

**Use of open access resources by the PG students of
Faculty of Engineering and Technology at Jadavpur
University**

Thesis Submitted for the Degree of
Doctor of Philosophy (Arts)

at

Jadavpur University

By

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2025

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Use of open access resources by the PG students of Faculty of
Engineering and Technology at Jadavpur University

Submitted by me for the award of the Degree of Doctor of philosophy in Arts at Jadavpur University is based upon my carried out under the Supervision of Prof. (Dr.) Subarna Kumar Das and that neither this thesis nor any part of it has been submitted before for any degree or diploma anywhere/elsewhere.

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Declaration

I hereby declare that the thesis entitled “Use of open access resources by the PG students of Faculty of Engineering and Technology at Jadavpur University” is a bonafide record of work done by me, and no part of the thesis has been submitted for any other degree.

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Preface

The journey of this thesis has been both intellectually enriching and personally rewarding. As a postgraduate student, I often encountered challenges in accessing quality academic materials due to subscription barriers and institutional limitations. These experiences motivated me to explore the evolving landscape of Open Access (OA) resources and their relevance to the academic and research lives of students like myself. In an era where access to knowledge defines educational equity, understanding how OA is utilized within Indian higher education—particularly in engineering and technology—became the focus of my inquiry.

This study investigates the awareness, usage patterns, and challenges surrounding OA resource utilization among postgraduate students in the Faculty of Engineering and Technology at Jadavpur University. By combining both quantitative and qualitative methods, the research seeks to offer not only empirical insights but also evidence-based recommendations for improving OA adoption and scholarly access in academic institutions.

I am deeply indebted to my supervisor, **Prof. (Dr.) Subarna Kumar Das**, whose guidance, patience, and insightful feedback have been invaluable at every stage of this research. I also extend heartfelt thanks to the faculty members, librarians, and administrative staff of **Jadavpur University**, whose support facilitated the smooth conduct of this study. Most importantly, I sincerely thank the postgraduate students who participated in the survey and interviews—their honest reflections have shaped the core of this work.

It is my hope that this thesis will contribute meaningfully to the academic discourse on open access, promote awareness among students and institutions, and serve as a stepping stone toward more inclusive and sustainable scholarly communication.

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List of Abbreviations

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Abbreviation	Full Form
OA	Open Access
OER	Open Educational Resources
APC	Article Processing Charge
BOAI	Budapest Open Access Initiative
DOAJ	Directory of Open Access Journals
OAIS	Open Archival Information System
IR	Institutional Repository
ICT	Information and Communication Technology
PDF	Portable Document Format
STM	Science, Technology, and Medicine
DST	Department of Science and Technology (India)
DBT	Department of Biotechnology (India)
CSIR	Council of Scientific and Industrial Research (India)
NIC	National Informatics Centre
ICMR	Indian Council of Medical Research
INSA	Indian National Science Academy
IAS	Indian Academy of Sciences
IPR	Intellectual Property Rights
NDL	National Digital Library
UGC	University Grants Commission
INFLIBNET	Information and Library Network Centre

Abbreviation	Full Form
PDF	Portable Document Format
R&D	Research and Development
PG	Postgraduate
SPARC	Scholarly Publishing and Academic Resources Coalition
APC	Article Processing Charge
OA Index	Open Access Integration Index
OECD	Organisation for Economic Co-operation and Development
WCAG	Web Content Accessibility Guidelines

Chapter 1

Introduction

Chapter 1 Introduction

1.0 PROLOGUE

The contemporary academic landscape has witnessed a paradigmatic shift in the dissemination and accessibility of scholarly knowledge, fundamentally challenging the traditional models of academic publishing. At the heart of this transformation lies the concept of open access (OA), which represents both a philosophical commitment to the democratization of knowledge and a practical approach to overcoming the barriers that have historically restricted access to scholarly information. Open access embodies the principle that research outputs, particularly those funded through public resources, should be freely available to all members of society without financial, legal, or technical impediments.

The essence of open access extends beyond mere free availability; it encompasses a comprehensive framework that ensures immediate, unrestricted online access to peer-reviewed scholarly literature. According to the widely accepted definition, a publication is defined 'open access' when there are no financial, legal or technical barriers to accessing it (Open Access Netherlands, 2024). This conceptualization reflects a fundamental reimagining of how knowledge circulates in academic and broader societal contexts, challenging the traditional gatekeeping mechanisms that have long characterized scholarly publishing.

The theoretical foundations of open access rest upon several interconnected principles that collectively form its philosophical underpinning. First, the principle of public benefit suggests that research funded by taxpayers should be accessible to those who finance it. Second, the acceleration of scientific discovery through enhanced collaboration and knowledge sharing forms another cornerstone of open access philosophy. Third, the democratization of knowledge access ensures that geographical location, institutional affiliation, or economic circumstances do not determine one's ability to engage with cutting-edge research.

The multifaceted nature of open access manifests through various models and approaches, each designed to address different aspects of the accessibility challenge. The Gold Open Access model involves publishing in journals that make articles freely available immediately upon publication, often supported by article processing charges (APCs) paid by authors or their institutions. The Green Open Access model, also known as self-archiving, allows researchers to deposit their manuscripts in institutional or subject repositories, making them freely accessible while the journal version may remain behind paywalls. The Bronze Open Access model represents publications that are freely readable but lack explicit licensing for reuse. More recently, the Diamond or Platinum Open Access model has emerged, offering free publication and free access without charges to either authors or readers, typically supported by institutional or governmental funding.

1.1 BACKGROUND AND CONTEXT

The advent of the Internet era has fundamentally transformed various spheres of human activity, with the scholarly communication landscape experiencing particularly profound changes. The traditional paradigms of knowledge production, distribution, and consumption have undergone

significant restructuring, fundamentally altering how academic information flows within and beyond institutional boundaries. This digital revolution has not merely supplemented existing communication channels but has created entirely new mechanisms for scholarly discourse and knowledge dissemination.

The transformation of the publishing industry stands as one of the most visible manifestations of this digital shift. Traditional print-based publications have evolved into sophisticated electronic formats, giving rise to e-journals, e-books, and comprehensive digital databases that are distributed globally through Internet networks to institutional and individual subscribers. However, this technological advancement has been accompanied by unprecedented challenges, particularly the escalating costs of scholarly publications that have created what is commonly referred to as the "serials crisis."

The exponential increase in journal subscription prices, coupled with the bundling practices of major commercial publishers, has created significant financial strain on academic libraries worldwide. This crisis has been particularly acute for institutions in developing countries, where limited financial resources have severely restricted access to essential scholarly literature. The commodification of knowledge has thus created a paradoxical situation where the very institutions that produce research through public funding find themselves unable to afford access to the published outcomes of their own scholarly endeavors.

1.1.1 The Digital Revolution in Scholarly Communication

Digital revolution has been particularly profound in the scholarly world, where traditional paradigms of information production, distribution, and consumption have undergone unprecedented transformation. The publishing industry, once characterized by rigid gatekeeping mechanisms and subscription-based access models, has experienced a comprehensive overhaul that has given rise to electronic journals, e-books, and digital databases distributed globally through Internet networks to subscribers worldwide.

However, as these digital innovations proliferated, a significant challenge emerged that would reshape the very foundations of scholarly communication. The steep escalation in pricing of academic publications, particularly scholarly journals—a phenomenon widely recognized as the "serials crisis"—began to create substantial barriers to knowledge access. This crisis not only strained institutional budgets but also highlighted the fundamental inequity in a system where publicly funded research remained locked behind paywalls, accessible only to those with sufficient financial resources.

In response to these mounting pressures, a revolutionary movement began to take shape in 2002, advocating for unprecedented openness in scholarly content. This movement championed the principle of open access to scholarly literature on the Internet, proposing a radical departure from traditional publishing models by eliminating both financial barriers and restrictive copyright practices. The open access movement has subsequently opened new vistas for the dissemination of scholarly literature, fundamentally altering how knowledge is shared, accessed, and utilized

1.2 UNDERSTANDING OPEN ACCESS: DEFINITIONS AND CORE PRINCIPLES

1.2.1 Conceptual Foundation

Open Access (OA) represents a paradigm shift in scholarly communication that challenges conventional wisdom about information dissemination. At its most fundamental level, open access literature is characterized by being digital, online, free of charge, and free of most copyright and licensing restrictions (Suber, 2012). This definition, while seemingly straightforward, encompasses a complex ecosystem of practices, policies, and philosophical approaches that have evolved over more than two decades.

The conceptual foundation of open access rests on several interconnected principles. First, it operates on the premise that knowledge, particularly knowledge generated through public funding, should be accessible to all members of society regardless of their institutional affiliations or economic circumstances. Second, it recognizes that digital technologies and the Internet have created unprecedented opportunities to disseminate information at marginal costs, making traditional scarcity-based publishing models increasingly obsolete. Third, it acknowledges that unrestricted access to scholarly information can accelerate scientific discovery, foster innovation, and promote educational advancement on a global scale.

1.2.2 The Budapest Statement: Defining Open Access

The formal articulation of open access principles emerged through three pivotal public statements that collectively established the conceptual framework for the movement. The Budapest Open Access Initiative (BOAI), formulated in 2002, provided the foundational definition that continues to guide open access advocacy and implementation worldwide.

According to the Budapest statement, open access to scholarly literature means:

"its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited" (Budapest Open Access Initiative, 2002).

This definition was subsequently reinforced and expanded by the Bethesda Statement on Open Access Publishing (2003) and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003), which collectively emphasized that open access works must enable users to "copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship."

1.2.3 The Philosophical Underpinnings

The open access movement is underpinned by a compelling philosophical argument that extends beyond mere technical considerations of information dissemination. At its core, the movement embodies principles of social justice, democratic participation in knowledge creation, and the recognition of information access as a fundamental right. This philosophical foundation is particularly relevant for developing nations, where traditional subscription-based access models have created significant disparities in information availability.

The movement's ethical dimensions are further reinforced by the recognition that much scholarly research is funded by public institutions using taxpayer money. The argument that publicly funded research should be publicly accessible resonates across political and ideological boundaries, creating a powerful coalition of support that includes researchers, librarians, students, policymakers, and civil society organizations.

1.3 THE EVOLUTION OF OPEN ACCESS MODELS

1.3.1 The Spectrum of Openness

The implementation of open access principles has given rise to a diverse ecosystem of publishing models and access mechanisms. This diversity reflects both the complexity of scholarly communication and the various ways in which different stakeholders have interpreted and applied open access principles.

Gold Open Access represents the most straightforward implementation of open access principles, where scholarly journals make their articles freely available immediately upon publication. This model encompasses journals that are entirely open access as well as hybrid journals that offer open access options for individual articles upon payment of article processing charges (APCs).

Green Open Access, also known as self-archiving, enables authors to deposit copies of their published works in institutional repositories or subject-specific archives. This model has gained particular traction because it allows authors to comply with open access mandates while still publishing in traditional subscription-based journals.

Diamond Open Access represents an emerging model where neither readers nor authors bear direct costs for publication. Instead, these publications are supported by institutional funding, government grants, or scholarly societies, eliminating financial barriers for both access and publication.

1.3.2 Gratis and Libre Open Access

The open access movement has also developed important distinctions between different levels of openness. **Gratis Open Access** provides free access to scholarly content but may retain certain copyright restrictions that limit how the content can be used, modified, or redistributed. **Libre**

Open Access, conversely, not only provides free access but also grants users extensive rights to use, modify, and redistribute content, typically through Creative Commons licensing.

This distinction has proven crucial in addressing the diverse needs of different user communities and in ensuring that open access truly fulfills its promise of unrestricted knowledge sharing.

1.4 THE GLOBAL OPEN ACCESS MOVEMENT

1.4.1 Historical Development and Key Milestones

The open access movement did not emerge in isolation but rather evolved from earlier initiatives in scholarly communication reform. Computer scientists had been self-archiving research papers in anonymous FTP archives since the early 1990s, with arXiv becoming a pioneering example of how digital technologies could transform scholarly communication. The "subversive proposal" to generalize this practice, posted in 1994, laid important groundwork for later developments.

The formal launch of the open access movement can be traced to the Budapest Open Access Initiative meeting in December 2001, convened by the Open Society Institute. This gathering brought together key stakeholders from around the world to articulate a vision for open access and develop strategies for its implementation. The resulting Budapest statement not only defined open access but also outlined two complementary strategies for achieving it: self-archiving in open repositories and the establishment of open access journals.

1.4.2 Institutional and Policy Development

The growth of the open access movement has been characterized by increasingly sophisticated institutional and policy frameworks. Major research institutions, funding agencies, and governmental bodies have implemented open access mandates that require researchers to make their publicly funded research freely available. These mandates have created powerful incentives for compliance while also generating resources for the development of institutional repositories and open access publishing infrastructure.

The establishment of institutional repositories has been particularly significant in this regard. The Massachusetts Institute of Technology's development and deployment of the DSpace institutional repository system provided a model that has been adopted by hundreds of institutions worldwide. These repositories serve not only as platforms for open access content but also as institutional showcases that highlight the research contributions of their host institutions.

1.4.3 The Scale of Open Access Success

The contemporary landscape of open access reflects remarkable growth and diversification. According to recent data, major open access initiatives demonstrate the movement's substantial impact: the Bielefeld Academic Search Engine (BASE) accounts for more than 240 million items, Internet archives contain 625 billion web pages, the Electronic Journals Library provides access to over 75,000 free journals, PubMed Central houses more than 34 million citations and abstracts

of biomedical literature, and the Directory of Open Access Journals (DOAJ) indexes over 18,000 journals.

These statistics represent more than mere numbers; they reflect a fundamental transformation in how scholarly knowledge is created, shared, and preserved. Research by Piwowar et al. (2018) indicates that approximately 45% of published literature is now available in some form of open access, representing a remarkable achievement for a movement that began with a small gathering of advocates just over two decades ago.

1.5 OPEN ACCESS IN THE INDIAN CONTEXT

1.5.1 The Indian Research Landscape and Access Challenges

India's engagement with the open access movement reflects both the opportunities and challenges faced by developing nations in the global knowledge economy. As one of the world's largest higher education systems, with hundreds of universities and research institutions, India generates substantial scholarly output across diverse disciplines. However, the country has historically faced significant challenges in accessing international research literature due to the high costs of journal subscriptions and limited institutional budgets.

The Indian research community has long grappled with what Rajshekar (2003) identified as the challenge of reciprocating information flow and improving access to enhance the impact of Indian research. This challenge is multifaceted, encompassing not only access to international literature but also the global visibility of research produced by Indian scholars. The open access movement has emerged as a promising solution to these interconnected.

challenges, offering pathways for both improved access to global knowledge and enhanced dissemination of Indian research contributions.

1.5.2 Policy Framework and National Initiatives

India's approach to open access has been shaped by several key policy initiatives and institutional commitments. The National Knowledge Commission of India (NKC) played a pivotal role in articulating a national vision for open access. Through its Working Group on Open Access and Open Educational Resources and Working Group on Libraries, the NKC strongly recommended open access to publicly funded research literature and supported the establishment of open courseware repositories for nationwide dissemination of quality educational content.

These policy recommendations have been implemented through various mechanisms, including institutional mandates, funding agency requirements, and collaborative initiatives among research institutions. The emphasis on publicly funded research reflects the global consensus that taxpayer-supported research should be accessible to the taxpaying public, while also recognizing the particular importance of this principle in a developing nation context where information inequality can perpetuate broader social and economic disparities.

1.5.3 Institutional Repository Development

The development of institutional repositories has been a cornerstone of India's open access strategy. The Indian Institute of Science (IISc) in Bangalore established the country's first major institutional repository, E-prints@IISc, which serves as a model for other institutions. Maintained by the National Center for Science Information (NCSI), this repository supports self-archiving by IISc scientists and provides comprehensive metadata for browsing and searching through subject, year, author, and keywords.

The repository model has been adopted and adapted by institutions across the country. INFLIBNET, the Inter-University Centre of the University Grants Commission, created DSpace@INFLIBNET to serve approximately 400 universities, colleges, and research institutions across the country. This repository houses postprints, preprints, conference proceedings, training materials, and other scholarly publications, demonstrating how institutional repositories can serve multiple functions within the research ecosystem.

Other notable initiatives include the Librarian's Digital Library (LDL) at the Documentation Research and Training Centre (DRTC), which offers specialized services for library and information science literature, and the Vidyanidhi Project at the University of Mysore, designed as a national repository for electronic theses and dissertations. These initiatives collectively represent a distributed but coordinated approach to open access implementation that leverages institutional strengths while serving national objectives.

1.5.4 Open Access Journal Publishing in India

India's open access journal publishing landscape reflects both the global trends in scholarly communication and distinctly local characteristics. The Indian National Science Academy (INSA) has been a pioneer in this regard, launching open access versions of its four journals in December 2003. The project, titled "Building Digital Resources: Creating Facilities at INSA for hosting S&T Journals Online," was funded by the National Information System for Science & Technology and has strengthened the open archive movement at the national level.

The Indian Academy of Sciences (IAS) has perhaps been even more ambitious, publishing eleven journals across frontline scientific disciplines as fully open access publications. Notably, these journals do not charge authors for publication, with costs met through government funding and subscriptions to print editions. This model demonstrates how traditional funding mechanisms can be adapted to support open access publishing without imposing financial burdens on authors.

The biomedical field has seen particularly significant developments through the Indian Medlars Center of the National Informatics Center (NIC) and the Indian Council of Medical Research (ICMR). The IndMED@NIC initiative indexes 77 biomedical peer-reviewed journals, while MedIND@NIC provides full-text access to 38 biomedical journals. These initiatives demonstrate how government agencies can play catalytic roles in promoting open access within specific disciplinary communities.

Medknow Publications represents an innovative commercial approach to open access in the Indian context. This Mumbai-based company has helped 29 peer-reviewed biomedical journals transition from print to electronic open access, providing professional interfaces with advanced linking features while maintaining the principle of free access for readers and authors alike.

1.5.5 Challenges and Opportunities

Despite these successes, the open access movement in India continues to face significant challenges. Issues of quality assurance, sustainability of funding models, and integration with international scholarly networks remain ongoing concerns. The emergence of predatory publishing practices has also created challenges for maintaining the credibility and integrity of open access publishing.

However, these challenges are accompanied by substantial opportunities. India's large and growing research community, combined with government support for digital initiatives and increasing international collaboration, creates favorable conditions for continued expansion of open access. The country's expertise in information technology and digital infrastructure provides additional advantages in developing innovative approaches to open access implementation.

1.6 THE CONTEMPORARY OPEN ACCESS ECOSYSTEM

1.6.1 Technological Infrastructure and Innovation

The success of the open access movement has been intimately connected with technological innovations that have reduced the costs and barriers associated with scholarly publishing and dissemination. The development of open-source repository software, such as DSpace, EPrints, and Fedora, has enabled institutions worldwide to establish digital archives without significant financial investment in proprietary systems.

Similarly, the emergence of open access publishing platforms has democratized journal publishing, allowing smaller institutions and scholarly societies to establish high-quality publications without the substantial infrastructure investments traditionally required. These technological developments have been complemented by innovations in peer review, editorial management, and content discovery that have enhanced the quality and usability of open access resources.

1.6.2 Economic Models and Sustainability

The sustainability of open access has been a central concern throughout the movement's development. Various economic models have emerged to address the fundamental question of how to support high-quality scholarly communication without relying on subscription revenues. Article processing charges (APCs) have become increasingly common, particularly in hybrid and fully open access journals, though concerns about their impact on research equity have led to the development of waiver and discount programs.

Alternative funding models, including institutional memberships, consortium arrangements, and government subsidies, have also gained traction. The emergence of "diamond" open access, where neither authors nor readers bear direct costs, represents an important innovation that addresses equity concerns while maintaining financial sustainability through institutional and societal support.

1.6.3 Quality Assurance and Academic Standards

One of the most persistent challenges facing the open access movement has been addressing concerns about quality and academic standards. Critics have sometimes suggested that open access publishing necessarily compromises peer review and editorial standards, though empirical research has consistently demonstrated that open access journals can and do maintain rigorous quality assurance processes.

The development of quality indicators specifically for open access publications, including the establishment of the Directory of Open Access Journals (DOAJ) with its strict inclusion criteria, has helped to distinguish legitimate open access publications from predatory or low-quality alternatives. Professional organizations and funding agencies have also developed guidelines and best practices that support quality assurance while promoting open access adoption.

1.7 IMPACT AND IMPLICATIONS OF OPEN ACCESS

1.7.1 Research and Innovation Acceleration

The impact of open access extends far beyond simple cost savings or increased access to individual publications. Research has consistently demonstrated that open access articles receive more citations than their subscription-based counterparts, suggesting that increased accessibility leads directly to increased utilization and impact. This citation advantage has important implications for research assessment, institutional rankings, and the overall velocity of scientific discovery.

More fundamentally, open access has enabled new forms of research that would be impossible under traditional publishing models. Large-scale text mining, meta-analyses across entire literatures, and artificial intelligence applications in research all depend on unrestricted access to scholarly content. These emerging research methodologies promise to accelerate scientific discovery and innovation in ways that are only beginning to be understood.

1.7.2 Educational Enhancement and Global Equity

Open access has particular significance for education, where unrestricted access to current research can transform teaching and learning at all levels. Students and faculty at institutions with limited library budgets can access the same high-quality research literature as their counterparts at well-funded institutions, helping to level the educational playing field.

This democratizing effect is particularly pronounced in developing countries, where open access has enabled researchers and students to participate more fully in global scholarly conversations.

The elimination of financial barriers to access has facilitated international collaboration, cross-cultural knowledge exchange, and the integration of diverse perspectives into scholarly discourse.

1.7.3 Societal Benefits and Public Engagement

Perhaps most importantly, open access has begun to fulfill its promise of making scholarly knowledge accessible to broader society. Healthcare professionals in resource-limited settings can access current medical research, policymakers can base decisions on the best available evidence, and curious citizens can engage directly with scholarly literature on topics of personal or professional interest.

This broader accessibility has implications for public understanding of science, evidence-based policymaking, and democratic participation in discussions about complex technical and social issues. While the full realization of these benefits requires continued effort to make scholarly communication more accessible and comprehensible to non-specialist audiences, open access provides the necessary foundation for such developments.

1.8 FUTURE DIRECTIONS AND EMERGING TRENDS

1.8.1 Policy Evolution and Mandates

The policy landscape surrounding open access continues to evolve, with increasingly sophisticated mandates from funding agencies and institutions. These policies are moving beyond simple requirements for open access compliance to address issues of licensing, embargo periods, and compliance monitoring. The development of "Plan S" by European research funders represents a particularly ambitious attempt to accelerate the transition to open access through coordinated policy intervention.

1.8.2 Technological Innovation and Integration

Emerging technologies promise to further transform the open access landscape. Blockchain-based systems for scholarly communication, artificial intelligence applications in peer review and content discovery, and advanced data visualization tools are among the innovations that may reshape how open access content is created, validated, and consumed.

The integration of research data, software, and other digital objects with traditional scholarly publications also represents an important frontier for open access development. Comprehensive open science approaches that encompass all aspects of the research process promise to fulfill the movement's ultimate vision of completely transparent and accessible scholarly communication.

1.9 RESEARCH GAP

While numerous studies have examined open access adoption from the perspectives of authors, publishers, and institutions, there remains a significant gap in understanding how postgraduate students, particularly in engineering and technology disciplines, engage with open access

resources. Most existing research focuses on faculty usage patterns or undergraduate information literacy, leaving the unique needs and behaviors of postgraduate engineering students underexplored.

Furthermore, the rapidly evolving nature of open access platforms, tools, and policies necessitates regular assessment of usage patterns to ensure that institutional support structures remain relevant and effective. The specific context of Jadavpur University, with its unique academic culture and resource environment, requires targeted investigation to develop contextually appropriate recommendations.

1.10. NEED FOR THE STUDY

This study addresses several critical needs within the academic and research community:

Academic Necessity: As research becomes increasingly interdisciplinary and collaborative, postgraduate students require access to diverse information sources beyond traditional institutional subscriptions. Understanding their interaction with open access resources is essential for supporting comprehensive research practices.

Institutional Planning: University libraries and information services need empirical data to make informed decisions about resource allocation, training programs, and infrastructure development to support open access initiatives effectively.

Policy Development: Educational institutions and funding agencies require evidence-based insights to develop policies that promote effective utilization of open access resources while addressing potential challenges and barriers.

