



**Evaluating Research Metrics As A Tool For Quality Enhancement:
Reflections From Maharashtra State Universities**

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DOI - 10.5281/zenodo.17267546

Abstract:

Research metrics are increasingly recognised as vital indicators for assessing the performance, visibility, and quality of higher education institutions. In the Indian context, particularly within Maharashtra State Universities, research productivity has become integral to accreditation and ranking frameworks. This conceptual paper critically examines the foundations of research metrics and their implications for quality enhancement. Drawing upon bibliometric, scientometric, and altmetric perspectives, it explores how indicators such as h-index, citation counts, and journal impact factors are shaping institutional evaluation. The study further highlights challenges, including predatory publishing, unequal access to resources, and the potential misuse of metrics. Special emphasis is placed on the evolving role of academic libraries and librarians in promoting research visibility, ensuring responsible metric use, and strengthening institutional repositories. Reflections from selected Maharashtra universities illustrate both progress and persistent disparities. The paper argues for a balanced, ethical, and context-sensitive approach where metrics complement, rather than replace, qualitative assessments of academic excellence. Findings suggest that responsible integration of research metrics, coupled with librarian-led capacity building, can significantly enhance institutional credibility and contribute to sustainable academic growth.

Keywords: *Research Metrics; Bibliometrics; Altmetrics; Scientometrics; Academic Libraries; Quality Enhancement; Maharashtra Universities.*

Introduction:

The rapid expansion of higher education in India has necessitated reliable mechanisms to assess and enhance institutional quality. In Maharashtra, one of the leading states in terms of higher education infrastructure, universities face growing pressure to demonstrate research productivity, global visibility, and societal impact. National initiatives such as the National Institutional Ranking Framework (NIRF) and the accreditation process of the National Assessment and Accreditation Council

(NAAC) have institutionalised the use of research metrics as key evaluative parameters.

Consequently, there is growing interest among faculty, administrators, and librarians in understanding how bibliometrics, scientometrics, and altmetrics can be applied effectively to ensure quality enhancement. The objective of this conceptual paper is threefold:

1. To examine the theoretical foundations of research metrics;
2. To analyse their applications in the context of Maharashtra State Universities, and

3. To explore the role of academic libraries and librarians in facilitating their responsible use.

By addressing these dimensions, the study provides a framework for the ethical and meaningful integration of research metrics into academic practice.

Literature Review:

Research Metrics: Global Perspectives:

Bibliometrics and scientometrics are widely recognised as robust tools for measuring research productivity and impact. Glänzel (2003) argues that bibliometric indicators provide objective approaches to evaluating research performance, though they must be interpreted with caution. Bornmann and Leydesdorff (2014) highlight how research metrics increasingly influence funding allocations, rankings, and policy decisions at institutional and national levels.

However, critical voices caution against over-reliance. Sugimoto and Larivière (2018) note that metrics, if misused, can encourage a “publish or perish” culture, prioritising quantity over quality. To counterbalance, frameworks such as the San Francisco Declaration on Research Assessment (DORA, 2013) advocate for the responsible use of research metrics, emphasising qualitative judgment alongside quantitative indicators.

Research Metrics in Indian Higher Education:

In India, research metrics have gained prominence due to their integration into national quality assurance systems. The NAAC (2022) guidelines highlight parameters such as publication output, citations, patents, and consultancy projects for accreditation. Similarly, NIRF rankings devote 30% weightage to “Research and Professional Practice,” focusing on publications, journal

quality, intellectual property, and projects (Ministry of Education, 2023).

While these frameworks encourage productivity, they also generate concerns. Singh and Kaur (2021) observed that many Indian faculty members lack adequate knowledge of advanced research metrics and depend heavily on librarians for guidance. This underscores the need for structured training and awareness programs.

Globally, research metrics debates emphasise responsible and ethical use, while in India, the focus remains largely compliance-driven through the NAAC and NIRF frameworks. However, limited research exists on how state universities—especially in Maharashtra—translate these mandates into faculty practice. This study addresses that gap by examining faculty engagement with research metrics in the context of quality enhancement and institutional development.

Research Metrics and Quality

Enhancement:

Understanding Research Metrics:

Research metrics can be classified into **traditional metrics** and **emerging/alternative metrics (altmetrics)**:

- **Traditional metrics:** publication count, citation count, journal impact factor, h-index, g-index.
- **Altmetrics:** social media mentions, downloads, policy citations, blog references, and repository readership.

Together, these metrics provide a multidimensional view of research impact, covering academic, social, and policy relevance.

Contribution to Quality Enhancement:

For universities in Maharashtra, the adoption of research metrics contributes to:

1. **Improved Institutional Ranking:** Strong citation records and indexed publications enhance NAAC and NIRF outcomes.
2. **Faculty Development:** Metrics increasingly guide promotions, appraisals, and research incentives.
3. **Funding and Collaboration:** Research visibility attracts external funding and international partnerships.
4. **Student Engagement:** Exposure to high-quality research nurtures a culture of inquiry.

