encompass e-books, e-journals, digital databases, institutional repositories, and ICT-enabled learning environments. In this dynamic digital environment, understanding user expectations and satisfaction levels is essential for enhancing library performance and ensuring optimal utilization of resources.

The present study evaluates the expectations and satisfaction of end-users in engineering college libraries using ten critical service and resource parameters. These include textbooks, e-books, journals, digital databases, Wi-Fi, digital library services, reading spaces, staff support, training services, and library timings. The statistical analysis shows a notable gap between what users expect and what libraries currently offer. While users demonstrate high expectations for digital databases, staff support, reading spaces, and digital services, satisfaction levels remain moderate in several areas, particularly Wi-Fi

quality, database accessibility, and library timings. Conversely, training services and staff behaviour show comparatively higher satisfaction, indicating effective engagement and support mechanisms.

By identifying these gaps, the study provides a comprehensive evidence-based understanding of areas that require improvement. The findings emphasize the need for libraries to strengthen ICT infrastructure, expand digital collections, enhance user training, and redesign spaces to align with evolving academic needs. This research contributes valuable insights for policymakers and librarians seeking to enhance service quality and user experience in engineering college libraries.

II. LITERATURE REVIEW

Digital transformation has significantly reshaped academic libraries, especially in engineering education. Studies show that users increasingly rely on e-resources, digital databases, and online services for academic and research needs (Chowdhury, 2020). Research also highlights a persistent gap between user expectations and actual service delivery, particularly in digital accessibility, ICT infrastructure, and training support (Bhatt & Mudhol, 2019). Engineering students expect fast internet, seamless search systems, and updated digital collections, while satisfaction depends on usability and staff assistance (Kim, 2021). Prior studies, including Dhanraju et al. (2021), emphasize the need for improved digital resources, user training, and efficient online services to enhance overall library performance.

III. METHODOLOGY

The present study adopted a quantitative research design to assess the expectations and satisfaction levels of end-users of engineering college libraries in Maharashtra. A structured questionnaire based on a five-point Likert scale was developed, covering key areas such as availability of resources, digital services, ICT facilities, staff support, training, reading spaces, and overall satisfaction. The questionnaire consisted of close-ended items divided into sections on user profile, expectations, and satisfaction, along with specific questions designed to measure digital library performance. The instrument was validated through expert review and a pilot test before full administration. The questionnaire was distributed through both online (Google Forms) and offline modes to ensure maximum participation across undergraduate, postgraduate, research scholars, and faculty members from NBA/NAAC-accredited engineering colleges. A total of over 813 questionnaires were circulated, out of which a high response rate was achieved, ensuring adequate representation from diverse user groups. Convenience and stratified sampling approaches were used to include various academic disciplines and user categories. The collected data were coded and analysed using MS Excel and SPSS, applying descriptive statistics, percentage analysis, mean score computation, and gap analysis to compare satisfaction and expectation levels. The methodology allowed for systematic examination of user perceptions and enabled quantification of gaps in library performance, particularly in the digital environment.

IV. FINDINGS

Following Users Expectations were found from the research of Engineering College Libraries

1. **High Availability of Latest Textbooks & Reference Books**
   Students and faculty strongly expect updated editions, multiple copies, and continuous availability.
2. **Easy Access to High-Quality E-Books and E-Journals**
   Users expect large, discipline-specific digital collections for assignments, projects, and research.
3. **Access to Specialized Engineering Databases**
   IEEE, ASME, SpringerLink, ScienceDirect, Scopus etc. are among the most demanded digital platforms.
4. **Fast and Reliable Internet / Wi-Fi Connectivity**
   A major expectation because digital learning, database searching, and e-learning require stable speeds.
5. **User-Friendly Digital Library Services (E-Library)**
   Users expect a smooth interface, remote login, and 24×7 access to digital content.
6. **Well-Designed Reading Space and Study Environment**
   Engineering students expect comfortable, noise-free, air-cooled areas with sufficient seating.
7. **Highly Supportive, Trained, and Technically Skilled Library Staff**
   Users expect staff who can guide them in searching databases, citations, plagiarism tools, and digital services.
8. **Regular Training / Orientation on Use of Digital Resources**
   Users expect periodic training on digital tools, OPAC, referencing, plagiarism, and thesis writing.
9. **Efficient Library Announcements & Notifications**
   Users want regular updates about new arrivals, workshops, examinations, and digital resources.
10. **Convenient Library Timings & Extended Hours During Exams**
    Students expect evening hours, weekend access, and flexible schedules during peak academic seasons.

User Satisfaction:

1. **Supportive Behaviour of Library Staff**
   Engineering users reported very high satisfaction with staff cooperation and problem-solving attitude.

2. **Availability of Reading Space**

   Satisfaction is high for seating, space management, and physical library ambience.

3. **Technological Facilities in the Library**

   Satisfaction levels were high for computer facilities, ICT tools, and digital access terminals.

4. **Textbooks & Reference Books**

   Users are satisfied with availability and usefulness of the print collection.

5. **E-Library / Digital Library Services**

   Engineering users showed moderate to high satisfaction, but want more resources and faster access.

6. **Training and Orientation Programs**

   Engineering users (UG/PG + Faculty) showed high satisfaction with workshops and digital literacy sessions.

7. **Guidance Services Provided by Library Staff**

   Faculty and research scholars especially appreciated research help, reference services, and information support.

8. **Library Announcements and Notifications**

   Engineering users expressed satisfaction with communication via email, WhatsApp groups, and notice boards.

9. **Access to E-Books / E-Journals**

   Satisfaction is moderate; users want broader coverage and more simultaneous user access.

10. **Availability of Journals & Research Papers**

    Satisfaction is mixed; faculty are more satisfied than students, but demand for more journals still exists.

V. CONCLUSION

The study concludes that engineering college libraries in Maharashtra are undergoing a significant digital transition, yet notable gaps exist between user expectations and actual service delivery. Users highly expect updated digital resources, seamless access, advanced research databases, and supportive ICT-trained staff. While satisfaction is strong in areas such as staff behaviour and training services, lower satisfaction in Wi-Fi speed, digital access, and library timings indicates areas for improvement. Strengthening ICT infrastructure, expanding e-resources, enhancing digital literacy, and extending service hours are essential for improving user experience. Overall, aligning services with evolving expectations will greatly strengthen library performance in the digital era.

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