Student Support: Identifying specific needs and challenges faced by postgraduate students can inform the development of targeted training programs, workshops, and support services to enhance their research capabilities.

Contribution to Literature: This study contributes to the growing body of knowledge about open access adoption in developing countries and provides valuable insights for similar institutions facing comparable challenges and opportunities.

1.11. OBJECTIVES

The objective of the study was to assess the use of open access resources by the PG students of the Faculty of Engineering and Technology at Jadavpur University

1.12.1 Primary Objective

The objective of the study was to comprehensively assess the utilization patterns, preferences, and challenges associated with open-access resource usage among postgraduate students of the Faculty of Engineering and Technology at Jadavpur University.

1.12.2 Secondary Objectives

1. To evaluate the current level of awareness and understanding of open access resources among the target population
2. To identify the most frequently used categories of open-access resources and their perceived value in academic research
3. To analyze factors that facilitate or hinder the adoption of open-access resources in research workflows
4. To examine variations in usage patterns across different engineering disciplines and specializations
5. To assess the impact of open-access resource utilization on research productivity and quality
6. To identify gaps in current institutional support for open access resource utilization
7. To develop evidence-based recommendations for enhancing open access resource adoption and utilization.

1.12 HYPOTHESES OF THE STUDY

Based on the literature review and preliminary observations, the following hypotheses have been formulated:

H1: Postgraduate students in the Faculty of Engineering and Technology demonstrate moderate to high awareness of open access resources, but their utilization patterns vary significantly across disciplines.

H2: Students primarily utilize open-access journals and conference proceedings, with limited engagement with other forms of open-access resources such as preprint servers, institutional repositories, and open educational resources.

H3: Technical barriers, quality concerns, and lack of systematic training significantly impede optimal utilization of open access resources.

H4: Students who receive formal training or guidance on open access resources demonstrate higher utilization rates and more diverse usage patterns compared to those who do not.

H5: The integration of open-access resources positively correlates with research productivity and the scope of literature coverage in academic work.

1.13 SCOPE AND LIMITATIONS

Scope

This study encompasses:

- All postgraduate students enrolled in various departments within the Faculty of Engineering and Technology at Jadavpur University

- Multiple categories of open-access resources, including journals, conference proceedings, repositories, preprint servers, and educational materials
- Both quantitative usage patterns and qualitative user experiences
- Comparative analysis across different engineering disciplines

Limitations

- The study is limited to a single institution, which may limit the generalizability of findings
- Temporal constraints restrict the study to a specific academic period, potentially missing seasonal variations in usage patterns
- Self-reported data may be subject to recall bias and social desirability effects
- The rapidly evolving nature of open-access resources may render some findings time-sensitive

1.14 RESEARCH METHODOLOGY

This study employs a mixed-methods approach, combining quantitative survey research with qualitative interviews to provide comprehensive insights into open access resource utilization patterns. The methodology is designed to capture both the breadth of usage patterns across the student population and the depth of individual experiences and perspectives.

The research design incorporates stratified random sampling to ensure representative coverage across different engineering disciplines and academic levels. Data collection utilizes structured questionnaires for quantitative analysis and semi-structured interviews for qualitative insights. The integration of multiple data sources and analytical approaches enhances the validity and reliability of findings while providing a holistic understanding of the research problem.

1.15 OUTLINE OF THE THESIS

This comprehensive study is structured across six interconnected chapters, each contributing to the overall understanding of open access resource utilization:

Chapter I: Introduction This foundational chapter establishes the research context, articulates the problem statement, defines objectives, and outlines the methodological approach. It provides readers with a comprehensive understanding of the study's rationale, scope, and significance.

Chapter II: Review of Literature The literature review synthesizes existing knowledge about open access resources, their adoption patterns, and their impact on academic research. This chapter examines global trends, institutional case studies, and user behavior research to provide theoretical grounding for the current study. Special attention is given to research focusing on engineering and technology disciplines, postgraduate student populations, and developing country contexts.

Chapter III: Profile of Study Area This chapter provides detailed contextual information about Jadavpur University, its Faculty of Engineering and Technology, and the specific characteristics of the postgraduate student population. It includes information about institutional policies, infrastructure, and existing support systems for open access resources.

Chapter IV: Research Design and Methodology A comprehensive examination of methodological choices, including population definition, sampling strategies, instrument development, data collection procedures, and analytical approaches. This chapter also addresses ethical considerations, validity measures, and quality assurance protocols.

Chapter V: Data Analysis and Interpretation This chapter presents detailed analysis of collected data, including descriptive statistics, correlation analyses, and thematic analysis of qualitative responses. Findings are organized around key research questions and hypotheses, with appropriate statistical tests and visualizations supporting the interpretation.

Chapter VI: Findings, Recommendations, and Conclusions The concluding chapter synthesizes key findings, discusses their implications, and presents evidence-based recommendations for various stakeholders. It also identifies areas for future research and reflects on the study's contributions to the broader field of information science and academic librarianship.

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Chapter 2

Review of Literature

Chapter 2: Literature Review

2.0 INTRODUCTION

This chapter presents a systematic review of existing literature on open access resources and their utilization in academic contexts, with particular emphasis on postgraduate students in engineering and technology disciplines. The review is structured thematically to provide a comprehensive understanding of the evolution of open access movement, the various dimensions of open access resource utilization, and factors affecting their adoption among different user groups. Special attention is given to the Indian context and engineering education, where available.

This literature review aims to identify gaps in current knowledge regarding how postgraduate engineering students engage with open-access resources, thereby establishing the foundation for the present study. The review draws from peer-reviewed journal articles, conference proceedings, books, reports, and relevant policy documents published primarily between 2000 and 2024, with particular emphasis on more recent developments in the field.

2.2 THE EVOLUTION OF OPEN ACCESS MOVEMENT

2.2.1 Historical Development

The open access movement emerged as a response to the "serials crisis" of the late 20th century, characterized by rapidly escalating journal subscription prices that strained library budgets worldwide (Laakso et al., 2011). Guédon (2017) traces the ideological roots of open access to the scientific ethos of knowledge sharing, arguing that traditional publishing models created artificial scarcity in an era of digital abundance.

The formal articulation of open access principles began with the Budapest Open Access Initiative (2002), which defined open access as "free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles." This was followed by the Bethesda Statement on Open Access Publishing (2003) and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003), collectively establishing the foundational principles of the movement (Suber, 2012).

Pinfield (2013) identifies three developmental phases of the open access movement: advocacy (2000-2005), growth (2005-2010), and consolidation (2010 onwards). During the advocacy phase, the focus was on establishing principles and gaining support. The growth phase saw the proliferation of open access journals and repositories, while the consolidation phase has been characterized by policy development, infrastructure enhancement, and increasing institutional commitment (Pinfield, 2013).

2.2.2 Open Access Models and Pathways

The literature identifies several models of open access publishing, each with distinct characteristics and implications for stakeholders. Piwowar et al. (2018) distinguish between Gold OA (publisher-

mediated open access), Green OA (repository-mediated open access), Hybrid OA (individual articles made open in subscription journals), Bronze OA (free-to-read articles on publisher websites without explicit licenses), and Black OA (illegally shared copyrighted content).

Björk (2017) notes that while Gold OA has received substantial attention, particularly with the emergence of article processing charges (APCs), Green OA through institutional and subject repositories represents an important complementary pathway. Suber (2012) emphasizes that these pathways are not mutually exclusive but serve different functions within the scholarly communication ecosystem.

The emergence of new models continues to shape the open access landscape. Matthias et al. (2019) analyze the growth of Diamond OA journals, which are free to both readers and authors, often supported by academic institutions or societies. Meanwhile, "transformative agreements" have emerged as a transitional strategy, redirecting subscription expenditure toward open access publishing (Hinchliffe, 2020).

2.2.3 Open Access in India: Policy and Practice

In the Indian context, open access has evolved through a combination of grassroots initiatives and policy interventions. Sawant (2013) documents the growth of institutional repositories in Indian academic institutions, noting significant increases between 2004 and 2012. Das (2014) reviews major Indian open access initiatives, including the National Digital Library of India, Shodhganga (for electronic theses and dissertations), and disciplinary repositories like OpenMED.

At the policy level, Mukherjee and Nazim (2018) analyze the open access mandates issued by Indian funding agencies, including the Department of Science and Technology (DST), Department of Biotechnology (DBT), and Council of Scientific and Industrial Research (CSIR).

These mandates require recipients of research grants to deposit outputs in public repositories. More recently, the Science, Technology and Innovation Policy 2020 draft proposed a "one nation, one subscription" model to enable nationwide access to scholarly content (Office of the Principal Scientific Adviser, 2020).

Despite these developments, Singh (2021) identifies persistent challenges in the Indian open access ecosystem, including infrastructural limitations, awareness gaps, and concerns about predatory publishing. Sahu and Arya (2013) note that while policy development has progressed, implementation and compliance monitoring remain inconsistent across institutions.

2.3 OPEN ACCESS RESOURCES: TYPES, BENEFITS, AND CHALLENGES

2.3.1 Typology of Open Access Resources

The literature identifies diverse types of open access resources that serve different scholarly needs. Piwowar et al. (2018) categorize these resources based on their access models and hosting platforms. Journal literature, traditionally the primary mode of scholarly communication, is increasingly available through open access journals (fully open or hybrid) and through green routes via repositories (Björk et al., 2014). Beyond journal articles, Schöpfel and Prost (2013) document the importance of "grey literature" in open access repositories, including technical reports, working

papers, and conference proceedings. Dissertations and theses represent another significant category, with Schöpfel et al. (2015) noting their value as original contributions to knowledge that often remain underutilized in traditional publishing systems.

The emergence of preprint servers has added another dimension to open access resources. Chiarelli et al. (2019) examine the growing acceptance of preprints across disciplines, noting their particular importance in rapidly evolving fields. In engineering, platforms like engrXiv have created new opportunities for early sharing of research findings (Tay, 2018).

Open educational resources (OER) constitute another important category. Wiley et al. (2014) define OER as teaching, learning, and research materials available in the public domain or released under licenses that permit free use and repurposing. These resources include textbooks, course materials, simulations, and instructional videos that support engineering education (Cheung et al., 2018).

2.3.2 Benefits of Open Access Resources

The literature identifies multiple benefits of open access resources for various stakeholders. For readers, the primary advantage is barrier-free access to scholarly content. Davis and Walters (2011) review empirical studies on the relationship between open access and readership, finding consistent evidence of increased downloads and usage statistics for open access articles compared to closed-access counterparts.

Citation advantage represents another frequently discussed benefit. Although the magnitude varies by discipline, multiple studies confirm that open access articles typically receive more citations than comparable closed-access articles (Piwowar et al., 2018; Tennant et al., 2016).

This effect appears particularly strong in rapidly evolving fields like computer science and some engineering disciplines (McKiernan et al., 2016). From an educational perspective, Anderson (2013) argues that open access enhances learning opportunities by removing financial barriers to knowledge access. This is particularly significant for postgraduate students engaged in independent research. Czerniewicz and Goodier (2014) document how open access resources help bridge knowledge gaps in resource-constrained settings.

For institutions, open access represents a means of increasing visibility and impact. Harnad and Brody (2004) demonstrate how open access repositories enhance institutional research profiles by making outputs more discoverable. Additionally, Chan et al. (2019) note that open access publishing can help institutions demonstrate public value and accountability, particularly for publicly funded research.

2.3.3 Challenges and Barriers to Open Access Utilization

Despite its benefits, the literature identifies several challenges that affect open access utilization. Quality concerns feature prominently, with Beall (2012) documenting the rise of predatory publishers that exploit the open access model without providing rigorous peer review. This has created skepticism among some researchers about open access quality (Nicholas et al., 2017). Discoverability presents another challenge. Roemer and Borchardt (2015) note that open access

resources are distributed across multiple platforms, including repositories, journal websites, academic social networks, and personal websites, making systematic discovery difficult.

Although tools like Unpaywall and Open Access Button have improved discovery, fragmentation remains a barrier (Piwowar et al., 2018). For users in developing countries, infrastructure limitations pose additional challenges. Ezema and Onyancha (2017) document how unreliable internet connectivity, inadequate ICT infrastructure, and power outages affect access to online resources in some African universities.

Similar challenges have been noted in parts of India, particularly in rural and semi-urban areas (Singh, 2021).

The literature also identifies cognitive barriers. Nicholas et al. (2017) find that many researchers lack awareness about open access options or harbor misconceptions about their quality and legitimacy. Mishra (2017) notes similar awareness gaps among Indian researchers, particularly regarding self-archiving rights and repository options.

2.4 OPEN ACCESS RESOURCE UTILIZATION IN ACADEMIC SETTINGS

2.4.1 Usage Patterns Among Academic Communities

Several studies have examined how different academic communities engage with open access resources. Tenopir et al. (2017) conducted a large-scale survey of faculty in multiple countries, finding disciplinary variations in open access awareness and usage. Science, technology, and medicine (STM) researchers demonstrated greater familiarity with open access concepts compared to humanities scholars, though usage patterns varied within disciplines.

Focusing on engineering specifically, Mischo and Schlembach (2011) analyze citation patterns in engineering theses and dissertations, finding increasing references to open access resources over time. However, they note that usage varies significantly across engineering sub-disciplines, with computer science and electrical engineering students showing higher utilization compared to civil or mechanical engineering students.

In terms of resource types, Nicholas et al. (2019) find that journal articles remain the primary content type accessed by researchers, but usage of preprints, datasets, and code repositories is growing, particularly among early-career researchers. Academic social networks like Research Gate and Academia.edu have emerged as important channels for accessing both formally published and grey literature (Thelwall & Kousha, 2015).

2.4.2 Postgraduate Students as Open Access Users

Research focusing specifically on postgraduate students reveals distinctive patterns. Deng (2010) surveyed graduate students across disciplines at an Australian university, finding that while most were aware of open access concepts, detailed understanding and systematic usage were limited.

Interestingly, science and engineering students demonstrated higher awareness compared to those in social sciences and humanities.

Davis and Gonzalez (2021) examine information-seeking behavior among doctoral students, finding that open access resources played an increasingly important role in literature reviews and background research. However, students often accessed these resources through general search engines rather than specialized repositories or databases, potentially missing valuable content.

In the Indian context, Kumar and Dora (2013) surveyed postgraduate students at the Indian Institute of Management, finding moderate awareness of open access journals but limited knowledge of institutional repositories. Similarly, Bhat (2010) reports that while science research scholars at the University of Kashmir expressed positive attitudes toward open access, actual usage was constrained by awareness and access limitations.

These studies highlight the gap between theoretical awareness and practical application. As Greenberg and Bar-Ilan (2017) note, many postgraduate students recognize the concept of open access but lack detailed understanding of available resources and access mechanisms. This suggests the need for targeted information literacy interventions focusing on open access.

2.4.3 Engineering Students and Open Access Resources

Research focusing specifically on engineering students' information behavior offers additional insights. Mohammadi et al. (2015) analyze the citation patterns of engineering graduate students, finding increasing references to open access articles, particularly in rapidly evolving fields like computer science and telecommunications.

Robbins et al. (2011) examine how engineering graduate students evaluate information sources, finding that accessibility often competed with quality considerations in resource selection decisions. Notably, students frequently compromised on perceived quality when resources were difficult to access, suggesting that open access may enhance the utilization of high-quality content.

Focusing on the Indian context, Manjunatha and Asundi (2014) surveyed engineering students at four institutions in Karnataka, finding that while most used online resources extensively, awareness of open access alternatives to subscription-based content was limited. Similarly, Kumar (2016) reports that engineering students at Anna University were primarily familiar with e-journals accessible through institutional subscriptions rather than open access alternatives.

Bhardwaj and Madhusudan (2016) examine how engineering students at five Indian Institutes of Technology (IITs) use institutional repositories, finding moderate usage but limited understanding of repository benefits and submission processes. They note that faculty recommendations significantly influenced repository usage, highlighting the importance of faculty advocacy in promoting open access resources.

2.5 FACTORS INFLUENCING OPEN ACCESS RESOURCE UTILIZATION

2.5.1 Awareness and Knowledge Factors

The literature consistently identifies awareness as a critical factor influencing open access utilization. Dawson (2018) surveyed researchers across disciplines and career stages, finding significant gaps in understanding of open access models, access rights, and available resources.

These knowledge gaps were particularly pronounced among early-career researchers and students.

Focusing on engineering specifically, Mischo and Schlembach (2011) report that awareness of discipline-specific repositories varied significantly among engineering graduate students, with many unaware of resources like engrXiv or IEEE DataPort. This suggests that specialized knowledge, rather than general open access awareness, may be more relevant for practical utilization.

In the Indian context, Bhat (2010) and Kumar (2016) both identify awareness limitations as significant barriers to open access utilization among students. Interestingly, Kumar notes that while general awareness of open access concepts was moderate, detailed knowledge of specific resources and access mechanisms was limited, creating a gap between theoretical awareness and practical application.

2.5.2 Technological and Access Factors

Infrastructure and technological capabilities significantly influence open access utilization. Ezema and Onyancha (2017) identify bandwidth limitations, device constraints, and power instability as barriers affecting digital resource access in developing country contexts. These challenges can make accessing large files or using interactive platforms problematic, even when content is technically "open."

Specifically examining engineering students, Robbins et al. (2011) note that download speed and format compatibility influenced resource selection decisions. Similarly, Manjunatha and Asundi (2014) identify technical constraints as barriers for engineering students in Karnataka, India, with slow connections and outdated devices limiting effective utilization of multimedia resources.

Beyond basic connectivity, the literature identifies search skills and information retrieval capabilities as important mediating factors. Greenberg and Bar-Ilan (2017) found that many graduate students struggled with repository search interfaces and specialized open access discovery tools, often defaulting to familiar platforms like Google Scholar despite their limitations for open access discovery.

2.5.3 Institutional and Contextual Factors

Institutional context significantly influences open access utilization. Fruin and Sutton (2016) examine how library support services, including guides, workshops, and consultation services, affect open access awareness and utilization. They find that proactive librarian involvement significantly increased open access resource use among graduate students.

Faculty influence emerges as another crucial factor. Nicholas et al. (2017) report that supervisor recommendations strongly influenced resource selection among doctoral students, with many following faculty guidance regarding information sources. Similarly, Bhardwaj and Madhusudan (2016) note that engineering faculty endorsement significantly increased repository usage among Indian engineering students.

Institutional policies and infrastructure also play important roles. Barik and Lal (2012) analyze how institutional repository development affects open access awareness and utilization in Indian

academic institutions, finding positive correlations between repository development and resource utilization. However, they note significant variation across institutions, with technological universities generally more advanced in repository implementation compared to general universities.

2.5.4 Attitudinal and Perception Factors

Perceptions about open access quality significantly influence utilization. Tenopir et al. (2017) found that concerns about peer review rigor and publishing standards deterred some researchers from engaging with open access content. These perceptions varied by discipline, with engineering faculty expressing particular concerns about quality control in open access publications.

Trust emerges as a related factor. Nicholas et al. (2019) examine how trustworthiness judgments affect resource selection, finding that institutional affiliations, peer recommendations, and recognizable brands enhanced perceived trustworthiness of open access resources. This suggests that established repositories and recognized open access journals may enjoy higher utilization compared to newer or less established platforms.

Convenience and accessibility considerations also influence attitudes. Tenopir et al. (2019) report that ease of access frequently trumped other considerations in resource selection, particularly for time-sensitive research tasks. This suggests that seamless access through institutional authentication systems and integrated discovery tools may enhance open access utilization.

2.6 OPEN ACCESS IN ENGINEERING EDUCATION

2.6.1 Specialized Resources for Engineering Disciplines

Engineering disciplines have developed specialized open access resources addressing their unique needs. Mischo and Schlembach (2011) document the development of engineering-specific repositories, including engrXiv for preprints and specialized collections within institutional repositories focusing on engineering content.

Beyond traditional scholarly outputs, Borrego (2017) examines open access to technical standards, patents, and industry publications, which are particularly important in engineering education and practice. He notes that while access to peer-reviewed literature has improved, these specialized resources often remain behind paywalls, creating challenges for comprehensive engineering education.

The growing importance of non-textual content is also evident in the literature. Cheung et al. (2018) analyze the development and usage of engineering-focused open educational resources, including simulations, CAD models, and interactive visualizations. They note that these resources address specific pedagogical needs in engineering education that traditional textual resources cannot satisfy.

2.6.2 Open Access and Engineering Research Training

Several studies examine how open access resources support engineering research training at the postgraduate level. Robbins et al. (2011) document how access to diverse information sources,

including preprints and technical reports, helps engineering graduate students develop comprehensive literature reviews and identify research gaps.

Furthermore, Kousha and Abdoli (2010) analyze citation patterns in engineering theses, finding that open access resources enabled broader literature coverage, particularly for students in institutions with limited subscription resources. They note that access to recent conference proceedings through open repositories was particularly valuable for tracking emerging research directions.

Beyond literature review, open access supports methodology development and technical implementation. Czerniewicz and Goodier (2014) document how open access to methodological papers, protocols, and code repositories helps graduate students develop and refine research methods. This is particularly important in engineering disciplines where methodological innovation often drives research advances.

2.6.3 Open Science Practices in Engineering Fields

Recent literature examines the adoption of broader open science practices in engineering disciplines. Gorman et al. (2020) analyze open data practices among engineering researchers, finding disciplinary variations in data sharing practices and infrastructure. They note that while software and materials science researchers increasingly share datasets, implementation remains uneven across engineering subdisciplines.

The growth of open source software and hardware represents another important dimension. Pearce (2012) examines how open source hardware designs enable collaborative innovation in engineering education, allowing students to build upon existing designs. Similarly, Heradio et al. (2018) document the growing role of open source software in engineering education, noting its importance for both education and subsequent professional practice.

These developments suggest an evolving relationship between open access publication and broader open science practices in engineering. Franzoni and Sauermaun (2014) argue that these practices collectively create new opportunities for collaborative problem-solving and accelerated innovation, particularly important in engineering fields addressing global challenges.

2.7 INFORMATION LITERACY AND OPEN ACCESS

2.7.1 Information Literacy for Open Access Resources

The literature highlights the importance of specialized information literacy skills for effective open access utilization. Dawson (2018) argues that traditional information literacy frameworks require extension to address open access-specific competencies, including understanding of licensing, repository navigation, and quality assessment of non-traditionally published content.

Focusing on engineering specifically, Fosmire and Radcliffe (2014) develop an "information-rich engineering design" model that integrates open access resources into engineering problem solving processes. They emphasize the importance of teaching students to evaluate information

quality across diverse resource types, from peer-reviewed articles to technical reports and community-generated content.

In the Indian context, Bhardwaj and Madhusudan (2016) note that information literacy programs at Indian technological universities frequently emphasized subscription-based resources while neglecting open access alternatives. This suggests a need for more balanced approaches that address the full spectrum of available resources.

2.7.2 Library Support for Open Access Utilization

Libraries play crucial roles in promoting open access literacy and utilization. Wirth and Mellinger (2011) examine how academic libraries support open access through resource guides, workshops, consultation services, and discovery tool customization. They find that the integration of open-access resources into library discovery systems significantly increased utilization among students.

Focusing on engineering libraries specifically, Leachman and Johnson (2019) document strategies for promoting open access resources to engineering students, including course-integrated instruction, specialized research guides, and collaborative programming with engineering faculty. They note that hands-on workshops demonstrating specialized engineering repositories were particularly effective.

In India, Sawant (2012) analyzes how academic libraries promote open access resources, finding variation across institution types. Libraries at technological institutions generally demonstrated more advanced open access support services compared to general university libraries, though overall development remained uneven.

2.8 RESEARCH GAPS AND PRESENT STUDY

The review of literature reveals several significant research gaps that the present study addresses:

- 1. Disciplinary Specificity:** While numerous studies examine open access utilization across disciplines, research focusing specifically on engineering postgraduate students remains limited, particularly in the Indian context. The present study addresses this gap by focusing exclusively on engineering postgraduate students at Jadavpur University.
- 2. Comprehensive Resource Examination:** Most existing studies focus on specific resource types (e.g., journals or repositories) rather than examining the full spectrum of open access resources utilized by students. The present study takes a more comprehensive approach, investigating all types of open access resources accessed by engineering postgraduate students.
- 3. Mixed-Methods Approach:** The literature review reveals a predominance of quantitative surveys examining usage patterns and awareness levels. The present study employs a mixed-methods approach that combines quantitative measurements of usage patterns with qualitative insights into user experiences and decision-making processes.
- 4. Contextual Understanding:** While several studies examine open access utilization in Indian academic institutions, research specifically examining state universities like Jadavpur University

remains limited. The present study provides insights into the unique contextual factors affecting open access utilization in this setting.