Ethical Concerns and Limitations:

Despite advantages, misuse of metrics poses risks:

- Overemphasis on quantity over quality.
- Predatory publishing;
- Disciplinary bias toward STEM fields;
- Gaming through excessive self-citation.

Thus, metrics must be complemented by **qualitative assessments** to ensure fairness and integrity.

Reflections from Maharashtra State Universities:

Maharashtra, with 13 public state universities and numerous affiliated colleges, makes a substantial contribution to India's overall research output. Yet, notable disparities exist in how research awareness, practices, and the integration of metrics are implemented across institutions. To illustrate these variations, reflections from four representative universities are presented.

Savitribai Phule Pune University (SPPU):

Bibliometric analyses covering 1990–2020 demonstrate an increasing trend in research publications and citations from the university, with tools such as Bibexcel, Biblioshiny, and Hiscite used in mapping trends (Gaikwad & Shewale, 2021; More & Kademani, 2020). The university has also promoted bibliometric training and repository

development, indicating an early adoption of research metric practices (Joshi, 2021).

Shivaji University, Kolhapur:

The university has implemented the Indian Research Information Network System (IRINS) to showcase faculty publications, citation counts, and h-index values, thereby enhancing research visibility (Shivaji University, n.d.-a). Furthermore, its Research Policy (2020) emphasises promoting excellence in research and extension activities, while the Performance-Based Appraisal System (PBAS) mandates faculty to report research publications and peer-reviewed contributions (Shivaji University, 2020). Studies on ResearchGate activity confirm strong faculty engagement, with 5,697 publications across 24 departments reported, reflecting growing use of social academic platforms (Hugar, Jog, & Kudaskar, 2023).

Rashtrasant Tukadoji Maharaj Nagpur University (RTMNU):

The university has developed a Code of Ethics in Research, addressing issues of authorship and publication integrity (RTMNU, 2022). Its Annual Quality Assurance Report (AQAR) 2022–23 documents the establishment of a Research Cell to strengthen faculty and student research culture (RTMNU, 2023). Additionally, affiliated colleges, such as PWS College, include “research and publications” as mandatory criteria in faculty appraisal systems (PWS College, n.d.).

Dr. Babasaheb Ambedkar Marathwada University (BAMU):

A recent scientometric analysis of Scopus-indexed publications from 1963–2023 reported 4,428 publications and 64,632 citations, with science faculties contributing over 95% of the research output, indicating a pronounced disciplinary imbalance (Sarode, Khaparde, & Tayde, 2025). The university has also advanced in plagiarism awareness

campaigns, though disparities across disciplines persist.

Collectively, these reflections suggest that while Maharashtra's universities have begun integrating research metrics, repository systems, and visibility indicators into policies and faculty appraisal frameworks, differences remain in institutional emphasis. Uneven infrastructural support, limited awareness of altmetrics, and gaps in adoption across non-STEM disciplines continue to present challenges.

Role of Academic Libraries and Librarians:

Libraries have evolved from passive repositories into active research support hubs. Corral (2014) emphasises that academic librarians are uniquely positioned to foster research literacy, offering services such as citation analysis, database training, and repository management. In India, institutional repositories such as Shodhganga have improved visibility of research theses, thereby enhancing citation potential.

The role of librarians, therefore, extends beyond managing resources: they act as partners in research evaluation, advocates of ethical publishing, and facilitators of capacity building.

Librarians in Maharashtra's universities are central to:

1. **Capacity Building:** conducting workshops on citation databases, reference tools, and plagiarism detection.
2. **Repository Management:** curating institutional repositories to enhance research discoverability.
3. **Accreditation Support:** providing bibliometric data for NAAC/NIRF.
4. **Responsible Metrics Advocacy:** promoting DORA principles and discouraging misuse of metrics.

5. **Collaboration:** assisting faculty in journal selection, grant writing, and bibliometric reporting.

This evolving role positions librarians as **change agents** in academic quality enhancement.

Challenges and Opportunities:

Challenges:

- Faculty skill gaps and misconceptions;
- Predatory publishing;
- Limited access to subscription databases;
- Bias against humanities and social sciences;
- Weak data management practices.

Opportunities:

- Expansion of **INFLIBNET's e-ShodhSindhu** for wider access;
- Faculty development programs on bibliometrics;
- Adoption of tools like **VOSviewer** and **Biblioshiny**;
- Promotion of open-access repositories;
- Policy frameworks encourage quality over quantity.

Conclusion:

Research metrics are now central to institutional evaluation in India. For Maharashtra State Universities, they offer a pathway to enhanced visibility, improved rankings, and strategic growth. However, metrics must be applied responsibly, avoiding overemphasis on quantity or reliance on flawed publishing practices.

Academic librarians play a pivotal role in this transformation by training faculty, managing repositories, and ensuring ethical metric use. Ultimately, the sustainable enhancement of research quality in Maharashtra depends on balanced integration of quantitative metrics with qualitative evaluation, equitable access to resources, and a

collaborative research culture that values integrity, innovation, and societal relevance.

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