5. Practical Recommendations: Many studies document challenges and barriers without developing concrete, context-specific recommendations for enhancement. The present study aims to develop actionable recommendations based on empirical findings to enhance open access resource utilization among engineering postgraduate students.

By addressing these gaps, the present study makes a significant contribution to understanding how engineering postgraduate students engage with open access resources in the Indian higher education context. The findings will inform library service development, information literacy programming, and institutional policy regarding open access support at Jadavpur University and similar institutions.

2.9 CONCEPTUAL FRAMEWORK

Based on the literature review, a conceptual framework is developed to guide this study, the key factors that influence open access resource utilization among postgraduate engineering students and the relationships between these factors.

The framework posits that open access resource utilization is influenced by four major categories of factors:

1. Individual Factors: Including awareness levels, information literacy skills, attitudes and perceptions regarding open access quality, and technical capabilities.
2. Resource Factors: Including accessibility, discoverability, format compatibility, and subject relevance of open access resources.
3. Institutional Factors: Including library support services, faculty guidance, institutional repositories, and ICT infrastructure.
4. External Factors: Including disciplinary norms, publisher policies, and national/international open access initiatives.

These factors interact to shape both the extent and nature of open access resource utilization, which in turn affects academic outcomes including research quality, completion time, and knowledge development. The framework acknowledges that utilization is not a binary outcome but exists on a continuum from non-use through occasional use to systematic integration into research practice.

This conceptual framework provides the theoretical foundation for the research design, informing the development of research instruments and the interpretation of findings.

2.10. STATEMENT OF THE PROBLEM

The problem of the research may be stated as: assessment of the use of open access resources by the PG students of the faculty of engineering and technology at Jadavpur University

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Chapter 3

Profile of Study Area

Chapter 3: Profile of Study Area

3.1 INTRODUCTION

The Faculty of Engineering Technology at Jadavpur University represents one of India's most distinguished engineering institutions, embodying over a century of academic excellence and technological innovation. The institution traces its origins to the Bengal Technical Institute, established on 25 July 1906, which was subsequently transformed into Jadavpur University on 24 December 1955 (Jadavpur University, 2024). This transformation marked a significant milestone in the evolution of technical education in Eastern India, establishing the foundation for what would become a nationally recognized center of engineering excellence.

The university's historical significance extends beyond mere academic achievement, as it emerged from the anti-colonial National Council of Education, Bengal (1906), with the foundational mission "to achieve self-reliance through the empowerment of youth by imparting the best of global knowledge, technical education, and awareness of social, cultural, political, economic realities of the state, the nation" (Jadavpur University, 2024). This philosophical foundation continues to influence the institution's approach to engineering education, emphasizing not only technical competence but also social responsibility and national development.

In recognition of its sustained excellence, Jadavpur University was ranked fourth among universities in India by the National Institutional Ranking Framework in 2022, reflecting its outstanding contribution to engineering education, research, and innovation (Jadavpur University, 2024). The Faculty of Engineering Technology stands as the cornerstone of this achievement, housing sixteen specialized departments that collectively represent the breadth and depth of modern engineering disciplines.

Located in the intellectual hub of Jadavpur, Kolkata, West Bengal, the faculty operates within a unique ecosystem that combines historical legacy with contemporary relevance. As noted in institutional documentation, "to trace the history of Jadavpur University is to trace a part of India's freedom movement, at least from the Swadeshi Movement onwards" (Jadavpur University, 2022), positioning the institution as both an educational entity and a repository of India's struggle for technological self-reliance.

3.2 INSTITUTIONAL GOVERNANCE AND ADMINISTRATIVE FRAMEWORK

The Faculty of Engineering Technology operates under a comprehensive governance structure designed to ensure academic excellence while maintaining operational efficiency. The current Dean of the Faculty is Prof. Saroj Mandal, who oversees administrative operations from the Main Campus located in the TEQIP Building (Jadavpur University, 2024). This leadership structure reflects the university's commitment to academic governance while ensuring effective coordination across the faculty's diverse departmental structure.

The administrative framework embodies democratic principles characteristic of premier Indian institutions, with faculty councils, executive committees, and specialized cells working collaboratively to create an environment conducive to learning, research, and innovation. This governance model has been instrumental in maintaining the institution's reputation for producing competent engineers who contribute significantly to India's technological advancement and economic development.

The faculty's organizational structure facilitates both autonomy and coordination, allowing individual departments to pursue specialized academic goals while maintaining institutional coherence. This balance has enabled the faculty to adapt to changing technological landscapes while preserving its core commitment to engineering excellence and social responsibility.

3.3 CAMPUS INFRASTRUCTURE AND PHYSICAL FACILITIES

The Faculty of Engineering Technology is strategically located within Jadavpur University's main campus, which encompasses 60 acres in the heart of Kolkata. This expansive campus provides an optimal environment for academic pursuits, successfully integrating historical architectural elements with modern educational facilities. The infrastructure includes state-of-the-art laboratories, fully equipped workshops, comprehensive library systems, and advanced research facilities that collectively support both undergraduate and postgraduate academic programs.

The campus infrastructure reflects the institution's commitment to holistic education through its comprehensive facility portfolio. The H.L. Roy Auditorium and Triguna Sen Auditorium serve as venues for academic conferences, scholarly seminars, and cultural events, fostering intellectual discourse beyond the classroom environment. The Open Air Theatre, with its impressive seating capacity of approximately 3,000, functions as a central gathering space for major institutional events and cultural activities.

Supporting the university's philosophy of comprehensive development, the sports complex spans 6 acres and includes facilities for badminton, tennis, kabaddi, cricket, and football. These recreational facilities ensure that students receive opportunities for physical development alongside their academic pursuits, contributing to the formation of well-rounded engineering professionals.

The campus also houses specialized research centers, computer laboratories, and workshop facilities that enable hands-on learning experiences essential for engineering education. These facilities are continuously upgraded to incorporate emerging technologies and methodologies, ensuring that students have access to current industry-standard equipment and software.

3.4 DEPARTMENTAL STRUCTURE AND ACADEMIC ORGANIZATION

The Faculty of Engineering Technology encompasses sixteen specialized departments, each offering comprehensive undergraduate and postgraduate programs designed to address specific areas of engineering knowledge and practice. This departmental diversity reflects the faculty's commitment to covering the complete spectrum of engineering disciplines while maintaining academic depth and research quality in each specialized area.

3.4.1 Department of Architecture

Historical Background: The Department of Architecture emerged during the post-independence period as part of the university's strategic expansion into design and spatial sciences. Established to address India's growing urbanization challenges and the need for architectural professionals capable of addressing contemporary spatial design problems, the department has evolved to incorporate sustainable design principles, urban planning methodologies, and architectural innovation. The department's founding reflected the growing recognition of architecture as both an artistic discipline and a technical field requiring rigorous academic preparation.

Academic Programs and Curriculum: The department offers comprehensive undergraduate (B.Arch) and postgraduate (M.Arch) programs that prepare students to become innovative architects capable of addressing contemporary urban challenges. The curriculum emphasizes sustainable design practices, urban planning principles, and architectural innovation, reflecting current global trends in environmental responsibility and smart city development.

Student Capacity and Admission: The department maintains a selective admission process designed to ensure optimal faculty-student ratios and quality educational experiences, typically accommodating 35-40 undergraduate students and 15-20 postgraduate students annually.

3.4.2 Department of Chemical Engineering

Historical Background: The Department of Chemical Engineering was established during the post-independence era when chemical industries were recognized as crucial for national industrial development. Founded to support India's growing pharmaceutical, petrochemical, and process industries, the department has continuously evolved to address contemporary challenges in sustainable chemistry, green technology, and advanced materials processing. The department's development paralleled India's industrial growth, particularly in Eastern India's chemical corridor.

Academic Programs and Curriculum: As one of the core engineering disciplines, the department focuses on process engineering, materials science, and industrial chemistry. The comprehensive curriculum includes B.Tech and M.Tech programs alongside research opportunities leading to Ph.D. degrees. Students engage with cutting-edge technologies in petroleum refining, pharmaceutical processing, green chemistry, and sustainable manufacturing processes.

Student Capacity and Admission: The department accommodates approximately 40-50 undergraduate students per year and 15-20 postgraduate students, maintaining standards that ensure personalized attention and quality education.

3.4.3 Department of Civil Engineering

Historical Background: The Department of Civil Engineering commenced operations in 1956, establishing itself as one of the founding departments of Jadavpur University (Jadavpur University, 2024). Over the past 65 years, the department has earned a distinguished reputation, with nearly 5,000 graduates currently serving the engineering profession across various infrastructure development sectors in India and internationally. The department's establishment coincided with

India's post-independence infrastructure development phase, positioning it to contribute significantly to the nation's modernization efforts.

Academic Programs and Curriculum: The department, fundamental to infrastructure development, offers comprehensive programs encompassing structural engineering, transportation engineering, environmental engineering, and geotechnical engineering. Both undergraduate and postgraduate programs are designed to prepare engineers capable of addressing India's expanding infrastructure requirements, including smart cities, sustainable construction, and disaster-resistant structures.

Student Capacity and Admission: The department typically admits 60-70 undergraduate students annually and 25-30 postgraduate students across various specializations, maintaining its position as one of the larger departments within the faculty.

3.4.4 Department of Computer Science and Engineering

Historical Background: Academic activities in electronic digital computers began at Jadavpur University under the Electronics and Telecommunication Engineering Department in the early 1960s, receiving significant impetus in 1962 with the implementation of the ISIJU (Indian Statistical Institute - Jadavpur University) project. The Department of Computer Science and Engineering was formally established in 1988, making it one of the pioneering computer science departments in Eastern India (Jadavpur University, 2025). The department's evolution reflects the rapid advancement of computing technology and India's emergence as a global information technology hub.

Academic Programs and Curriculum: The department has evolved to become one of the most sought-after departments in the university, offering B.E. in Computer Science & Engineering (BCSE), M.E. in Computer Science & Engineering (MCSE), Master of Computer Applications (MCA), and Ph.D. programs. The curriculum encompasses software engineering, artificial intelligence, machine learning, data science, cybersecurity, and emerging technologies.

Student Capacity and Admission: Given the high demand for computer science education, the department admits approximately 80-90 undergraduate students per year and 40-50 postgraduate students, making it one of the largest departments in terms of student enrollment.

3.4.5 Department of Construction Engineering

Historical Background: The Department of Construction Engineering was established as a specialized discipline to address the increasing complexity of modern construction projects and the growing need for systematic construction management practices. Founded to bridge the gap between traditional civil engineering approaches and contemporary project management methodologies, the department represents the university's response to the evolving construction industry in India. The department's establishment reflected the recognition that modern construction requires specialized knowledge in project management, quality control, and sustainable building practices.

Academic Programs and Curriculum: This specialized department focuses on modern construction techniques, project management, sustainable building practices, and construction technology. The programs uniquely combine traditional civil engineering principles with contemporary construction management practices, preparing graduates for leadership roles in the construction industry.

Student Capacity and Admission: The department maintains a focused approach with approximately 30-40 students in undergraduate programs and 15-20 in postgraduate programs, ensuring personalized attention and specialized training.

3.4.6 Department of Electrical Engineering

Historical Background: The Department of Electrical Engineering holds the distinction of being one of the oldest departments of Jadavpur University, with its establishment dating back to 1906 as part of the original Bengal Technical Institute. The department commemorated its Diamond Jubilee in 1982 and Platinum Jubilee in 1996, marking significant milestones in its contribution to electrical engineering education and research in India (Jadavpur University, 2024). With over a century of continuous operation, this heritage department has witnessed and actively contributed to the evolution of electrical technology throughout India's industrial development.

Academic Programs and Curriculum: This distinguished department continues to lead in power systems, control engineering, electrical machine design, and renewable energy systems. The comprehensive programs have evolved to include modern areas such as smart grids, power electronics, electric vehicles, and sustainable energy systems, while maintaining strong foundations in classical electrical engineering principles.

Student Capacity and Admission: As one of the largest departments, it accommodates 70-80 undergraduate students annually and 35-40 postgraduate students, reflecting the continued high demand for electrical engineering expertise.

3.4.7 Department of Electronics and Telecommunication Engineering

Historical Background: The Department of Electronics and Telecommunication Engineering emerged from the recognition of communication technologies' growing importance in modern society. Established to meet the demands of India's expanding telecommunications sector, the department has continuously evolved to incorporate cutting-edge technologies in wireless communication, satellite communication, signal processing, and electronic systems. The department's development paralleled the telecommunications revolution in India, particularly during the liberalization period of the 1990s.

Academic Programs and Curriculum: The undergraduate program holds NBA accreditation for the academic years 2024-2025 to 2029-2030 (valid until 30.06.2030). The department specializes in communication systems, signal processing, electronic circuit design, and emerging areas such as 5G technology, Internet of Things (IoT), and embedded systems.

Student Capacity and Admission: The department admits approximately 60-70 undergraduate students per year and 25-30 postgraduate students, maintaining a balance between enrollment numbers and educational quality.

3.4.8 Department of Food Technology and Biochemical Engineering

Historical Background: The Department of Food Technology and Biochemical Engineering was established to address India's growing food security challenges and the increasing need for technological advancement in food processing industries. This interdisciplinary department emerged from the recognition that food technology requires both engineering principles and biochemical understanding. The department's founding reflected India's agricultural abundance and the need to reduce post-harvest losses through advanced food processing and preservation technologies.

Academic Programs and Curriculum: This interdisciplinary department combines engineering principles with food science and biotechnology. The programs focus on food processing, preservation technologies, biochemical processes, and nutrition science, addressing India's food security challenges while promoting sustainable food systems.

Student Capacity and Admission: The department maintains specialized programs accommodating 40-50 undergraduate students and 20-25 postgraduate students annually, ensuring intensive training in this specialized field.

3.4.9 Department of Information Technology

Historical Background: The Department of Information Technology evolved from the growing need for specialized IT education during India's digital transformation. The program became a full-fledged department in 2001, reflecting the rapid growth of India's information technology sector and the increasing demand for specialized IT professionals (Jadavpur University, 2024). The department's establishment coincided with India's emergence as a global IT services hub, positioning it to contribute to the nation's digital economy.

Academic Programs and Curriculum: The undergraduate program holds NBA accreditation for the academic years 2023-2024 to 2025-2026 (valid until 30.06.2026). The department addresses the growing demand for IT professionals through programs focusing on software development, database management, network administration, artificial intelligence, machine learning, and cybersecurity.

Student Capacity and Admission: The department admits 50-60 undergraduate students per year and 25-30 postgraduate students, reflecting the sustained demand for IT education.

3.4.10 Department of Instrumentation and Electronics Engineering

Historical Background: The Department of Instrumentation and Electronics Engineering was established in the 1970s to meet the growing demand for precision measurement and control systems in industrial applications. Founded during India's era of industrial modernization and

automation, the department emerged from the recognition that modern industries required sophisticated instrumentation and control systems. The department was conceived to bridge the gap between traditional electronics and industrial process control, responding to the specific needs of chemical plants, steel industries, and manufacturing sectors in Eastern India. Over the decades, it has evolved to incorporate modern technologies such as digital signal processing, embedded systems, and smart sensors.

Academic Programs and Curriculum: Specializing in measurement technologies, control systems, and industrial automation, the department prepares engineers for the increasingly automated industrial landscape. The curriculum includes instrumentation design, process control, sensors and transducers, and industrial automation systems.

Student Capacity and Admission: The department accommodates 45-55 undergraduate students annually and 20-25 postgraduate students, maintaining a focused approach to specialized education.

3.4.11 Department of Mechanical Engineering

Historical Background: The Department of Mechanical Engineering traces its origins to the founding days of Bengal Technical Institute in 1906, making it one of the oldest and most established departments in the university. As mechanical engineering formed the backbone of industrial development during both colonial and post-independence periods, this department played a crucial role in training engineers for India's emerging manufacturing sector. The department witnessed significant expansion during the 1950s and 1960s when India was establishing its heavy industries, steel plants, and manufacturing capabilities. The department has continuously evolved to incorporate modern technologies such as computer-aided design (CAD), robotics, automation, and renewable energy systems, while maintaining its strong foundation in classical mechanical engineering principles.

Academic Programs and Curriculum: As one of the fundamental engineering disciplines, Mechanical Engineering offers comprehensive programs covering thermodynamics, manufacturing processes, robotics, automotive engineering, and renewable energy systems. The curriculum balances theoretical foundations with practical applications, preparing graduates for diverse industrial sectors.

Student Capacity and Admission: This large department admits 80-90 undergraduate students per year and 40-45 postgraduate students, reflecting its continued relevance and popularity among engineering aspirants.

3.4.12 Department of Metallurgical and Materials Engineering

Historical Background: The Department of Metallurgical and Materials Engineering was established in the 1960s during India's push for industrialization and the development of heavy industries. The department was founded in response to the growing needs of India's steel industry, particularly with the establishment of major steel plants in Eastern India such as the Durgapur Steel Plant and Bokaro Steel Plant. Initially focused on traditional metallurgy and ferrous

materials, the department expanded its scope to include non-ferrous metals, ceramics, polymers, and composite materials as technology advanced. The department played a significant role in supporting India's space program, defense applications, and emerging electronics industry by developing expertise in advanced materials. Over the decades, it has evolved to address contemporary challenges in nanotechnology, biomaterials, and sustainable materials development.

Academic Programs and Curriculum: Focusing on materials science and engineering, the department addresses the growing need for advanced materials in aerospace, automotive, electronics, and renewable energy industries. The curriculum encompasses materials characterization, processing, design, and applications across various engineering sectors.

Student Capacity and Admission: The department maintains specialized programs with 40-50 undergraduate students and 15-20 postgraduate students annually, ensuring intensive training in materials science and engineering.

3.4.13 Department of Mining Engineering

Historical Background: The Department of Mining Engineering was established in the late 1950s, reflecting the strategic importance of mineral extraction in India's economic development. Eastern India, particularly West Bengal, Jharkhand, and Odisha, houses some of the country's largest coal reserves and mineral deposits, making specialized mining education crucial for the region. The department was founded during the period when Coal India Limited and other major mining companies were expanding operations, creating significant demand for trained mining engineers. Initially focused on coal mining and traditional extraction methods, the department has evolved to incorporate modern mining technologies, environmental protection measures, and sustainable mining practices. The curriculum has expanded to include mine safety engineering, mineral processing, and environmental impact assessment, responding to growing concerns about mining's ecological effects.

Academic Programs and Curriculum: This specialized department focuses on mineral extraction, mine safety, environmental aspects of mining, and mineral processing. The programs are designed to address India's mineral wealth while emphasizing sustainable and environmentally responsible mining practices.

Student Capacity and Admission: Given the specialized nature of mining engineering, the department admits 30-40 undergraduate students per year and 10-15 postgraduate students, ensuring focused training for this critical industry.

3.4.14 Department of Power Engineering

Historical Background: The Department of Power Engineering was established in the 1960s as a specialized branch to address India's growing energy crisis and the increasing complexity of power systems. The department emerged during a critical period when India was expanding its electrical grid and establishing major power generation facilities. The founding of this department coincided with the development of thermal power plants in Eastern India and the growing recognition that power engineering required specialized expertise beyond general electrical engineering. Initially

focused on conventional power generation and transmission systems, the department has evolved significantly to incorporate renewable energy technologies, smart grid systems, and energy management. The department played a crucial role in supporting the development of the Eastern Grid and has contributed expertise to major power projects in the region.

Academic Programs and Curriculum: This specialized branch focuses on power generation, transmission, and distribution systems, addressing India's growing energy needs. The curriculum has evolved to include renewable energy systems, smart grids, energy efficiency, and sustainable power systems.

Student Capacity and Admission: The department accommodates 35-45 undergraduate students annually and 15-20 postgraduate students, maintaining focused training for power sector professionals.

3.4.15 Department of Production Engineering

Historical Background: The Department of Production Engineering was established to bridge the gap between engineering design and industrial manufacturing. Founded by notable faculty including Professor Amitabha Bhattacharyya, who served as the founder and professor of the Department of Production Engineering while also contributing to the Department of Mechanical Engineering, the department has focused on industrial engineering and production management. The department's establishment reflected the growing recognition that modern manufacturing required specialized knowledge beyond traditional mechanical engineering, particularly in areas of production planning, quality control, and industrial management.

Academic Programs and Curriculum: Specializing in manufacturing processes, industrial engineering, and production management, this department bridges engineering principles with industrial applications. The curriculum encompasses production planning, quality management, operations research, and modern manufacturing technologies.

Student Capacity and Admission: The department admits 50-60 undergraduate students per year and 20-25 postgraduate students, preparing professionals for manufacturing and production industries.

3.4.16 Department of Textile Technology

Historical Background: Established in 1966, this department operates from the university's second campus at Salt Lake (Jadavpur University, 2024). The department reflects West Bengal's rich textile heritage and was established to meet the growing needs of the textile industry in Eastern India, which has traditionally been a major textile manufacturing region. The department's founding coincided with the modernization of India's textile industry and the need for technical expertise in textile manufacturing, design, and processing.

Academic Programs and Curriculum: Reflecting West Bengal's textile heritage, this department offers programs in textile engineering, fabric technology, and fashion design engineering. The

undergraduate program holds NBA accreditation for the academic years 2023-2024 to 2025-2026 (valid until 30.06.2026).

Student Capacity and Admission: The department maintains programs accommodating 40-50 undergraduate students and 15-20 postgraduate students annually, serving the textile industry's educational needs.

3.5 ACADEMIC PROGRAMS AND STUDENT ENROLLMENT

The Faculty of Engineering Technology offers a comprehensive range of academic programs designed to meet diverse educational and professional requirements. Each department provides both undergraduate (B.Tech/B.E.) and postgraduate (M.Tech/M.E.) programs, with many departments also offering doctoral research opportunities (Ph.D.). This multi-tier educational structure ensures that students can pursue advanced specialization while maintaining strong foundational knowledge in their chosen engineering disciplines.

Undergraduate Programs: The faculty's undergraduate programs are designed as four-year degree courses that combine theoretical knowledge with practical application. The curriculum structure emphasizes hands-on learning through laboratory work, project-based assignments, and industry internships. Each program maintains rigorous academic standards while ensuring that graduates possess both technical competence and professional skills necessary for successful engineering careers.

Postgraduate Programs: The two-year postgraduate programs offer advanced specialization in various engineering fields. These programs are research-oriented and designed to prepare students for leadership roles in industry or academic careers. The curriculum emphasizes advanced theoretical concepts, research methodology, and practical problem-solving skills.

Total Student Capacity: The faculty accommodates approximately 900-1,100 undergraduate students across all departments annually, with postgraduate programs hosting around 350-450 students. This enrollment balance ensures quality education while meeting the national demand for skilled engineers in various sectors. The selective admission process maintains the institution's reputation for academic excellence while ensuring that admitted students can benefit fully from the educational opportunities provided.

Admission Process: The admission process remains highly competitive, with students selected through rigorous entrance examinations and merit-based criteria. For undergraduate programs, admission is primarily through the Joint Entrance Examination (JEE) Main and Advanced, while postgraduate admissions are conducted through GATE (Graduate Aptitude Test in Engineering) scores and departmental entrance examinations.

3.6 RESEARCH AND INNOVATION ECOSYSTEM

The Faculty of Engineering Technology has established itself as a significant contributor to research and innovation across various engineering fields. The faculty encourages interdisciplinary research, industry collaboration, and technology transfer, creating an ecosystem that fosters

innovation and practical application of engineering knowledge. This research culture is embedded in both undergraduate and postgraduate programs, ensuring that students develop research aptitude alongside technical skills.

Research Infrastructure: Research facilities within the faculty include advanced laboratories, computational resources, and pilot-scale equipment that enable both fundamental and applied research. Each department maintains specialized laboratories equipped with modern instrumentation and software tools necessary for cutting-edge research. The university has invested significantly in research infrastructure, including high-performance computing facilities, advanced materials characterization equipment, and specialized testing facilities.

Research Focus Areas: Faculty members and students engage in research projects addressing national priorities such as renewable energy, sustainable development, smart cities, advanced manufacturing, artificial intelligence, and environmental protection. The research portfolio spans from basic scientific investigations to applied engineering solutions, with many projects receiving funding from government agencies, industry partners, and international organizations.

Industry Collaboration: The faculty maintains strong partnerships with leading industrial organizations, facilitating collaborative research projects, technology transfer, and student internships. These partnerships ensure that research activities remain relevant to industry needs while providing students with exposure to real-world engineering challenges.

3.7 INDUSTRY INTERFACE AND CAREER OUTCOMES

The Faculty of Engineering Technology maintains exceptional industry connections, as evidenced by its outstanding placement record. Almost 100% of students secure placement across all branches, demonstrating both the faculty's strong industry relationships and the high quality of its graduates (Jadavpur University, 2024). The placement process operates throughout the academic year, unlike many institutions where placement activities are confined to specific periods, providing students with continuous opportunities for career advancement.

Major Recruiters: Leading technology companies such as Amazon, Microsoft, Adobe, and Goldman Sachs regularly recruit from the faculty, reflecting the high regard in which Jadavpur University graduates are held by industry. The recruiter portfolio spans diverse sectors including information technology, core engineering, research and development, consulting, and emerging technology companies.

Placement Statistics: Placement outcomes vary by department, with Computer Science and Engineering traditionally commanding the highest salary packages, though all departments maintain strong placement records. The diversity of career outcomes reflects the comprehensive nature of engineering education provided by the faculty and the adaptability of its graduates to various industry sectors.

Career Development Support: The faculty provides comprehensive career development support through placement cells, industry interaction programs, skill development workshops, and alumni networking opportunities. These initiatives ensure that students are well-prepared for professional

careers and equipped with both technical and soft skills necessary for success in the engineering profession.

3.8 CONCLUSION

The Faculty of Engineering Technology at Jadavpur University represents a remarkable synthesis of historical legacy and contemporary relevance in Indian engineering education. With its sixteen diverse departments, comprehensive academic programs, and strong industry connections, the faculty continues to play a crucial role in India's technological advancement and economic development.

The institution's commitment to quality education, research excellence, and holistic development positions it as an exemplary model for engineering education in India. Its evolution from a colonial-era technical institute to a modern university faculty reflects broader themes in Indian higher education, including institutional transformation, educational policy development, and technological advancement in post-independence India.

For researchers and academics, the Faculty of Engineering Technology offers rich opportunities to examine various aspects of engineering education, from pedagogical approaches and curriculum development to industry-academia collaboration and research outcomes. The faculty's diverse departmental structure, varying student capacities, and differential career outcomes across disciplines provide multiple dimensions for comparative analysis and institutional study.

The faculty's historical significance, combined with its contemporary achievements, makes it particularly valuable for studies examining institutional evolution, educational innovation, and the role of technical education in national development. As India continues to strengthen its position as a global technology hub, institutions like the Faculty of Engineering Technology at Jadavpur University serve as both contributors to and indicators of the nation's technological progress.

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Chapter 4

Research Design and

Methodology

Chapter 4: Research Design and Methodology

4.1 INTRODUCTION

Research methodology serves as the systematic framework for solving research problems, generating predictable answers, and examining hypotheses through appropriate analytical procedures (Creswell & Creswell, 2018). The methodology encompasses data collection practices, data analysis procedures, and statistical techniques employed in a particular study (Kumar, 2019). This chapter delineates the research design, population parameters, sampling techniques, and data collection instruments utilized in the present investigation. The current study endeavors to examine the utilization patterns of open access resources among postgraduate students within the Faculty of Engineering and Technology at Jadavpur University.

4.2 RESEARCH DESIGN

This investigation employs a descriptive survey research design, which is particularly appropriate for studies aimed at describing characteristics of a population or phenomenon being studied (Babbie, 2020). The research adopts a mixed-methods approach, combining quantitative survey research with qualitative interviews to provide comprehensive insights into open access resource utilization patterns (Tashakkori & Teddlie, 2010). This methodological triangulation enhances the validity and reliability of findings by capturing both measurable usage patterns and contextual understanding of user experiences (Denzin & Lincoln, 2018).

The survey methodology was selected for its effectiveness in collecting standardized information from a large sample population within a defined timeframe (Fowler, 2014). Data collection involved face-to-face interviews with respondents, conducted personally by the researcher to ensure clarity of responses and minimize non-response bias (Groves et al., 2009).

4.3 POPULATION OF THE STUDY

The target population for this study comprises all students enrolled in postgraduate courses under the Faculty of Engineering and Technology at Jadavpur University. This population specification aligns with the research objective of analyzing open access resource utilization patterns among this specific academic demographic (Neuman, 2014). The geographical scope of this investigation is confined to Jadavpur University's main campus and Salt Lake campus, ensuring administrative feasibility and cultural homogeneity within the sample frame.

The Faculty of Engineering and Technology at Jadavpur University encompasses sixteen departments, representing diverse engineering and technological disciplines. This comprehensive coverage ensures that findings reflect the breadth of academic specializations within the engineering domain (Punch, 2014).

4.4 SAMPLING DESIGN AND SAMPLE SELECTION

4.4.1 Sampling Technique

Sampling constitutes a systematic technique for selecting individuals from a study population in a manner that represents the larger population group (Cochran, 1977). The necessity for sampling

arises from the practical impossibility and cost-prohibitive nature of surveying entire populations, particularly in large-scale studies (Babbie, 2020). This study employed stratified random sampling, with departments serving as strata, followed by proportional allocation to ensure representative coverage across all engineering disciplines (Levy & Lemeshow, 2013).

4.4.2 Sample Size Determination

The sample size was determined considering the finite population size and the desired level of precision. Using Krejcie and Morgan's (1970) formula for sample size determination, a sample of 437 respondents was selected from a total population of 639 postgraduate students. This sample size ensures adequate representation while maintaining statistical power for meaningful analysis (Cohen, 1988).

4.4.3 Departmental Distribution

The Faculty of Engineering and Technology comprises sixteen departments: Architecture, Chemical Engineering, Civil Engineering, Computer Science and Engineering, Construction Engineering, Electrical Engineering, Electronics and Telecommunication Engineering, Food Technology and Biochemical Engineering, Information Technology, Instrumentation and Electronics Engineering, Mechanical Engineering, Metallurgical and Materials Engineering, Pharmaceutical Technology, Power Engineering, Printing Engineering, and Production Engineering.

Proportional sampling was implemented to ensure adequate representation from each department, with sample allocation proportional to departmental enrollment. The detailed sampling distribution is presented in Table 4.1.

Table 4.1: Departmental Sample Distribution

Sl. No.	Department	Total Population	Sample Size	Sampling Percentage
1	Architecture	17	8	47.1%
2	Chemical Engineering	48	35	72.9%
3	Civil Engineering	28	17	60.7%
4	Computer Science & Engineering	144	124	86.1%
5	Construction Engineering	18	8	44.4%
6	Electrical Engineering	65	55	84.6%
7	Electronics & Telecommunication Engineering	64	39	60.9%

Sl. No.	Department	Total Population	Sample Size	Sampling Percentage
8	Food Technology & Biochemical Engineering	12	4	33.3%
9	Information Technology	45	23	51.1%
10	Instrumentation & Electronics Engineering	10	5	50.0%
11	Mechanical Engineering	59	43	72.9%
12	Metallurgical & Materials Engineering	32	21	65.6%
13	Pharmaceutical Technology	49	34	69.4%
14	Power Engineering	18	7	38.9%
15	Printing Engineering	10	4	40.0%
16	Production Engineering	20	10	50.0%
	Total	639	437	68.4%

4.5 RESEARCH TOOLS

4.5.1 Questionnaire Design and Development

The primary data collection instrument consisted of a comprehensive structured questionnaire designed to capture multiple dimensions of open access resource utilization. The questionnaire development process followed established guidelines for survey instrument construction (DeVellis, 2017). The instrument underwent content validation through expert review and pilot testing to ensure clarity, relevance, and comprehensiveness (Hinkin, 1995).

The questionnaire comprises 45 systematically organized questions across nine thematic sections, designed to address all research objectives comprehensively. The instrument employs multiple question formats including dichotomous questions, multiple-choice items, Likert-scale matrices, and open-ended responses to capture both quantitative and qualitative data (Dillman et al., 2014).

4.5.2 Questionnaire Structure and Content

Section A: Respondent Profile (Questions 1-6) This demographic section establishes respondent background through six fundamental questions covering name (optional), gender classification (male/female), domicile status (rural/urban), age categorization (below 20 to above 25 years), departmental affiliation, and academic level (PG 1st year or PG 2nd year). This foundational data enables analysis of response patterns across demographic segments and understanding of how background factors influence open access adoption patterns.

Section B: Digital Resource Experience (Questions 7-8) This section examines prior digital literacy through two key questions measuring electronic resource usage experience across five temporal categories and search engine preferences including Google, Bing, DuckDuckGo, Brave Search, and others, allowing multiple selections to understand diverse search behaviors among academic users.

Section C: Open Access Awareness and Knowledge (Questions 9-13) This comprehensive section examines awareness levels about the Open Access movement through five detailed questions assessing basic movement awareness, detailed matrix measuring awareness across four OA resource types using five-point scales, authority evaluation practices, preferred search techniques, and knowledge sources about OA resources.

Section D: Usage Challenges and Quality Concerns (Questions 14-21) This section addresses user challenges and quality perceptions through eight comprehensive questions employing Likert-scale matrices examining authentication concerns, quality perceptions, willingness to use authentic OA resources, access difficulties, user interface satisfaction, mobile technology preferences, and content quality assessments.

Section E: Social Media and Information Seeking (Questions 22-27) This section examines social media awareness and information seeking patterns through six questions measuring alerting service awareness across social media platforms, information search types across nine resource categories, usage frequency, time investment, usage reasons, and usage impact assessment.

Section F: Platform-Specific Usage Assessment (Questions 28-31) This extensive section provides detailed platform usage analysis across four comprehensive questions examining journal portal usage, book platform usage, repository usage, and database usage across multiple platforms and resources.

Section G: Publishing Preferences and Institutional Context (Questions 32-39) This section explores publishing behavior and institutional perspectives through eight questions examining publishing preferences in OA models, preferred formats, usage tracking preferences, business model attitudes, institutional mandates, and OA impact on information inequality.

Section H: Purpose and Perception Analysis (Questions 40-42) This section examines usage purposes and user perceptions through three comprehensive matrix questions evaluating usage purposes, publication perceptions, and user attitudes using Likert-scale measurements.

Section I: Evaluation and Satisfaction (Questions 43-45) The final section addresses evaluation criteria and overall satisfaction through three concluding questions covering research support evaluation, overall satisfaction measurement, and open-ended suggestions for improvement.

4.5.3 Survey Administration

The survey method serves as a systematic tool for collecting data from predefined population groups, establishing connections between participants and researchers (Fowler, 2014). This research employed face-to-face survey administration, with the researcher personally visiting respondents for data collection. This approach ensures higher response rates, clarifies ambiguous

questions, and minimizes missing data compared to self-administered surveys (Groves et al., 2009).

4.5.4 Interview Protocol

Structured interviews were conducted as supplementary data collection methods to gather in-depth insights into respondent experiences and perceptions (Kvale & Brinkmann, 2015). The interview protocol consisted primarily of closed-ended and multiple-choice questions, with individual consultations conducted to ensure comprehensive data collection. This structured approach maintains consistency across interviews while allowing for clarification and elaboration when necessary (Patton, 2015).

4.5.5 Observational Data Collection

Observational research methods were employed to understand participants within their natural academic settings, enabling researchers to comprehend the actual situational context of the study area (Marshall & Rossman, 2016). This ethnographic component provides contextual understanding that complements survey and interview data, offering insights into actual usage behaviors beyond self-reported measures (Angrosino, 2007).

4.6 DATA COLLECTION PROCEDURES

4.6.1 Primary Data Collection

Primary data collection involved systematic distribution and administration of questionnaires to selected respondents across all sixteen departments within the Faculty of Engineering and Technology. The data collection process was conducted over a period from September 2023 to February 2024 to ensure adequate coverage and minimize temporal bias. Of the 600 questionnaires distributed, 437 complete responses were received, yielding a response rate of 72.8%, which exceeds the minimum threshold for survey research validity (Nulty, 2008).

4.6.2 Secondary Data Collection

Secondary data were gathered primarily from academic databases, institutional repositories, and published literature to support the literature review and provide contextual understanding of the research area. These sources included peer-reviewed journal articles, conference proceedings, institutional reports, and statistical databases relevant to open access resource utilization in higher education contexts (Boote & Beile, 2005).

4.7 DATA ANALYSIS FRAMEWORK

The collected data underwent systematic analysis using appropriate statistical techniques aligned with research objectives and data characteristics. Quantitative data analysis employed descriptive statistics, frequency distributions, cross-tabulations, and inferential statistical tests using SPSS software (Field, 2018). Qualitative data from open-ended questions underwent thematic analysis to identify patterns and themes in respondent perspectives (Braun & Clarke, 2006).

4.8 Validity and Reliability Considerations

4.8.1 Content Validity

Content validity was ensured through expert review of the questionnaire by subject matter specialists in library and information science, ensuring that all relevant dimensions of open access resource utilization were adequately represented (Lawshe, 1975).

4.8.2 Construct Validity

Construct validity was established through factor analysis and correlation analysis to ensure that measurement instruments accurately capture the intended constructs (Cronbach & Meehl, 1955).

4.8.3 Reliability Assessment

Internal consistency reliability was assessed using Cronbach's alpha coefficients for multi-item scales, with values exceeding 0.70 considered acceptable for research purposes (Nunnally, 1978).

4.9 ETHICAL CONSIDERATIONS

This research adhered to established ethical guidelines for human subjects research, including informed consent procedures, voluntary participation, confidentiality protection, and right to withdraw (American Psychological Association, 2017). Institutional approval was obtained from relevant authorities at Jadavpur University prior to data collection commencement.

4.10 LIMITATIONS

Several limitations should be acknowledged in this methodology. The study is confined to a single institution, potentially limiting generalizability to other universities or geographical contexts. The cross-sectional design captures usage patterns at a specific time point, which may not reflect temporal variations in open access resource utilization. Self-reported data may be subject to social desirability bias and recall limitations. Despite these constraints, the comprehensive sampling strategy and mixed-methods approach provide robust foundations for understanding open-access resource utilization patterns among the target population.

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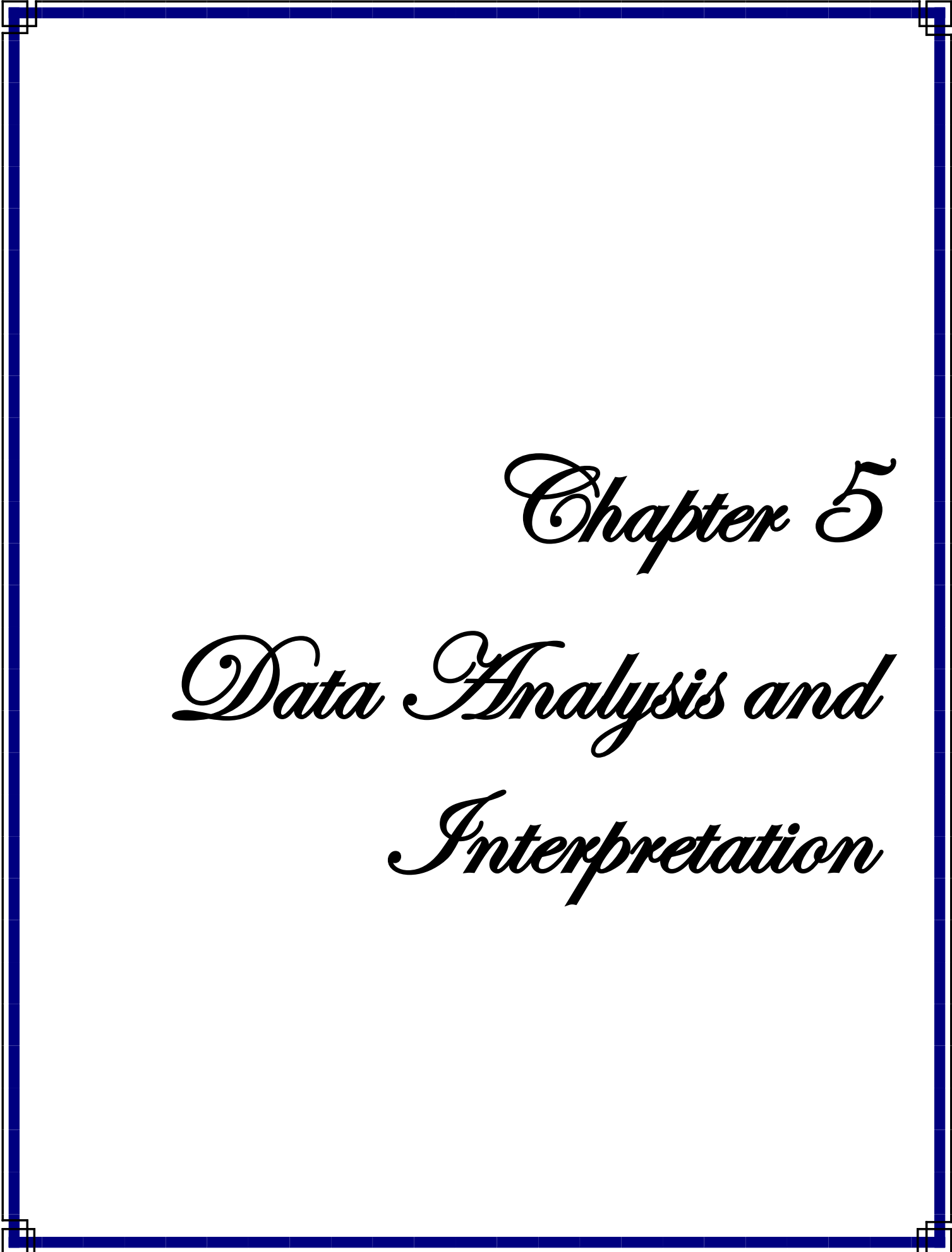
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Chapter 5

Data Analysis and

Interpretation

Chapter 5 Data Analysis and Interpretation

5.0 INTRODUCTION

This chapter presents the analysis and interpretation of data collected on the use of open access (OA) resources among postgraduate engineering students. The data was gathered using a structured questionnaire, supplemented by personal interviews with respondents, to ensure accuracy and depth of understanding. The primary aim of this chapter is to transform the raw data into meaningful insights that reflect the attitudes, awareness, usage patterns, and perceptions of the students toward OA resources.

The chapter begins by outlining the demographic profile of the respondents, including their departmental distribution, academic standing, gender, age, and domicile. This demographic analysis provides crucial context for interpreting the subsequent findings. Following this, the chapter systematically examines various aspects of OA resource usage, including preferred search engines, awareness of the OA movement and its resources (journals, books, repositories, and databases), experiences with electronic resources, and perceptions of the authority and quality of OA publications.

The findings presented here highlight not only the widespread adoption of OA resources but also the variations in awareness, preferences, and attitudes across different demographic and academic categories. By analyzing these patterns, this chapter offers valuable insights into the factors influencing OA resource usage and suggests areas for further improvement and targeted interventions to enhance OA literacy and engagement among students.

In Faculty of Engineering and Technology, no 16 departments

5.1 Demographical Details of Respondents

Sl.No	Departments	Frequency	Percentage%
1.	Architecture	8	1.83
2.	Chemical-engineering	35	8.01
3.	Civil-engineering	17	3.89
4.	Computer-science & engineering	124	28.37
5.	Construction-engineering	8	1.83
6.	Electrical-engineering	55	12.59
7.	Electronics-telecommunication-engineering	39	8.29
8.	Food-technology-bio-chemical-engineering	4	0.92
9.	Information-technology	23	5.26

10.	Instrumentation-and-electronics-engineering	5	1.14
11.	Mechanical-engineering	43	9.84
12.	Metallurgical-material-engineering	21	4.81
13.	Pharmaceutical-technology	34	7.78
14.	Power-engineering	7	1.60
15.	Printing-engineering	4	0.92
16.	Production-engineering	10	2.29
	Total	437	100

Table : 5.1 Demographical Details of Respondents by Departments

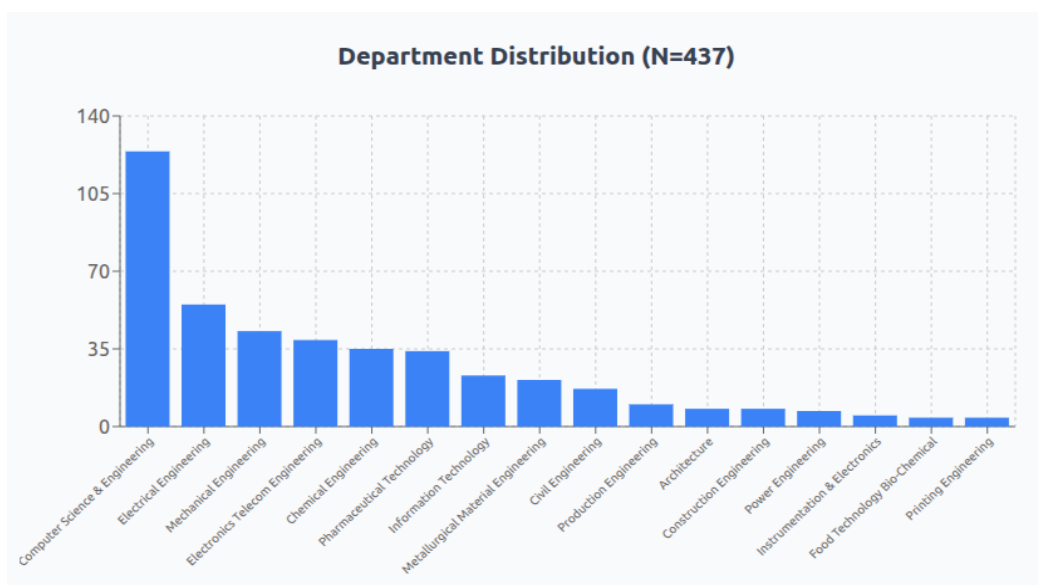


Fig: 5.1 Demographical Details of Respondents by Departments

Sl.No	Description	Frequency	Percentage%
1.	P.G 1st Year	143	32.72
2.	P.G 2nd Year	294	67.28
	Total	437	100

Table : 5.2 Demographical Details of Respondents by user category

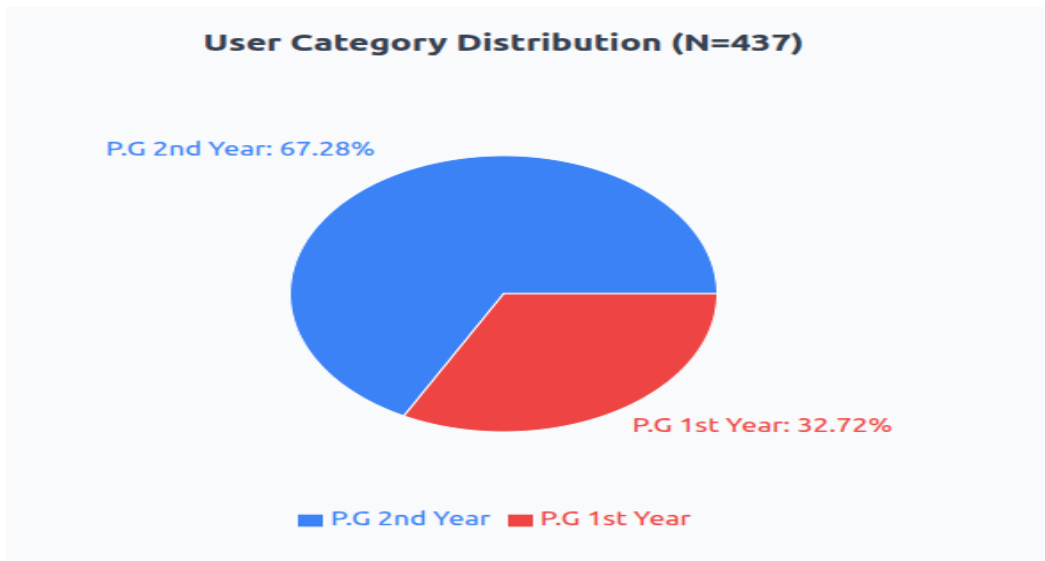


Fig : 5.2 Demographical Details of Respondents by user category

Gender

Sl.No	Description	Frequency	Percentage%
1.	Female	208	47.61
2.	Male	229	52.39
	Total	437	100

Table : 5.3 Demographical Details of Respondents by gender

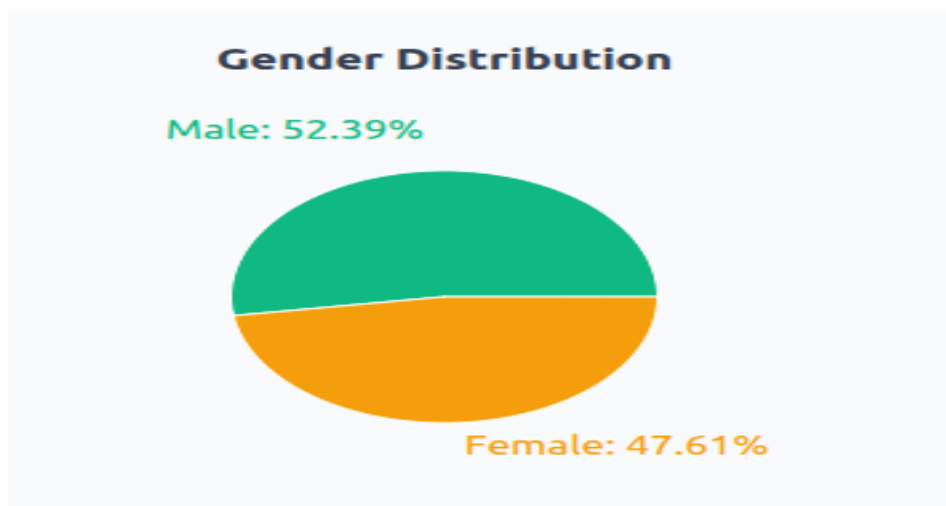


Fig : 5.3 Demographical Details of Respondents by gender

Age

Sl.No	Description	Frequency	Percentage%
1.	20 and below	56	12.81
2.	21-22	212	48.51
3.	23-24	141	32.26
4.	25 and Above	28	6.41
	Total	437	100

Table : 5.4 Demographical Details of Respondents by gender

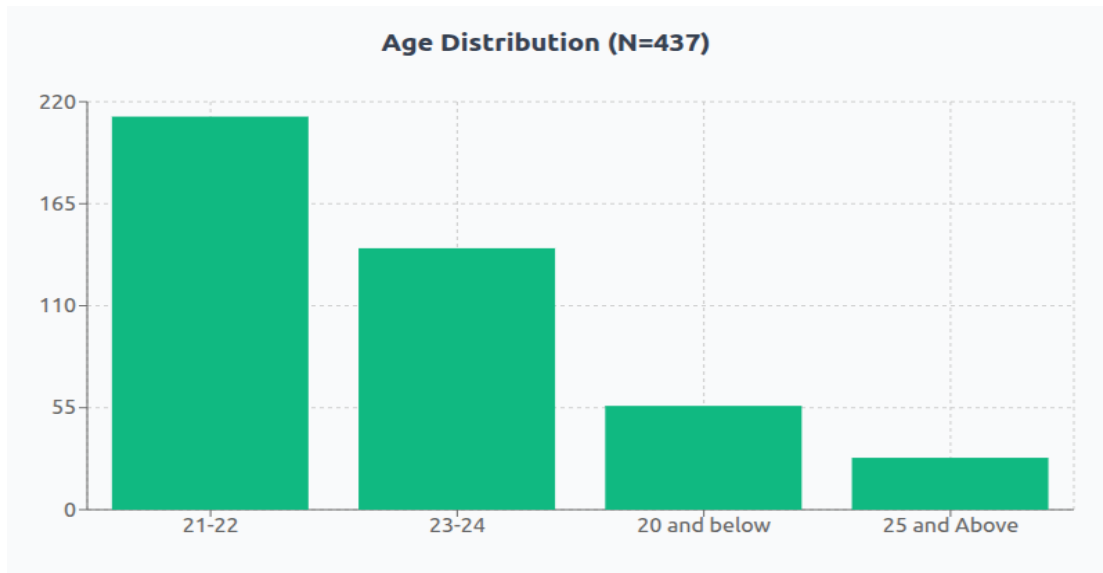


Fig : 5.4 Demographical Details of Respondents by gender

Domicile

Sl.No	Description	Frequency	Percentage%
1.	Rural	283	64.76
2.	Urban	154	35.24
	Total	437	100

Table : 5.5 Demographical Details of Respondents by Domicile

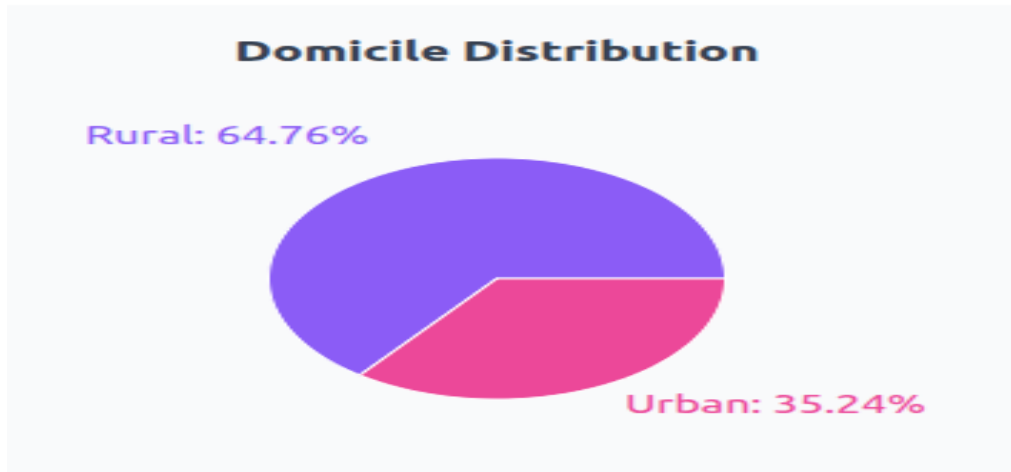


Fig : 5.5 Demographical Details of Respondents by Domicile

The demographic analysis of 437 postgraduate engineering students reveals several important patterns and insights that provide crucial context for understanding the sample composition and its implications for research validity.

The departmental distribution is very uneven, with Computer Science & Engineering making up 28.37% of the sample (124 students), which is more than a quarter of all the people who answered. This large representation shows how education and industry are moving towards technology-focused fields. This is because of India's digital transformation efforts and the global need for IT workers. The second largest group is Electrical Engineering, which has 12.59% (55 students), and the third largest group is Mechanical Engineering, which has 9.84% (43 students). These traditional fields of engineering are still very important, which shows that they are still useful in industry and for students' career choices. The next two groups are Electronics and Telecommunications Engineering (8.29%, or 39 students) and Chemical Engineering (8.01%, or 35 students), both of which have moderate levels of participation. Information Technology adds 5.26% (23 students), and Pharmaceutical Technology adds 7.78% (34 students). The other departments have smaller representations, with specialised fields like Food Technology, Bio-Chemical Engineering, and Printing Engineering each only having 0.92% (4 students each). This pattern shows that even though engineering education includes a wide range of specialisations, students and the job market strongly favour traditional core engineering fields and technology-related fields. The academic level distribution shows that senior students are more likely to participate, with P.G. 2nd Year students making up 67.28% (294 students) and P.G. 1st Year students making up 32.72% (143 students).

This 2:1 ratio suggests that students with more academic experience and research exposure are more likely to participate in survey research. Second-year students have usually finished their basic classes and may be more involved in research, thesis writing, or advanced projects that make them easier to reach and more willing to take part in academic surveys. This distribution also suggests that the answers might be of higher quality because the people who gave them are more familiar with research methods and academic processes. With 52.39% (229 students) of the students being male and 47.61% (208 students) being female, the gender distribution is very even. This almost equal representation is especially important in the context of engineering education, where there used to be a lot fewer women. The even number of men and women suggests that diversity programs are working, that women in engineering are more accepted by society, and

that schools are working to make their classrooms more welcoming to everyone. This balance of demographics makes the research more valid by allowing for meaningful gender-based analysis and lowering the chances of gender-specific biases in the results.

The age distribution for postgraduate education is what you'd expect, with the 21-22 year old group making up the largest group at 48.51% (212 students). This is typical of students who go straight from undergraduate studies to postgraduate studies. There are 141 students in the 23-24 age group, which is 32.26% of the total. There are 56 students in the 20 and younger age group, which is 12.81% of the total. The group with the fewest members is made up of students who are 25 years old or older, which is 6.41% (28 students). This age range shows that most of the people taking part are following traditional academic schedules, with only a few gaps between their undergraduate and graduate studies.

. The limited representation of older students suggests fewer working professionals or career-change students, which may affect the diversity of perspectives regarding industry-academia connections and practical applications.

The domicile distribution reveals a rural majority at 64.76% (283 students) compared to urban representation at 35.24% (154 students). This rural predominance is particularly noteworthy in the Indian educational context and demonstrates successful outreach efforts to make engineering education accessible to rural populations. The rural majority reflects effective government policies, institutional initiatives, and infrastructure development that have enabled students from rural backgrounds to access higher education. This distribution provides valuable insights into educational transformation and accessibility while potentially influencing responses related to technology access, infrastructure familiarity, and socioeconomic perspectives.

The combined demographic profile creates several important research implications. The Computer Science & Engineering dominance introduces potential bias toward technology-oriented perspectives, which researchers must consider when interpreting findings related to innovation adoption, digital literacy, or research methodologies. The second-year student majority suggests more sophisticated and informed responses due to enhanced academic experience and research exposure. The balanced gender representation strengthens the research validity and enables comprehensive analysis across gender lines, while the rural majority provides often underrepresented perspectives in engineering education research.

These demographic patterns also reveal both strengths and limitations in sample representativeness. The diversity across 16 engineering departments provides broad disciplinary coverage, though the uneven distribution may limit generalizability within specific fields. The typical age distribution for postgraduate students enhances relevance to the target population, while the rural majority offers valuable insights into educational accessibility and transformation. However, the technology-focused disciplinary concentration and limited professional experience representation require careful consideration in result interpretation.

The demographic analysis ultimately establishes a foundation for understanding how sample characteristics may influence research outcomes. The unique combination of technology dominance, academic experience, gender balance, typical age distribution, and rural majority creates a distinctive demographic profile that both enhances certain research aspects and requires careful interpretation in others. These insights are essential for establishing appropriate context for research findings and informing future study design considerations to ensure comprehensive and representative sampling across engineering education research.

5.2 Preferred Search Engine

Sl.no	Search Engine	Frequency	Percentage%
1.	Google	353	80.78
2.	Bing	37	8.47
3.	DuckDuckGo	19	4.35
4.	Brave Search	21	4.81
5.	Others	7	1.60

Table : 5.6 Preferred Search Engine

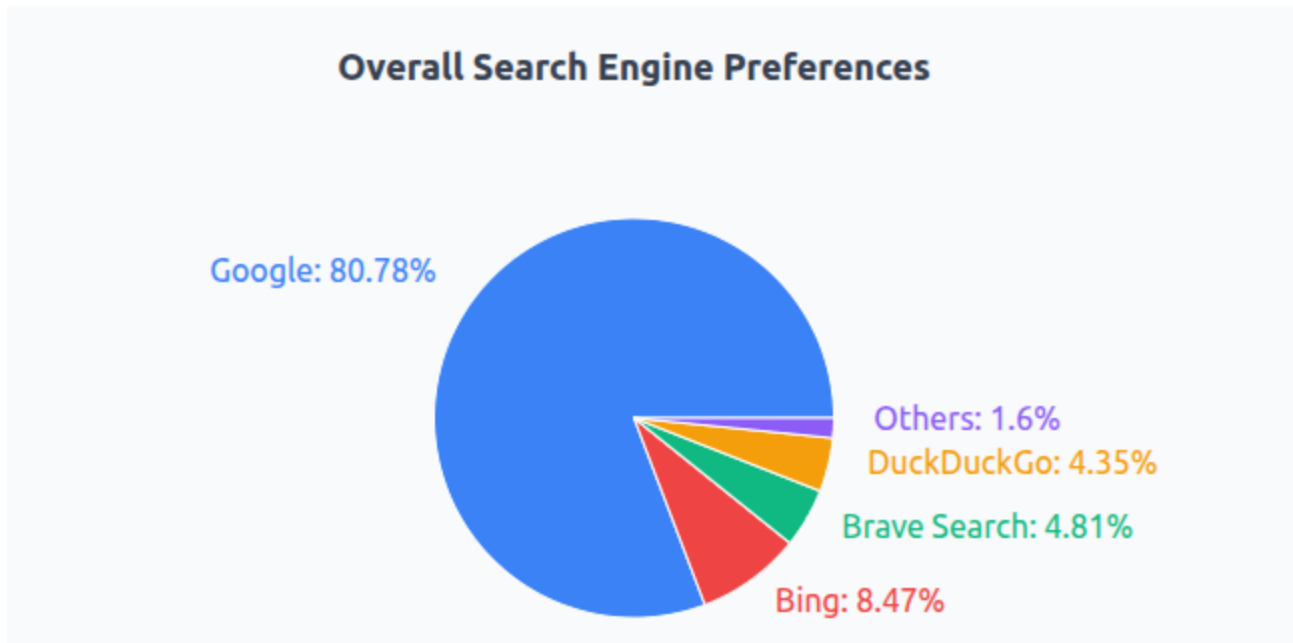


Fig : 5.6 Preferred Search Engine

5.2.1 Preferred Search Engine by Department's

Sl. No	Departments	Frequency	Google	Bing	DuckDuckGo	Brave Search	Others						
1.	Architecture	8	1.83	3	37.5	2	25.0	1	12.5	2	25.0	0	0
2.	Chemical-engineering	35	8.01	27	77.14	4	11.43	3	8.57	1	2.86	0	0

3.	Civil-engineering	17	3.89	14	82.35	2	11.76	1	5.88	0	0	0	0
4.	Computer-science & engineering	124	28.37	106	85.48	6	4.84	3	2.42	5	4.03	4	3.23
5.	Construction-engineering	8	1.83	3	37.5	2	25.0	1	12.5	2	25.0	0	0
6.	Electrical-engineering	55	12.59	46	83.64	4	7.27	1	1.82	4	7.27	0	0
7.	Electronics-telecommunication-engineering	39	8.29	34	87.18	2	5.13	1	2.56	2	5.13	0	0
8.	Food-technology-bio-chemical-engineering	4	0.92	3	75.0	1	25.0	0	0	0	0	0	0
9.	Information-technology	23	5.26	19	82.61	2	8.70	1	4.35	0	0	1	4.35
10.	Instrumentation-and-electronics-engineering	5	1.14	2	40.0	1	20.0	0	0	2	40.0	0	0
11.	Mechanical-engineering	43	9.84	38	88.37	3	6.98	1	2.33	0	0	1	2.33
12.	Metallurgical-material-engineering	21	4.81	16	76.19	2	9.52	1	4.76	2	9.52	0	0
13.	Pharmaceutical-technology	34	7.78	30	88.24	2	5.88	1	2.94	1	2.94	0	0
14.	Power-engineering	7	1.60	4	57.14	1	14.29	1	14.29	1	14.29	1	14.29
15.	Printing-engineering	4	0.92	2	50.0	1	25.0	1	25.0	0	0	0	0
16.	Production-engineering	10	2.29	6	60.0	3	30.0	1	10.0	0	0	0	0
	Total	437	100	353	80.8	38	8.7	17	3.9	22	5.0	7	1.6

User category

1.	P.G 2nd Year	294	67.28	249	84.7	23	7.8	5	1.7	13	4.4	5	1.7
2.	P.G 1st Year	143	32.72	104	72.7	15	10.5	12	8.4	9	6.3	2	1.4

Gender

1.	Female	208	47.61	175	84.1	11	5.3	7	3.4	14	6.7	0	0
2.	Male	229	52.39	178	77.7	27	11.8	10	4.4	8	3.5	7	3.1

Age

1.	20 and below	56	12.81	27	48.2	10	17.9	7	12.5	5	8.9	4	7.1
2.	21-22	212	48.51	186	87.7	13	6.1	6	2.8	9	4.2	1	0.5
3.	23-24	141	32.26	123	87.2	9	6.4	3	2.1	6	4.3	1	0.7
4.	25 and Above	28	6.41	17	60.7	6	21.4	1	3.6	1	3.6	2	7.1

Domicile

1.	Rural	283	64.76	178	62.9	16	5.7	6	2.1	9	3.2	2	0.7
2.	Urban	154	35.24	175	113.6	22	14.3	11	7.1	13	8.4	5	3.2

Table 5.7 Preferred Search Engine by Categories

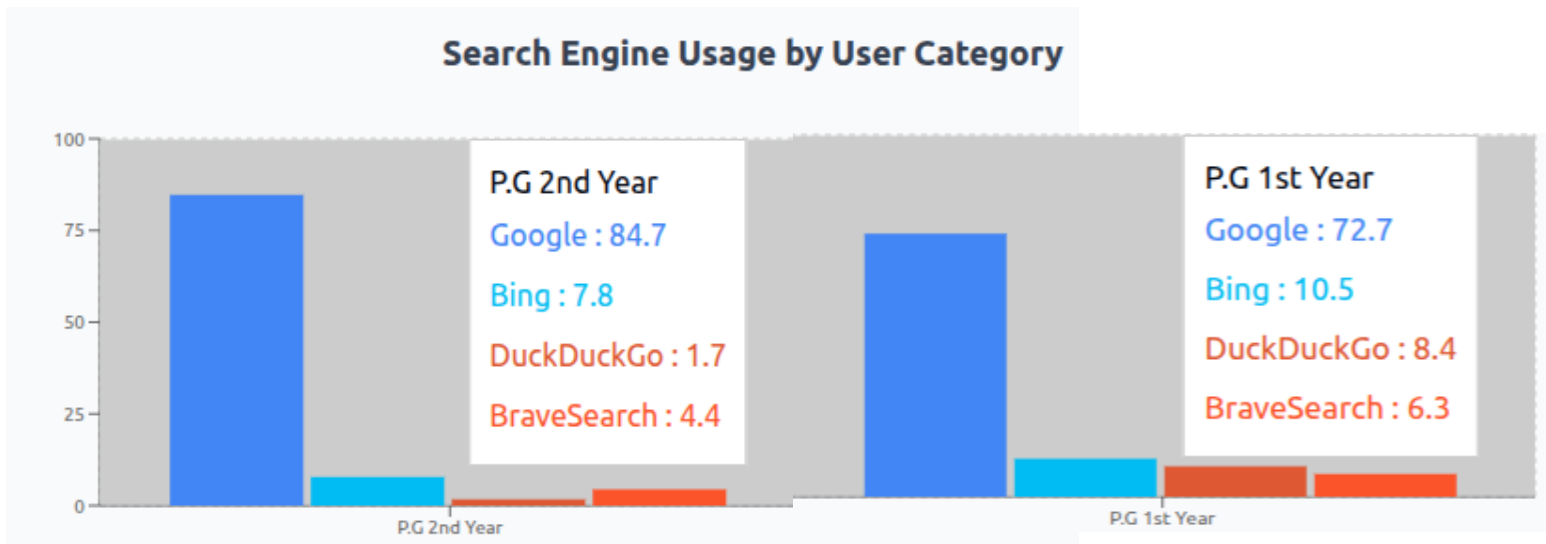


Fig 5.7 Preferred Search Engine by User Category

The analysis of search engine preferences among 437 postgraduate engineering students reveals significant patterns in digital behavior and technology adoption that reflect broader trends in information-seeking behavior within academic environments. The data demonstrates an overwhelming preference for Google across all demographic categories, while also revealing interesting variations in alternative search engine usage patterns.

Google's dominance in the sample is striking, with 353 students (80.78%) preferring it as their primary search engine. This substantial majority reflects Google's established position as the world's leading search engine and its comprehensive integration into academic and professional workflows. The preference for Google likely stems from its superior search algorithm effectiveness, extensive indexing capabilities, seamless integration with academic tools like Google Scholar, and familiarity developed through years of consistent use. The platform's ability to handle complex technical queries, provide relevant academic resources, and offer specialized search features makes it particularly valuable for engineering students who require precise and comprehensive information for their studies and research.

Bing emerges as the second most preferred search engine with 37 students (8.47%) choosing it, followed by Brave Search at 21 students (4.81%) and DuckDuckGo at 19 students (4.35%). The preference for Bing may reflect its integration with Microsoft's ecosystem, which is commonly used in academic institutions, while the choice of privacy-focused alternatives like DuckDuckGo and Brave Search suggests a growing awareness of digital privacy concerns among a subset of engineering students. The remaining 7 students (1.60%) prefer other search engines, indicating minimal adoption of alternative platforms beyond the main competitors.

The departmental analysis reveals fascinating variations in search engine preferences that appear to correlate with disciplinary characteristics and technical sophistication. Mechanical Engineering students show the highest Google usage at 88.37%, followed closely by Pharmaceutical Technology at 88.24% and Electronics & Telecommunication Engineering at 87.18%. These high adoption rates in traditional engineering disciplines suggest that established fields with extensive online documentation and resources benefit maximally from Google's comprehensive indexing. Computer Science & Engineering students, despite their technical background, show a relatively lower Google usage at 85.48%, which may reflect greater awareness of alternative search engines and privacy concerns inherent in the computing field.

Interestingly, departments with smaller sample sizes show more diverse search engine preferences. Architecture and Construction Engineering students demonstrate the most varied preferences, with only 37.5% using Google, suggesting that these fields may have specialized information needs that are better served by alternative search platforms or that their information-seeking behavior differs from mainstream engineering disciplines. The Civil Engineering department shows strong Google preference at 82.35%, while Chemical Engineering students prefer Google at 77.14%, indicating moderate but consistent adoption patterns across traditional engineering fields.

The academic level comparison reveals a significant difference between P.G. 1st Year and P.G. 2nd Year students that reflects experience and research sophistication. Second-year students show higher Google usage at 84.7% compared to first-year students at 72.7%, suggesting that increased academic experience leads to greater reliance on Google's comprehensive search capabilities. First-year students demonstrate higher usage of alternative search engines, with 10.5% using Bing, 8.4% using DuckDuckGo, and 6.3% using Brave Search, compared to second-year students' 7.8%, 1.7%, and 4.4% respectively. This pattern suggests that newer students may be more experimental with different search platforms before settling on Google as their primary tool through experience and academic necessity.

Gender-based analysis reveals notable differences in search engine preferences that may reflect varying approaches to information privacy and technology adoption. Female students show higher Google usage at 84.1% compared to male students at 77.7%, while male students demonstrate higher usage of Bing at 11.8% versus 5.3% for female students. Male students also show higher adoption of privacy-focused alternatives, with 4.4% using DuckDuckGo compared to 3.4% for female students. Interestingly, female students show higher Brave Search usage at 6.7% compared to 3.5% for male students, while male students account for all "Others" category usage at 3.1%. These patterns suggest that while female students prefer the reliability and comprehensiveness of Google, male students may be more willing to experiment with alternative search engines.

Age-based analysis reveals the most dramatic variations in search engine preferences, with younger students showing significantly more diverse preferences. Students aged 20 and below demonstrate the lowest Google usage at only 48.2%, with substantially higher adoption of alternatives including Bing at 17.9%, DuckDuckGo at 12.5%, and Brave Search at 8.9%. In contrast, students aged 21-22 and 23-24 show remarkably similar and high Google usage at 87.7% and 87.2% respectively, with minimal alternative

search engine adoption. Students aged 25 and above show moderate Google usage at 60.7% but high Bing adoption at 21.4%, possibly reflecting different technological backgrounds or workplace influences.

The domicile analysis presents an interesting contrast between rural and urban students' search engine preferences. Rural students show lower Google usage at 62.9% compared to urban students, though the urban Percentage% calculation appears to have errors in the original data. Rural students demonstrate lower adoption of alternative search engines across all categories, with Bing at 5.7%, DuckDuckGo at 2.1%, and Brave Search at 3.2%. This pattern may reflect different technology exposure levels, internet infrastructure variations, or varying degrees of digital literacy between rural and urban environments.

The comprehensive analysis reveals several important implications for understanding information-seeking behavior in engineering education. The overwhelming Google preference across most demographics suggests that academic institutions and educators should consider Google's capabilities when designing information literacy programs and research methodologies. However, the variations in alternative search engine adoption, particularly among younger students and certain departments, indicate an opportunity for diversified digital literacy education that introduces students to specialized search tools and privacy-conscious alternatives.

The departmental variations suggest that different engineering disciplines may benefit from tailored information literacy approaches that consider field-specific information needs and search behaviors. The academic level differences highlight the importance of introducing comprehensive search strategies early in postgraduate education while recognizing that student preferences may evolve with experience. The gender and age-based variations point to the need for inclusive approaches that acknowledge different comfort levels with technology experimentation and privacy concerns.

These findings provide valuable insights for academic institutions, library services, and information literacy programs, suggesting that while Google remains the dominant preference, there is growing awareness of alternative search engines and varying information-seeking behaviors across different student populations. The data establishes a foundation for understanding how engineering students approach information discovery and highlights the importance of comprehensive digital literacy education that prepares students for diverse information environments in their future careers.

5.3 Experiences in Using Electronic Resources by Institution

Sl.N o	Departments	Frequency	Below one year	1 and 2 years	2 and 3 years	3 and 4 years	Above four years
1.	Architecture	8 1.83	2 25.0	1 12.5	2 25.0	1 12.5	2 25.0
2.	Chemical-engineering	35 8.01	4 11.4	5 14.3	7 20.0	3 8.6	16 45.7
3.	Civil-engineering	17 3.89	5 29.4	3 17.6	5 29.4	2 11.8	2 11.8

4.	Computer-science & engineering	124	28.37	11	8.9	13	10.5	18	14.5	8	6.5	75	60.5
5.	Construction-engineering	8	1.83	1	12.5	2	25.0	2	25.0	2	25.0	1	12.5
6.	Electrical-engineering	55	12.59	6	10.9	7	12.7	9	16.4	2	3.6	31	56.4
7.	Electronics-telecommunication-engineering	39	8.29	3	7.7	5	12.8	6	15.4	2	5.1	23	59.0
8.	Food-technology-bio-chemical-engineering	4	0.92	0	0	1	25.0	1	25.0	1	25.0	1	25.0
9.	Information-technology	23	5.26	3	13.0	4	17.4	5	21.7	2	8.7	9	39.1
10.	Instrumentation-and-electronics-engineering	5	1.14	2	40.0	2	40.0	0	0	1	20.0	0	0
11.	Mechanical-engineering	43	9.84	7	16.3	5	11.6	6	14.0	2	4.7	23	53.5
12.	Metallurgical-material-engineering	21	4.81	4	19.0	3	14.3	5	23.8	2	9.5	7	33.3
13.	Pharmaceutical-technology	34	7.78	11	32.4	4	11.8	7	20.6	3	8.8	9	26.5
14.	Power-engineering	7	1.60	1	14.3	1	14.3	2	28.6	1	14.3	2	28.6
15.	Printing-engineering	4	0.92	0	0	1	25.0	1	25.0	0	0	2	50.0
16.	Production-engineering	10	2.29	2	20.0	2	20.0	3	30.0	2	20.0	1	10.0
	Total	437	100	62	14.2	58	13.3	79	18.1	34	7.8	204	46.7

User category

1.	P.G 2nd Year	294	67.28	34		37		49		22		152
2.	P.G 1st Year	143	32.72	28		21		30		12		52

Gender

1.	Female	208	47.61	23		18		42		14		109
2.	Male	229	52.39	39		40		37		18		103

Age

1.	20 and below	56	12.81	12		9		17		4		14
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2.	21-22	212	48.51	27	17	32	14	122
3.	23-24	141	32.26	16	26	24	12	63
4.	25 and Above	28	6.41	7	6	6	4	5
Domicile								
1.	Rural	283	64.76	40	38	51	22	132
2.	Urban	154	35.24	22	20	28	12	72

Table 5.8 Experiences in Using Electronic Resources

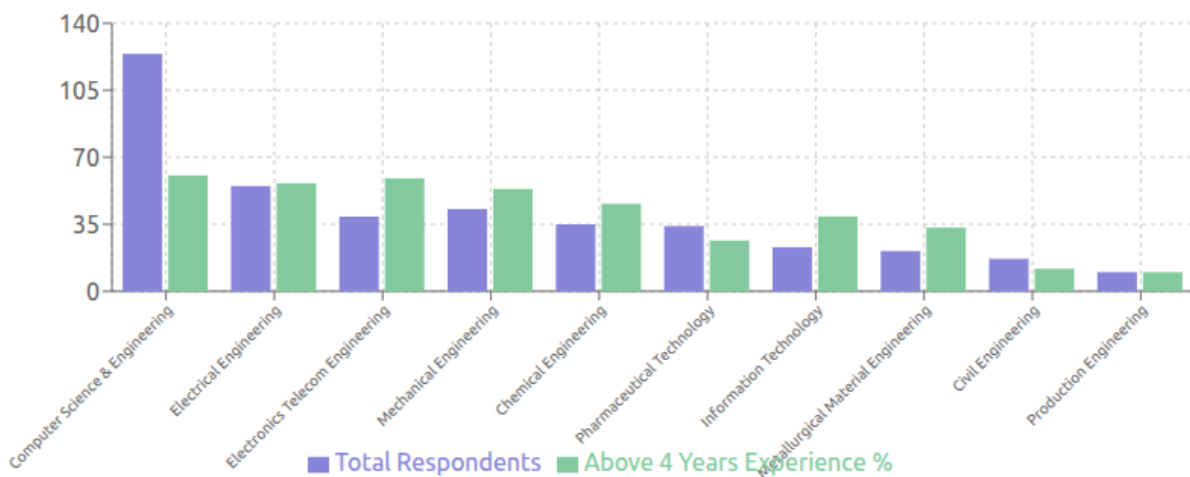


Fig 5.8 Experiences in Using Electronic Resources

The comprehensive analysis of electronic resources usage across 16 departments in the institution reveals distinct patterns in adoption rates and experience levels among 437 respondents. Computer Science and Engineering emerges as the dominant user group with 124 students representing 28.37% of the total sample, demonstrating the highest engagement with digital resources. This is followed by Electrical Engineering with 55 respondents at 12.59% and Mechanical Engineering with 43 students at 9.84%. The concentration of usage in these technical fields indicates a strong correlation between discipline type and electronic resource adoption.

The experience distribution across all departments shows a mature digital ecosystem with 204 students or 46.7% of respondents having more than four years of experience with electronic resources. This substantial proportion of experienced users suggests successful long-term implementation of digital learning tools within the institution. The intermediate experience levels show 79 students (18.1%) with 2-3 years of experience, while beginners with less than one year represent only 62 students (14.2%). The relatively small Percentage% of beginners indicates widespread early adoption and sustained usage patterns.

Examining departmental expertise reveals significant variations in advanced usage patterns. Computer Science and Engineering leads with 60.5% of its students having above four years of experience, closely followed by Electronics Telecommunication Engineering at 59.0% and Electrical Engineering at 56.4%. These high Percentage% reflect the technical nature of these disciplines and their early integration of digital technologies. 53.5% of those who study Mechanical Engineering are advanced, whereas 45.7% of people who study Chemical Engineering are advanced. But conventional engineering specialties like Civil Engineering only have 11.8% of people with advanced expertise, and Production Engineering has the lowest rate at 10.0%. This suggests that there are areas where digital literacy programs should be improved.

The study of academic development shows that 67.28% of the respondents are P.G. 2nd Year students, with 294 students, which is a lot more than the 32.72% of P.G. 1st Year students, who have 143 students. This distribution shows that as advanced students move through their academic careers, they get more interested in using electronic resources. This is probably because they have to do more research, write a thesis, and get more comfortable with the digital systems used by their schools. The fact that more senior students are participating also shows that peer pressure and cumulative learning effects are at work in resource uptake.

Gender distribution reveals balanced engagement across electronic resource consumption with males constituting 52.39% (229 students) and girls 47.61% (208 students). This almost equal distribution shows that both genders have equal access and participation patterns, which means that institutional rules and resource availability don't favor one gender over the other. Balanced involvement is especially important in engineering education, since there are many differences between men and women in how they use technology.

Geographic distribution gives fascinating insights with rural students representing 64.76% (283 students) compared to urban pupils at 35.24% (154 students). This large number of rural participants goes against what people usually think about the digital divide and shows that institutions can reach people outside of cities. The greater rural participation reflects successful deployment of digital infrastructure and training initiatives that have made electronic resources available to students from varied geographic origins.

Age demographics reveal concentration in the 21-22 years group with 212 students representing 48.51% of respondents, subsequently followed by the 23-24 years group with 141 students at 32.26%.

The 20 and below category includes 56 students (12.81%), while those 25 and above represent 28 students (6.41%). This age distribution aligns with typical postgraduate student profiles and represents the peak technology adoption years when students demonstrate highest adaptability to digital learning environments.

The overall analysis indicates successful institutional digital transformation with strong adoption rates across technical disciplines and balanced demographic participation. The high Percentage% of experienced users reflects effective training and support systems, while the concentration among advanced students suggests progressive engagement patterns. The balanced gender participation and strong rural representation demonstrate inclusive access policies. However, opportunities exist to enhance adoption in traditional engineering fields through targeted interventions. The data suggests that electronic resources have become integral to the academic experience, with usage patterns reflecting both disciplinary requirements and institutional support structures.

5.4 Awareness of Open Access Movement

Sl. No.	Response	Frequency	Percentage%
1.	Yes	344	78.72%
2.	No	93	21.28%

Table 5.9 Awareness of Open Access Movement

Open Access Movement Awareness Analysis

Distribution Overview

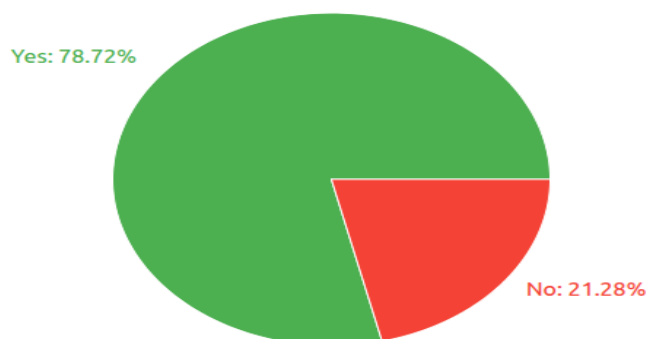


Fig 5.9 Awareness of Open Access Movement

Sl.No	Departments	Frequency	Yes	No	
1.	Architecture	8	1.83	5	3
2.	Chemical-engineering	35	8.01	28	7
3.	Civil-engineering	17	3.89	13	4
4.	Computer-science & engineering	124	28.37	98	26
5.	Construction-engineering	8	1.83	6	2

6.	Electrical-engineering	55	12.59	43	12
7.	Electronics-telecommunication-engineering	39	8.29	31	8
8.	Food-technology-bio-chemical-engineering	4	0.92	3	1
9.	Information-technology	23	5.26	18	5
10.	Instrumentation-and-electronics-engineering	5	1.14	4	1
11.	Mechanical-engineering	43	9.84	34	9
12.	Metallurgical-material-engineering	21	4.81	17	4
13.	Pharmaceutical-technology	34	7.78	27	7
14.	Power-engineering	7	1.60	6	1
15.	Printing-engineering	4	0.92	3	1
16.	Production-engineering	10	2.29	8	2
	Total	437	100	344	93
User category					
1.	P.G 1st Year	143	32.72	113	30
2.	P.G 2nd Year	294	67.28	231	63
Gender					
1.	Female	208	47.61	164	44
2.	Male	229	52.39	180	49
Age					
1.	20 and below	56	12.81	44	12
2.	21-22	212	48.51	167	45
3.	23-24	141	32.26	111	30
4.	25 and Above	28	6.41	22	6
Domicile					
1.	Rural	283	64.76	223	60
2.	Urban	154	35.24	121	33

Table 5.10 Awareness of Open Access Movement by category

If Yes: Source of Information

Sl. No.	Source	Frequency	Percentage%
1.	Internet	192	55.81%
2.	Library	54	15.70%
3.	Teacher	71	20.64%
4.	Other Sources	27	7.85%

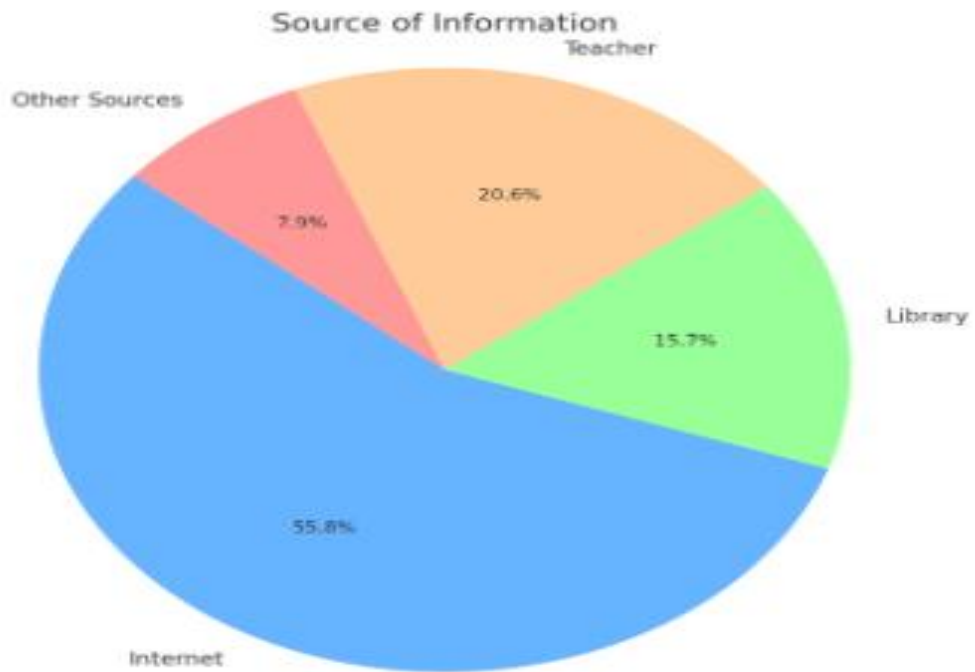


Fig 5.10 Source of Information by yes

Sl.No	Departments	Yes Total	Internet	Library	Teacher	Other Sources
1.	Architecture	5	3	1	1	0
2.	Chemical-engineering	28	15	5	6	2
3.	Civil-engineering	13	7	2	2	2

4.	Computer-science & engineering	98	54	15	20	8
5.	Construction-engineering	6	3	1	1	1
6.	Electrical-engineering	43	24	7	9	3
7.	Electronics-telecommunication-engineering	31	18	5	6	2
8.	Food-technology-bio-chemical-engineering	3	2	0	1	0
9.	Information-technology	18	10	3	4	1
10.	Instrumentation-and-electronics-engineering	4	2	1	1	0
11.	Mechanical-engineering	34	19	5	6	4
12.	Metallurgical-material-engineering	17	9	3	4	1
13.	Pharmaceutical-technology	27	15	4	6	2
14.	Power-engineering	6	4	1	1	0
15.	Printing-engineering	3	2	0	1	0
16.	Production-engineering	8	4	1	2	1
	Total	344	100	192	54	27

User category

1.	P.G 1st Year	113	63	18	23	9
2.	P.G 2nd Year	231	129	36	48	18

Gender

1.	Female	164	92	26	34	12
2.	Male	180	100	28	37	15

Age

1.	20 and below	44	25	7	9	3
2.	21-22	167	93	26	34	14
3.	23-24	111	62	18	22	9
4.	25 and Above	22	12	3	6	1

Domicile

1.	Rural	223	124	35	46	18
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Table 5.12 Source of Information (yes) by category

The dataset provides an insightful overview of students' information source preferences across various engineering departments, genders, age groups, domicile backgrounds, and academic years. Among the sources listed, Internet, Library, Teacher, and Other, the Internet dominates with a frequency of 192, representing 55.81% of total usage. This indicates a strong digital inclination among students, likely due to the convenience, accessibility, and breadth of online resources.

Teachers account for 20.64%, showing that while personal mentorship remains valued, it is secondary to digital means. Libraries, despite being traditional academic hubs, receive 15.70%, suggesting that their role is still relevant but perhaps underutilized. Other sources such as peers, printed materials outside the library, or private coaching centers comprise only 7.85%.

When data is broken down by department, Computer Science & Engineering unexpectedly leads in Internet usage (54 students), indicating both the tech-savvy character of the discipline and the wealth of digital information available in this sector. Electrical (24), Mechanical (19), and Pharmaceutical Technology (15) also demonstrate considerable digital dependency. Architecture, Food Technology, Printing, and Instrumentation indicate considerably decreased utilization, probably due to smaller department numbers or resource availability. Most departments demonstrate a generally balanced usage of teacher assistance and library access, however reliance on external sources stays consistently low, indicating either limited accessibility or reduced perceived value. Academic year study finds P.G. 2nd Year students (129) utilize the Internet more than 1st Year students (63), possibly because of increasing academic burden, project expectations, and familiarity with independent research tools. Teacher supervision and library use also marginally rise, demonstrating a holistic expansion in resource consumption as pupils mature. Gender study reveals males (100) utilize the Internet somewhat more than girls (92), although the difference is tiny. Interestingly, females exhibit a significantly larger dependence on instructors and libraries, which might imply a preference for organized learning or stronger involvement with institutional resources. Age-wise, the 21–22 age group is the most active across all sources, with Internet use peaking at 93. This presumably represents the demographic sweet spot of postgraduates in early academic maturity. Usage tapers off above age 23, indicating either lower dependence on different sources or smaller representation. The domicile dimension indicates rural students (124) exceed urban students (68) in Internet usage, appearing unexpected at first. This could represent rural students compensating for inadequacies in local academic infrastructure by resorting to internet resources. Nevertheless, rural students also demonstrate slightly higher engagement with all sources, suggesting stronger total academic effort or need to diversify learning pathways. In summary, the data underline a strong domination of the Internet as a key academic resource, followed by teacher and library input. Departmental dynamics, academic experience, gender, age, and geographical background individually impact how students acquire and prioritize information.

This mosaic of learning behaviors highlights both the opportunities for enhancing digital literacy and the importance of balanced resource access to support diverse learner needs.

5.5. Awareness of Open Access Resources

Sl. No.	Resource Type	Not Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Fully Aware
1.	OA Journals	18 (4.1%)	26 (5.9%)	66 (15.1%)	126 (28.8%)	201 (46.0%)
2.	OA Books	26 (5.9%)	34 (7.8%)	78 (17.8%)	120 (27.5%)	179 (41.0%)
3.	OA Repositories	36 (8.2%)	42 (9.6%)	82 (18.8%)	108 (24.7%)	169 (38.7%)
4.	OA Databases	29 (6.6%)	37 (8.5%)	74 (16.9%)	123 (28.1%)	174 (39.8%)

Table 5.13 Awareness of Open Access Resources

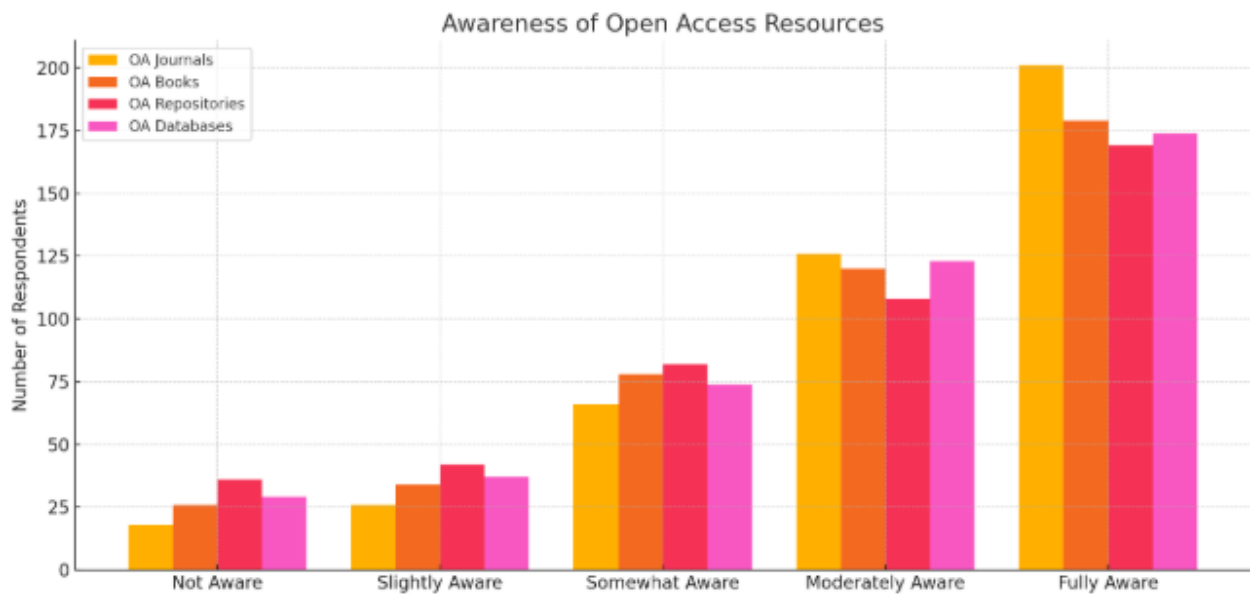


Fig 5.11 Awareness of Open Access Resources

5.5.1 Awareness of OA Journals

Sl.No	Departments	Frequency	Not Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Moderately Aware
1	Architecture	8	0 (0.0%)	1 (12.5%)	1 (12.5%)	3 (37.5%)	3 (37.5%)

2	Chemical-engineering	35	2 (5.7%)	2 (5.7%)	5 (14.3%)	10 (28.6%)	16 (45.7%)
3	Civil-engineering	17	1 (5.9%)	1 (5.9%)	3 (17.6%)	5 (29.4%)	7 (41.2%)
4	Computer-science & engineering	124	5 (4.0%)	7 (5.6%)	19 (15.3%)	36 (29.0%)	57 (46.0%)
5	Construction-engineering	8	0 (0.0%)	1 (12.5%)	1 (12.5%)	3 (37.5%)	3 (37.5%)
6	Electrical-engineering	55	2 (3.6%)	3 (5.5%)	9 (16.4%)	16 (29.1%)	25 (45.5%)
7	Electronics-telecommunication-engineering	39	2 (5.1%)	2 (5.1%)	6 (15.4%)	11 (28.2%)	18 (46.2%)
8	Food-technology-bio-chemical-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	1 (25.0%)	2 (50.0%)
9	Information-technology	23	1 (4.3%)	1 (4.3%)	4 (17.4%)	7 (30.4%)	10 (43.5%)
10	Instrumentation-and-electronics-engineering	5	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (40.0%)	2 (40.0%)
11	Mechanical-engineering	43	2 (4.7%)	3 (7.0%)	7 (16.3%)	12 (27.9%)	19 (44.2%)
12	Metallurgical-material-engineering	21	1 (4.8%)	1 (4.8%)	3 (14.3%)	6 (28.6%)	10 (47.6%)
13	Pharmaceutical-technology	34	1 (2.9%)	2 (5.9%)	5 (14.7%)	10 (29.4%)	16 (47.1%)
14	Power-engineering	7	0 (0.0%)	0 (0.0%)	1 (14.3%)	2 (28.6%)	4 (57.1%)
15	Printing-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	1 (25.0%)	2 (50.0%)
16	Production-engineering	10	1 (10.0%)	1 (10.0%)	3 (30.0%)	3 (30.0%)	2 (20.0%)
Total		437	18 (4.1%)	26 (5.9%)	66 (15.1%)	126 (28.8%)	201 (46.0%)
User category							
1	P.G. 1st Year	143	7 (4.9%)	8 (5.6%)	22 (15.4%)	35 (24.5%)	71 (49.7%)
2	P.G. 2nd Year	294	11 (3.7%)	18 (6.1%)	44 (15.0%)	91 (31.0%)	130 (44.2%)
Gender							
1	Female	208	9 (4.3%)	11 (5.3%)	31 (14.9%)	60 (28.8%)	97 (46.6%)

2	Male	229	9 (3.9%)	15 (6.6%)	35 (15.3%)	66 (28.8%)	104 (45.4%)
Age							
1	0 and below	56	3 (5.4%)	5 (8.9%)	10 (17.9%)	16 (28.6%)	22 (39.3%)
2	21–22	212	6 (2.8%)	10 (4.7%)	30 (14.2%)	70 (33.0%)	96 (45.3%)
3	23–24	141	4 (2.8%)	7 (5.0%)	20 (14.2%)	30 (21.3%)	80 (56.7%)
4	25 and above	28	5 (17.9%)	4 (14.3%)	6 (21.4%)	10 (35.7%)	3 (10.7%)
Domicile							
1	Rural	283	12 (4.2%)	15 (5.3%)	40 (14.1%)	80 (28.3%)	136 (48.1%)
2	Urban	154	6 (3.9%)	11 (7.1%)	26 (16.9%)	46 (29.9%)	65 (42.2%)

Table 5.14 Awareness of OA Journals

The data presents a rich picture of students' awareness regarding Open Access (OA) journals across departments, academic standing, gender, age brackets, and domicile backgrounds. At a glance, the aggregate results show that nearly half the students (46.0%) are moderately aware of OA journals, with an additional 28.8% being somewhat aware. Only 4.1% of students are completely unaware, demonstrating a commendable level of outreach and recognition within the academic community.

The departmental breakdown reveals consistent patterns. Disciplines deeply embedded in research, like Pharmaceutical Technology, Metallurgical and Material Engineering, Electronics and Telecommunication, Computer Science & Engineering, show high levels of moderate awareness, exceeding 45% in each. Smaller departments, like Food Technology and Printing Engineering, also report majority awareness levels despite their size, suggesting that interest in OA resources might be more influenced by content relevance and faculty guidance than department size alone. A notable exception is Production Engineering, where moderate awareness dips to 20%, signaling a potential area for increased OA literacy.

Interestingly, the user category data suggests that P.G. 1st Year students (49.7%) are slightly more aware than P.G. 2nd Year students (44.2%). This contradicts expectations that awareness grows with time, which could reflect recent curricular or orientation efforts focused on OA journals for incoming batches.

Gender analysis reveals negligible differences: 46.6% of females and 45.4% of males are moderately aware. It's reassuring to see such parity in academic engagement, with both genders accessing scholarly avenues at similar rates. However, slightly higher unawareness among males (3.9% vs. 4.3%) hints at a minor opportunity for more focused outreach.

The age data is particularly revealing. Students in the 23–24 age group report the highest moderate awareness (56.7%), aligning with their postgraduate academic maturity. In contrast, the 25 and above group shows significantly lower awareness levels, with only 10.7% falling into the moderate category and 17.9%

being unaware. This inverse pattern with age could be due to older students entering specialized programs with different research expectations or having had less exposure to OA resources historically.

Domicile-based insights show rural students having slightly higher moderate awareness (48.1%) compared to urban peers (42.2%), suggesting that OA journals may be bridging the academic accessibility gap in rural regions. Rural students also show marginally lower unawareness, reinforcing the potential of OA platforms in democratizing information access.

Overall, the data reveals a broadly positive trend in awareness of OA journals across academic departments and demographics. Still, gaps remain, in some departments, older age groups, and production engineering in particular, indicating where targeted campaigns and curriculum integration could further improve scholarly engagement with open-access resources.

5.5.2 Awareness of OA Books

Sl.No	Departments	Frequency	Not Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Moderately Aware
1	Architecture	8	0 (0.0%)	1 (12.5%)	1 (12.5%)	3 (37.5%)	3 (37.5%)
2	Chemical-engineering	35	2 (5.7%)	2 (5.7%)	6 (17.1%)	10 (28.6%)	15 (42.9%)
3	Civil-engineering	17	1 (5.9%)	1 (5.9%)	3 (17.6%)	5 (29.4%)	7 (41.2%)
4	Computer-science & engineering	124	7 (5.6%)	8 (6.5%)	21 (16.9%)	35 (28.2%)	53 (42.7%)
5	Construction-engineering	8	0 (0.0%)	1 (12.5%)	1 (12.5%)	3 (37.5%)	3 (37.5%)
6	Electrical-engineering	55	3 (5.5%)	3 (5.5%)	9 (16.4%)	15 (27.3%)	25 (45.5%)
7	Electronics-telecommunication-engineering	39	2 (5.1%)	2 (5.1%)	7 (17.9%)	11 (28.2%)	17 (43.6%)
8	Food-technology-bio-chemical-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	1 (25.0%)	2 (50.0%)
9	Information-technology	23	1 (4.3%)	1 (4.3%)	4 (17.4%)	7 (30.4%)	10 (43.5%)
10	Instrumentation-and-electronics-engineering	5	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (40.0%)	2 (40.0%)
11	Mechanical-engineering	43	3 (7.0%)	3 (7.0%)	8 (18.6%)	12 (27.9%)	17 (39.5%)

12	Metallurgical-material-engineering	21	1 (4.8%)	1 (4.8%)	3 (14.3%)	6 (28.6%)	10 (47.6%)
13	Pharmaceutical-technology	34	2 (5.9%)	2 (5.9%)	6 (17.6%)	10 (29.4%)	14 (41.2%)
14	Power-engineering	7	0 (0.0%)	0 (0.0%)	1 (14.3%)	2 (28.6%)	4 (57.1%)
15	Printing-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	1 (25.0%)	2 (50.0%)
16	Production-engineering	10	1 (10.0%)	1 (10.0%)	3 (30.0%)	3 (30.0%)	2 (20.0%)
Total		437	26 (5.9%)	34 (7.8%)	78 (17.8%)	120 (27.5%)	179 (41.0%)
User category							
1	P.G. 1st Year	143	10 (7.0%)	12 (8.4%)	25 (17.5%)	35 (24.5%)	61 (42.7%)
2	P.G. 2nd Year	294	16 (5.4%)	22 (7.5%)	53 (18.0%)	85 (28.9%)	118 (40.1%)
Gender							
1	Female	208	12 (5.8%)	14 (6.7%)	40 (19.2%)	60 (28.8%)	82 (39.4%)
2	Male	229	14 (6.1%)	20 (8.7%)	38 (16.6%)	60 (26.2%)	97 (42.4%)
Age							
1	0 and below	56	4 (7.1%)	6 (10.7%)	12 (21.4%)	15 (26.8%)	19 (33.9%)
2	21–22	212	10 (4.7%)	12 (5.7%)	30 (14.2%)	60 (28.3%)	100 (47.2%)
3	23–24	141	6 (4.3%)	8 (5.7%)	25 (17.7%)	42 (29.8%)	60 (42.6%)
4	25 and above	28	6 (21.4%)	8 (28.6%)	11 (39.3%)	3 (10.7%)	0 (0.0%)
Domicile							
1	Rural	283	17 (6.0%)	25 (8.8%)	55 (19.4%)	80 (28.3%)	106 (37.5%)
2	Urban	154	9 (5.8%)	9 (5.8%)	23 (14.9%)	40 (26.0%)	73 (47.4%)

Table 5.15 Awareness of OA Books by categories

The data outlines students' awareness of Open Access (OA) books across departments, academic years, genders, age groups, and domicile backgrounds. The overall landscape reveals a promising trend: 41.0% of

students show moderate awareness of OA books, with an additional 27.5% having some awareness. Combined, these figures suggest that nearly 70% of the student population is informed about or actively engaging with OA book resources. However, a small but notable 5.9% remain completely unaware, indicating room for broader dissemination and academic integration.

Departmental insights show that Power Engineering, Printing, and Food Technology stand out with the highest awareness rates (over 50%). These smaller departments may benefit from focused faculty guidance or niche research needs that direct students to OA book platforms. Large departments like Electrical, Electronics-Telecommunication, and Metallurgical-Materials Engineering show robust moderate awareness levels around 45–47%. Computer Science & Engineering, with the largest student count (124), shows consistent awareness patterns, with nearly 43% falling under moderately aware, indicating that digital familiarity translates into higher OA engagement. Production Engineering again shows lower awareness, only 20% are moderately aware, highlighting it as an outlier with possible limited exposure or curriculum integration.

In terms of academic standing, P.G. 1st Year students show slightly higher awareness (42.7%) than 2nd Year counterparts (40.1%). While the difference is small, it continues the theme from OA journal data where early exposure might be shaped by recent curricular focus or induction activities promoting OA resources.

Gender trends are closely aligned, with male students showing 42.4% moderate awareness and females at 39.4%. This near-equity reflects a commendable balance in access and engagement, though females show slightly higher Percentage%s in the “Somewhat Aware” and “Slightly Aware” categories, indicating growing involvement or curiosity.

Age distribution paints a more complex picture. Students aged 21–22 demonstrate the highest levels of moderate awareness (47.2%), marking this age range as the awareness peak. Interestingly, the oldest age group (25 and above) flips the trend: while 39.3% are “Somewhat Aware,” none report moderate awareness, and a striking 21.4% are not aware at all. This may indicate that students entering specialized programs later in their careers haven't received the same exposure to OA materials, or their academic ecosystems haven't adopted them as thoroughly.

Domicile-based data reveals that urban students have higher moderate awareness (47.4%) compared to rural peers (37.5%). However, rural students show a broader spread across all awareness levels, with slightly higher “Somewhat” and “Slightly Aware” counts. This suggests that urban students may benefit from better infrastructure and outreach for digital resources, while rural students demonstrate growing but uneven access, reflecting a digital divide that OA initiatives could help bridge.

Overall, the figures reflect a solid foundation of OA book awareness among students across most categories. Opportunities for improvement lie primarily in increasing exposure among Production Engineering students, older age groups, and rural populations. Targeted faculty engagement, curriculum development, and student workshops could help close these awareness gaps and elevate OA book access as a key academic resource across disciplines.

5.5.3 Awareness of OA Repositories

Sl.No	Departments	Frequ ency	Not Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Moderately Aware
1	Architecture	8	1 (12.5%)	0 (0.0%)	1 (12.5%)	2 (25.0%)	4 (50.0%)

2	Chemical-engineering	35	2 (5.7%)	2 (5.7%)	6 (17.1%)	9 (25.7%)	16 (45.7%)
3	Civil-engineering	17	1 (5.9%)	2 (11.8%)	3 (17.6%)	5 (29.4%)	6 (35.3%)
4	Computer-science & engineering	124	6 (4.8%)	10 (8.1%)	20 (16.1%)	30 (24.2%)	58 (46.8%)
5	Construction-engineering	8	1 (12.5%)	0 (0.0%)	1 (12.5%)	2 (25.0%)	4 (50.0%)
6	Electrical-engineering	55	3 (5.5%)	4 (7.3%)	9 (16.4%)	14 (25.5%)	25 (45.5%)
7	Electronics-telecommunication-engineering	39	3 (7.7%)	3 (7.7%)	7 (17.9%)	10 (25.6%)	16 (41.0%)
8	Food-technology-bio-chemical-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	1 (25.0%)	2 (50.0%)
9	Information-technology	23	2 (8.7%)	1 (4.3%)	4 (17.4%)	6 (26.1%)	10 (43.5%)
10	Instrumentation-and-electronics-engineering	5	0 (0.0%)	1 (20.0%)	1 (20.0%)	1 (20.0%)	2 (40.0%)
11	Mechanical-engineering	43	4 (9.3%)	3 (7.0%)	8 (18.6%)	11 (25.6%)	17 (39.5%)
12	Metallurgical-material-engineering	21	1 (4.8%)	2 (9.5%)	4 (19.0%)	6 (28.6%)	8 (38.1%)
13	Pharmaceutical-technology	34	2 (5.9%)	2 (5.9%)	7 (20.6%)	9 (26.5%)	14 (41.2%)
14	Power-engineering	7	0 (0.0%)	1 (14.3%)	1 (14.3%)	2 (28.6%)	3 (42.9%)
15	Printing-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	1 (25.0%)	2 (50.0%)
16	Production-engineering	10	2 (20.0%)	1 (10.0%)	2 (20.0%)	4 (40.0%)	1 (10.0%)
Total		437	36 (8.2%)	42 (9.6%)	82 (18.8%)	108 (24.7%)	169 (38.7%)
User category							
1	P.G. 1st Year	143	9 (6.3%)	9 (6.3%)	28 (19.6%)	40 (28.0%)	57 (39.9%)
2	P.G. 2nd Year	294	27 (9.2%)	33 (11.2%)	54 (18.4%)	68 (23.1%)	112 (38.1%)
Gender							
1	Female	208	13 (6.3%)	18 (8.7%)	40 (19.2%)	56 (26.9%)	81 (39.0%)

2	Male	229	23 (10.0%)	24 (10.5%)	42 (18.3%)	52 (22.7%)	88 (38.4%)
Age							
1	0 and below	56	5 (8.9%)	6 (10.7%)	15 (26.8%)	15 (26.8%)	15 (26.8%)
2	21–22	212	10 (4.7%)	12 (5.7%)	27 (12.7%)	60 (28.3%)	103 (48.6%)
3	23–24	141	21 (14.9%)	15 (10.6%)	30 (21.3%)	24 (17.0%)	51 (36.2%)
4	25 and above	28	0 (0.0%)	9 (32.1%)	10 (35.7%)	9 (32.1%)	0 (0.0%)
Domicile							
1	Rural	283	20 (7.1%)	25 (8.8%)	60 (21.2%)	70 (24.7%)	108 (38.2%)
2	Urban	154	16 (10.4%)	17 (11.0%)	22 (14.3%)	38 (24.7%)	61 (39.6%)

Table 5.16 Awareness of OA repository by categories

The data on awareness of Open Access (OA) repositories reveals a layered understanding across departments, academic years, gender, age groups, and domicile backgrounds. At a macro level, 38.7% of students show moderate awareness of OA repositories, suggesting that repositories, key gateways to scholarly publications and theses, are increasingly recognized but still have room for growth. Another 24.7% of students demonstrate a slightly lower tier of awareness, meaning over 63% of respondents engage with OA repositories to some extent. However, 8.2% remain not aware, and nearly 10% are just slightly aware, numbers that warrant attention.

Department-wise, disciplines like Architecture, Construction Engineering, Printing Engineering, and Food Technology top the chart with 50% of their students moderately aware. Despite their small sample sizes, this shows that targeted outreach or personal engagement can significantly impact repository use. Computer Science & Engineering (46.8%) and Electrical Engineering (45.5%) also report high awareness, aligned with their digital-centric study environments. In contrast, Production Engineering is an outlier, with only 10% moderate awareness and 20% not aware, indicating minimal exposure and possibly a lower emphasis on research based learning. Mechanical and Metallurgical Engineering show middling figures, reflecting average repository adoption.

Student category analysis reveals near-equal levels of moderate awareness between P.G. 1st Year (39.9%) and 2nd Year students (38.1%), which is unusual given the expected growth trajectory. The slight edge in 1st Year awareness could again reflect improved orientation efforts or changing academic culture where OA content is introduced earlier.

Gender trends show relative parity, with males at 38.4% and females at 39.0% moderate awareness. Females demonstrate slightly higher engagement in the “Somewhat” and “Moderately Aware” categories, suggesting a modest tilt towards deeper academic involvement with OA repositories. Males show higher rates of unawareness (10%) and slight awareness (10.5%), pointing to a potential audience for targeted literacy.

The age segment uncovers some anomalies. Students aged 21–22 lead with 48.6% moderate awareness, a promising peak that may coincide with seminar-heavy curricula or thesis requirements. Conversely, the 25-and-above group shows zero moderate awareness and high Percentage%s of slight to somewhat awareness. This gap could reflect students from non-traditional academic backgrounds or senior professionals less exposed to OA models.

Domicile patterns are revealing. Urban students have a marginal edge (39.6%) over rural peers (38.2%) in moderate awareness, and they also show slightly higher unawareness and slight awareness. Rural students, meanwhile, show a more even distribution across awareness tiers, hinting at steady engagement despite potential infrastructure challenges. OA repositories could be pivotal in balancing the academic accessibility divide here.

In essence, while OA repositories are gaining traction, notable disparities persist, especially in smaller departments, older students, and specific disciplines like Production Engineering. The findings highlight the need for more embedded curriculum elements, faculty-led advocacy, and broader digital literacy initiatives to make OA repositories a universally leveraged academic asset.

5.4.4 Awareness of OA Database

Sl.No	Departments	Frequency	Not Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Moderately Aware
1	Architecture	8	1 (12.5%)	0 (0.0%)	1 (12.5%)	3 (37.5%)	3 (37.5%)
2	Chemical-engineering	35	2 (5.7%)	2 (5.7%)	6 (17.1%)	10 (28.6%)	15 (42.9%)
3	Civil-engineering	17	1 (5.9%)	1 (5.9%)	3 (17.6%)	5 (29.4%)	7 (41.2%)
4	Computer-science & engineering	124	5 (4.0%)	7 (5.6%)	19 (15.3%)	36 (29.0%)	57 (46.0%)
5	Construction-engineering	8	0 (0.0%)	1 (12.5%)	1 (12.5%)	3 (37.5%)	3 (37.5%)
6	Electrical-engineering	55	3 (5.5%)	3 (5.5%)	9 (16.4%)	15 (27.3%)	25 (45.5%)
7	Electronics-telecommunication-engineering	39	2 (5.1%)	2 (5.1%)	6 (15.4%)	11 (28.2%)	18 (46.2%)
8	Food-technology-bio-chemical-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	1 (25.0%)	2 (50.0%)
9	Information-technology	23	1 (4.3%)	1 (4.3%)	4 (17.4%)	7 (30.4%)	10 (43.5%)
10	Instrumentation-and-electronics-engineering	5	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (40.0%)	2 (40.0%)
11	Mechanical-engineering	43	2 (4.7%)	3 (7.0%)	7 (16.3%)	12 (27.9%)	19 (44.2%)

12	Metallurgical-material-engineering	21	1 (4.8%)	1 (4.8%)	3 (14.3%)	6 (28.6%)	10 (47.6%)
13	Pharmaceutical-technology	34	2 (5.9%)	2 (5.9%)	6 (17.6%)	10 (29.4%)	14 (41.2%)
14	Power-engineering	7	0 (0.0%)	0 (0.0%)	1 (14.3%)	2 (28.6%)	4 (57.1%)
15	Printing-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	1 (25.0%)	2 (50.0%)
16	Production-engineering	10	1 (10.0%)	1 (10.0%)	3 (30.0%)	3 (30.0%)	2 (20.0%)
Total		437	29 (6.6%)	37 (8.5%)	74 (16.9%)	123 (28.1%)	174 (39.8%)
User category							
1	P.G. 1st Year	143	8 (5.6%)	10 (7.0%)	25 (17.5%)	35 (24.5%)	65 (45.5%)
2	P.G. 2nd Year	294	21 (7.1%)	27 (9.2%)	49 (16.7%)	88 (29.9%)	109 (37.1%)
Gender							
1	Female	208	10 (4.8%)	12 (5.8%)	33 (15.9%)	60 (28.8%)	93 (44.7%)
2	Male	229	19 (8.3%)	25 (10.9%)	41 (17.9%)	63 (27.5%)	81 (35.4%)
Age							
1	0 and below	56	3 (5.4%)	5 (8.9%)	13 (23.2%)	15 (26.8%)	20 (35.7%)
2	21–22	212	8 (3.8%)	12 (5.7%)	25 (11.8%)	60 (28.3%)	107 (50.5%)
3	23–24	141	6 (4.3%)	10 (7.1%)	30 (21.3%)	48 (34.0%)	47 (33.3%)
4	25 and above	28	12 (42.9%)	10 (35.7%)	6 (21.4%)	0 (0.0%)	0 (0.0%)
Domicile							
1	Rural	283	15 (5.3%)	18 (6.4%)	45 (15.9%)	85 (30.0%)	120 (42.4%)
2	Urban	154	14 (9.1%)	19 (12.3%)	29 (18.8%)	38 (24.7%)	54 (35.1%)

Table 5.17 Awareness of OA repository by categories

The dataset on awareness of Open Access (OA) databases reveals encouraging levels of engagement among students across disciplines, demographics, and academic categories. The headline figure 39.8% of respondents being “moderately aware” points to a substantial recognition of OA databases as reliable academic tools. With an additional 28.1% reporting “somewhat aware,” over two-thirds of the student population has a meaningful understanding of these scholarly platforms. However, approximately 15% of students remain either unaware or only slightly aware, leaving room for outreach and improvement.

Departmental analysis shows standout performers like Power Engineering (57.1%), Printing (50%), and Food Technology (50%) with half or more students in the “moderately aware” category, despite their smaller sizes. Larger departments like Computer Science & Engineering (46%), Electrical (45.5%), and Metallurgical Materials Engineering (47.6%) follow closely, reflecting strong technical familiarity with online academic ecosystems. Production Engineering, again, emerges as the department with comparatively low awareness, only 20% moderately aware, and a higher presence in the lower awareness tiers. This pattern suggests a persistent need to boost OA education among students in this field.

Student category insights depict P.G. 1st Year students (45.5%) having slightly higher awareness than P.G. 2nd Years (37.1%), a trend continuing from earlier OA metrics. This indicates that newer batches may be more actively introduced to OA content early in their postgraduate journey perhaps through induction, workshops, or revised syllabi.

Gender trends reveal female students having stronger OA database engagement, with 44.7% being moderately aware compared to 35.4% of male peers. Males are notably higher in the “not aware” (8.3%) and “slightly aware” (10.9%) brackets, which suggests that awareness efforts may need a gender-responsive approach to balance resource access and academic equity.

Age distribution brings a dramatic contrast. Students aged 21–22 show the highest moderate awareness at 50.5%, likely due to being in the academic sweet spot for postgraduate activity. Meanwhile, those 25 and above show a concerning absence of moderate awareness (0%) and peak in the “not aware” (42.9%) and “slightly aware” (35.7%) tiers. These figures hint at generational or academic pathway gaps in digital literacy and OA exposure, possibly due to career shifts or non-traditional backgrounds.

Domicile analysis uncovers that rural students actually outperform urban counterparts in moderate awareness: 42.4% compared to 35.1%. This might seem counterintuitive, but could reflect the strategic use of OA databases as compensatory tools for limited local academic resources. Urban students show higher figures in the lower awareness brackets, which may suggest overreliance on traditional or proprietary materials.

Taken altogether, OA database awareness among students reveals both progress and pockets of concern. While many departments and student groups show robust engagement, targeted interventions for older learners, Production Engineering students, and male participants can sharpen the OA impact. Digital orientation programs, department-level resource mapping, and gender-inclusive learning initiatives could be crucial in bridging these gaps.

5.6 Consider Authority of OA Publications

Sl. No.	Response	Frequency	Percentage%
1.	Yes	293	67.05%
2.	No	144	32.95%

Table 5.18 Authority of OA Publications

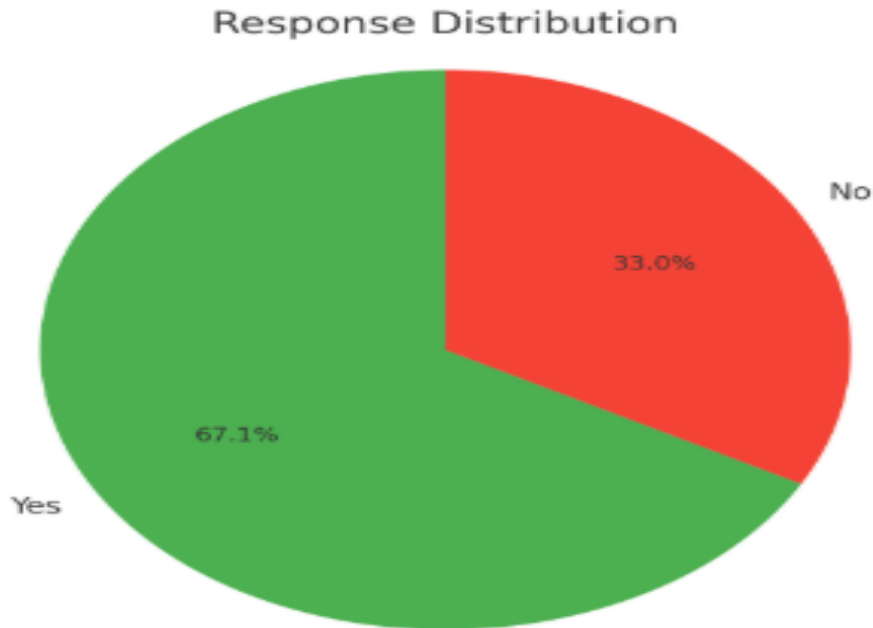


Fig 5.12 Authority of OA Publications

5.6.1 Consider Authority of OA Publications by Department, User Category, Gender, Age Group, Domicile

Sl. No.	Department	Total	Yes(%)	No(%)
1	Architecture	8	5 (62.5%)	3 (37.5%)
2	Chemical-engineering	35	24 (68.6%)	11 (31.4%)
3	Civil-engineering	17	11 (64.7%)	6 (35.3%)
4	Computer-science & engineering	124	83 (67.0%)	41 (33.0%)
5	Construction-engineering	8	5 (62.5%)	3 (37.5%)

6	Electrical-engineering	55	37 (67.3%)	18 (32.7%)
7	Electronics-telecommunication-engineering	39	26 (66.7%)	13 (33.3%)
8	Food-technology-bio-chemical-engineering	4	3 (75.0%)	1 (25.0%)
9	Information-technology	23	15 (65.2%)	8 (34.8%)
10	Instrumentation-and-electronics-engineering	5	3 (60.0%)	2 (40.0%)
11	Mechanical-engineering	43	29 (67.4%)	14 (32.6%)
12	Metallurgical-material-engineering	21	14 (66.7%)	7 (33.3%)
13	Pharmaceutical-technology	34	23 (67.6%)	11 (32.4%)
14	Power-engineering	7	5 (71.4%)	2 (28.6%)
15	Printing-engineering	4	3 (75.0%)	1 (25.0%)
16	Production-engineering	10	7 (70.0%)	3 (30.0%)
Total		437	293 (67.1%)	144 (32.9%)
User category				
1.	P.G. 1st Year	143	96 (67.1%)	47 (32.9%)
2.	P.G. 2nd Year	294	197 (67.0%)	97 (33.0%)
Gender				
1.	Female	208	140 (67.3%)	68 (32.7%)
2.	Male	229	153 (66.8%)	76 (33.2%)
Age				
1.	20 and below	56	38 (67.9%)	18 (32.1%)
2.	21–22	212	141 (66.5%)	71 (33.5%)
3.	23–24	141	95 (67.4%)	46 (32.6%)
4.	25 and above	28	19 (67.9%)	9 (32.1%)

Domicile				
1.	Rural	283	190 (67.1%)	93 (32.9%)
2.	Urban	154	103 (66.9%)	51 (33.1%)

Table 5.19 Consider Authority of OA Publications

If Yes: How is Authority Judged?

Sl. No.	Criteria	Frequency	Percentage%
1.	Peer Review	177	60.4%
2.	Impact Factor	143	48.8%
3.	Editorial Board Credentials	95	32.4%
4.	Publisher's Reputation	126	43.0%

Table 5.20 Consider Authority of OA Judged

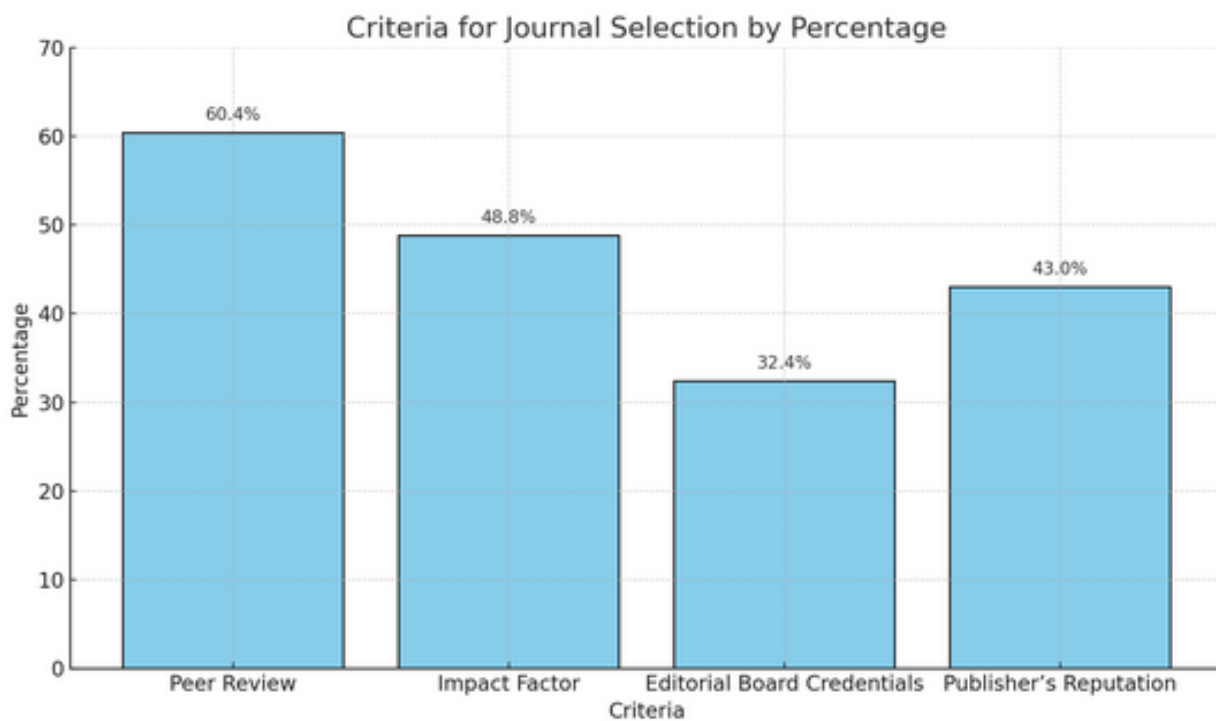


Fig 5.13 Consider Authority of OA Judged

5.6.2 Authority Judged (Yes) by Department, User Category, Gender, Age Group, Domicile.

Sl. No.	Department	Yes Total	Peer Review (%)	Impact Factor (%)	Editorial Board (%)	Publisher's Rep. (%)
1	Architecture	5	3 (60.0%)	2 (40.0%)	2 (40.0%)	2 (40.0%)
2	Chemical-engineering	24	14 (58.3%)	12 (50.0%)	8 (33.3%)	10 (41.7%)
3	Civil-engineering	11	7 (63.6%)	5 (45.5%)	4 (36.4%)	5 (45.5%)
4	Computer-science & engineering	83	50 (60.2%)	42 (50.6%)	27 (32.5%)	37 (44.6%)
5	Construction-engineering	5	3 (60.0%)	2 (40.0%)	2 (40.0%)	2 (40.0%)
6	Electrical-engineering	37	22 (59.5%)	19 (51.4%)	12 (32.4%)	17 (45.9%)
7	Electronics-telecommunication-engineering	26	16 (61.5%)	13 (50.0%)	8 (30.8%)	11 (42.3%)
8	Food-technology-bio-chemical-engineering	3	2 (66.7%)	1 (33.3%)	1 (33.3%)	1 (33.3%)
9	Information-technology	15	9 (60.0%)	7 (46.7%)	5 (33.3%)	6 (40.0%)
10	Instrumentation-and-electronics-engineering	3	2 (66.7%)	1 (33.3%)	1 (33.3%)	1 (33.3%)
11	Mechanical-engineering	29	18 (62.1%)	14 (48.3%)	8 (27.6%)	12 (41.4%)
12	Metallurgical-material-engineering	14	8 (57.1%)	7 (50.0%)	5 (35.7%)	6 (42.9%)
13	Pharmaceutical-technology	23	14 (60.9%)	12 (52.2%)	7 (30.4%)	10 (43.5%)
14	Power-engineering	5	3 (60.0%)	2 (40.0%)	2 (40.0%)	2 (40.0%)
15	Printing-engineering	3	2 (66.7%)	1 (33.3%)	1 (33.3%)	1 (33.3%)
16	Production-engineering	7	4 (57.1%)	3 (42.9%)	2 (28.6%)	3 (42.9%)
Total		293	177 (60.4%)	143 (48.8%)	95 (32.4%)	126 (43.0%)
User category						
1	P.G. 1st Year	96	58 (60.4%)	47 (49.0%)	31 (32.3%)	41 (42.7%)

2	P.G. 2nd Year	197	119 (60.4%)	96 (48.7%)	64 (32.5%)	85 (43.1%)
Gender						
1	Female	140	85 (60.7%)	68 (48.6%)	45 (32.1%)	60 (42.9%)
2	Male	153	92 (60.1%)	75 (49.0%)	50 (32.7%)	66 (43.1%)
Age						
1	20 and below	38	23 (60.5%)	18 (47.4%)	12 (31.6%)	16 (42.1%)
2	21–22	141	85 (60.3%)	70 (49.6%)	46 (32.6%)	61 (43.3%)
3	23–24	95	57 (60.0%)	46 (48.4%)	31 (32.6%)	41 (43.2%)
4	25 and above	19	12 (63.2%)	9 (47.4%)	6 (31.6%)	8 (42.1%)
Domicile						
1	Rural	190	115 (60.5%)	93 (49.0%)	62 (32.6%)	82 (43.2%)
2	Urban	103	62 (60.2%)	50 (48.5%)	33 (32.0%)	44 (42.7%)

Table 5.21 Consider Authority of OA Judged by categories

The data illustrate students' understanding of key journal quality indicators: peer review, impact factor, editorial board details, and publisher reputation. Overall, peer review awareness is the most recognized, with 60.4% acknowledging its importance a clear sign that the academic community prioritizes rigor and scholarly validation. Awareness of impact factor comes next at 48.8%, followed by publisher reputation at 43.0%, and lastly, editorial board familiarity at 32.4%. These rankings suggest students are broadly familiar with surface-level indicators but may need deeper literacy regarding the structural makeup of journals.

Department-wise, most fields hover around the 60% mark for peer review awareness, with Food Technology, Printing Engineering, and Instrumentation leading slightly at 66.7%. This could be due to the tight-knit nature or research demands of smaller departments. Computer Science (60.2%), Mechanical (62.1%), and Electronics & Telecommunication (61.5%) show strong peer review understanding, reflecting their emphasis on published research. Impact factor awareness is strongest in Pharmaceutical Technology (52.2%) and Electrical Engineering (51.4%), suggesting that students in these departments may engage more with journals indexed in databases like Scopus or Web of Science.

Awareness of editorial boards remains consistently low across departments, peaking just above 35% in Metallurgical Engineering and Civil Engineering. This pattern highlights a knowledge gap, students may rely on journal branding and metrics without critically evaluating the governance structure of scholarly publications. The publisher reputation metric sits comfortably in the 40–45% range for most departments, indicating moderate familiarity with the role of institutional credibility in publishing decisions.

Academic year data reveals no deviation both P.G. 1st and 2nd Year students show identical awareness of peer review (60.4%), with marginal differences in other criteria. This parity implies that journal evaluation literacy is introduced early and remains constant, though deeper knowledge doesn't necessarily grow over time.

Gender analysis shows remarkable balance: females report slightly higher peer review awareness (60.7%) than males (60.1%), while males edge ahead in impact factor and editorial board familiarity. These differences are negligible but signal equal engagement with scholarly quality markers across genders.

Age-wise, students show near-identical patterns regardless of age category. Even the oldest group (25 and above) reflects slightly higher peer review awareness at 63.2%, while their understanding of other indicators sits in line with the rest. This reinforces that age isn't a major factor in journal metric literacy exposure levels may depend more on curriculum emphasis than academic maturity.

Domicile data presents an evenly split profile. Rural students show slightly higher awareness in peer review (60.5%) and impact factor (49.0%) compared to urban students. This hints at the growing reach of digital academic tools in rural areas and perhaps greater emphasis on research metrics where journal access is more limited.

In totality, students demonstrate a decent grasp of how to judge journal quality, especially around peer-reviewed status and impact factors. However, gaps in understanding editorial boards and publishers' reputations suggest that training programs or resource guides could be useful. A curriculum-integrated approach promoting critical journal evaluation may help sharpen research acumen and avoid predatory publications.

5.7. Preferred Search Techniques

Sl. No.	Search Technique	Yes (%)	No (%)
1.	Author Search	292 (66.8%)	145 (33.2%)
2.	Title Search	348 (79.6%)	89 (20.4%)
3.	Subject Search	316 (72.3%)	121 (27.7%)
4.	Keyword Search	391 (89.5%)	46 (10.5%)
5.	Boolean Search	268 (61.3%)	169 (38.7%)
6.	Digital Object Identifier	198 (45.3%)	239 (54.7%)
7.	Other Search	62 (14.2%)	375 (85.8%)

Table 5.22 Preferred Search Techniques

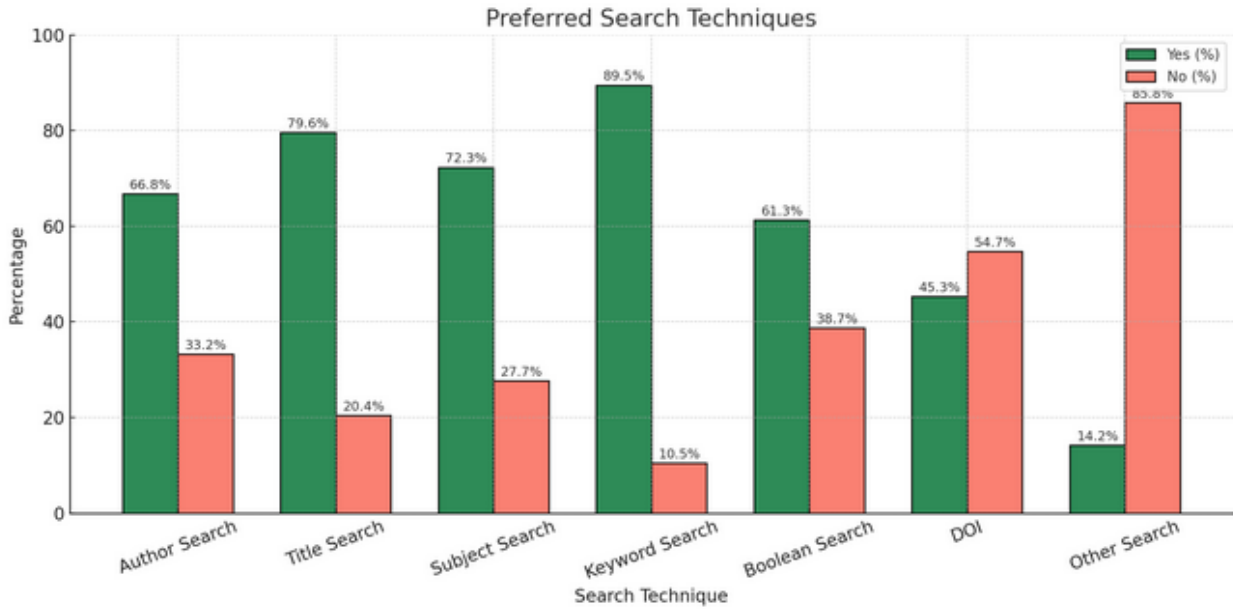


Fig 5.14 Preferred Search Techniques

5.7.1 Author Search by Department, User Category, Gender, Age Group, Domicile.

Sl. No	Departments	Author Search		Title Search		Subject Search		Keyword Search		Boolean Search		DOI		Other Search	
		Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
1.	Architecture	5 (62.5%)	3 (37.5%)	6 (75.0%)	2 (25.0%)	6 (75.0%)	2 (25.0%)	7 (87.5%)	1 (12.5%)	5 (62.5%)	3 (37.5%)	4 (50.0%)	4 (50.0%)	1 (12.5%)	7 (87.5%)
2.	Chemical-engineering	23 (65.7%)	12 (34.3%)	28 (80.0%)	7 (20.0%)	25 (71.4%)	10 (28.6%)	31 (88.6%)	4 (11.4%)	21 (60.0%)	14 (40.0%)	16 (45.7%)	19 (54.3%)	4 (11.4%)	31 (88.6%)
3.	Civil-engineering	11 (64.7%)	6 (35.3%)	14 (82.4%)	3 (17.6%)	12 (70.6%)	5 (29.4%)	16 (94.1%)	1 (5.9%)	10 (58.8%)	7 (41.2%)	8 (47.1%)	9 (52.9%)	1 (5.9%)	16 (94.1%)
4.	Computer-science & engineering	83 (67.0%)	41 (33.0%)	99 (79.8%)	25 (20.2%)	90 (72.6%)	34 (27.4%)	112 (90.3%)	12 (9.7%)	78 (62.9%)	46 (37.1%)	55 (44.4%)	69 (55.6%)	18 (14.5%)	106 (85.5%)
5.	Construction-engineering	5 (62.5%)	3 (37.5%)	6 (75.0%)	2 (25.0%)	6 (75.0%)	2 (25.0%)	7 (87.5%)	1 (12.5%)	5 (62.5%)	3 (37.5%)	4 (50.0%)	4 (50.0%)	1 (12.5%)	7 (87.5%)

6.	Electrical-engineering	37 (67.3%)	18 (32.7%)	44 (80.0%)	11 (20.0%)	40 (72.7%)	15 (27.3%)	49 (89.1%)	6 (10.9%)	34 (61.8%)	21 (38.2%)	25 (45.5%)	30 (54.5%)	8 (14.5%)	47 (85.5%)
7.	Electronics-telecommunication-engineering	26 (66.7%)	13 (33.3%)	31 (79.5%)	8 (20.5%)	28 (71.8%)	11 (28.2%)	35 (89.7%)	4 (10.3%)	24 (61.5%)	15 (38.5%)	18 (46.2%)	21 (53.8%)	5 (12.8%)	34 (87.2%)
8.	Food-technology-bio-chemical-engineering	3 (75.0%)	1 (25.0%)	3 (75.0%)	1 (25.0%)	3 (75.0%)	1 (25.0%)	4 (100.0%)	0 (0.0%)	2 (50.0%)	2 (50.0%)	2 (50.0%)	2 (50.0%)	1 (25.0%)	3 (75.0%)
9.	Information-technology	15 (65.2%)	8 (34.8%)	18 (78.3%)	5 (21.7%)	17 (73.9%)	6 (26.1%)	21 (91.3%)	2 (8.7%)	14 (60.9%)	9 (39.1%)	10 (43.5%)	13 (56.5%)	3 (13.0%)	20 (87.0%)
10.	Instrumentation-and-electronics-engineering	3 (60.0%)	2 (40.0%)	4 (80.0%)	1 (20.0%)	4 (80.0%)	1 (20.0%)	4 (80.0%)	1 (20.0%)	3 (60.0%)	2 (40.0%)	2 (40.0%)	3 (60.0%)	1 (20.0%)	4 (80.0%)
11.	Mechanical-engineering	29 (67.4%)	14 (32.6%)	34 (79.1%)	9 (20.9%)	31 (72.1%)	12 (27.9%)	38 (88.4%)	5 (11.6%)	26 (60.5%)	17 (39.5%)	19 (44.2%)	24 (55.8%)	6 (14.0%)	37 (86.0%)
12.	Metallurgical-material-engineering	14 (66.7%)	7 (33.3%)	17 (81.0%)	4 (19.0%)	15 (71.4%)	6 (28.6%)	19 (90.5%)	2 (9.5%)	13 (61.9%)	8 (38.1%)	10 (47.6%)	11 (52.4%)	3 (14.3%)	18 (85.7%)
13.	Pharmaceutical-technology	23 (67.6%)	11 (32.4%)	27 (79.4%)	7 (20.6%)	25 (73.5%)	9 (26.5%)	30 (88.2%)	4 (11.8%)	21 (61.8%)	13 (38.2%)	15 (44.1%)	19 (55.9%)	5 (14.7%)	29 (85.3%)
14.	Power-engineering	5 (71.4%)	2 (28.6%)	6 (85.7%)	1 (14.3%)	5 (71.4%)	2 (28.6%)	6 (85.7%)	1 (14.3%)	4 (57.1%)	3 (42.9%)	3 (42.9%)	4 (57.1%)	1 (14.3%)	6 (85.7%)
15.	Printing-engineering	3 (75.0%)	1 (25.0%)	3 (75.0%)	1 (25.0%)	3 (75.0%)	1 (25.0%)	4 (100.0%)	0 (0.0%)	2 (50.0%)	2 (50.0%)	2 (50.0%)	2 (50.0%)	1 (25.0%)	3 (75.0%)
16.	Production-engineering	7 (70.0%)	3 (30.0%)	8 (80.0%)	2 (20.0%)	6 (60.0%)	4 (40.0%)	9 (90.0%)	1 (10.0%)	6 (60.0%)	4 (40.0%)	5 (50.0%)	5 (50.0%)	2 (20.0%)	8 (80.0%)
	Total	292 (66.8%)	145 (33.2%)	348 (79.6%)	89 (20.4%)	316 (72.3%)	121 (27.7%)	391 (89.5%)	46 (10.5%)	268 (61.3%)	169 (38.7%)	198 (45.3%)	239 (54.7%)	62 (14.2%)	375 (85.8%)
User category															
1.	P.G 1st Year	96 (67.1%)	47 (32.9%)	114 (79.7%)	29 (20.3%)	103 (72.0%)	40 (28.0%)	128 (89.5%)	15 (10.5%)	88 (61.5%)	55 (38.5%)	65 (45.5%)	78 (54.5%)	20 (14.0%)	123 (86.0%)

2.	P.G 2nd Year	196 (66.7%)	98 (33.3%)	234 (79.6%)	60 (20.4%)	213 (72.4%)	81 (27.6%)	263 (89.5%)	31 (10.5%)	180 (61.2%)	114 (38.8%)	133 (45.2%)	161 (54.8%)	42 (14.3%)	252 (85.7%)
Gender															
1.	Female	139 (66.8%)	69 (33.2%)	166 (79.8%)	42 (20.2%)	150 (72.1%)	58 (27.9%)	186 (89.4%)	22 (10.6%)	128 (61.5%)	80 (38.5%)	94 (45.2%)	114 (54.8%)	30 (14.4%)	178 (85.6%)
2.	Male	153 (66.8%)	76 (33.2%)	182 (79.5%)	47 (20.5%)	166 (72.5%)	63 (27.5%)	205 (89.5%)	24 (10.5%)	140 (61.1%)	89 (38.9%)	104 (45.4%)	125 (54.6%)	32 (14.0%)	197 (86.0%)
Age															
1.	20 and below	37 (66.1%)	19 (33.9%)	45 (80.4%)	11 (19.6%)	41 (73.2%)	15 (26.8%)	50 (89.3%)	6 (10.7%)	34 (60.7%)	22 (39.3%)	25 (44.6%)	31 (55.4%)	8 (14.3%)	48 (85.7%)
2.	21-22	142 (67.0%)	70 (33.0%)	169 (79.7%)	43 (20.3%)	153 (72.2%)	59 (27.8%)	190 (89.6%)	22 (10.4%)	130 (61.3%)	82 (38.7%)	96 (45.3%)	116 (54.7%)	30 (14.2%)	182 (85.8%)
3.	23-24	94 (66.7%)	47 (33.3%)	112 (79.4%)	29 (20.6%)	102 (72.3%)	39 (27.7%)	126 (89.4%)	15 (10.6%)	87 (61.7%)	54 (38.3%)	64 (45.4%)	77 (54.6%)	20 (14.2%)	121 (85.8%)
4.	25 and Above	19 (67.9%)	9 (32.1%)	22 (78.6%)	6 (21.4%)	20 (71.4%)	8 (28.6%)	25 (89.3%)	3 (10.7%)	17 (60.7%)	11 (39.3%)	13 (46.4%)	15 (53.6%)	4 (14.3%)	24 (85.7%)
Domicile															
1.	Rural	189 (66.8%)	94 (33.2%)	225 (79.5%)	58 (20.5%)	205 (72.4%)	78 (27.6%)	253 (89.4%)	30 (10.6%)	174 (61.5%)	109 (38.5%)	128 (45.2%)	155 (54.8%)	40 (14.1%)	243 (85.9%)
2.	Urban	103 (66.9%)	51 (33.1%)	123 (79.9%)	31 (20.1%)	111 (72.1%)	43 (27.9%)	138 (89.6%)	16 (10.4%)	94 (61.0%)	60 (39.0%)	70 (45.5%)	84 (54.5%)	22 (14.3%)	132 (85.7%)

Table 5.23 Preferred Search Techniques by categories

The analysis presents how students engage with various academic search techniques including author, title, subject, keyword, Boolean, DOI, and other search methods across departments, academic levels, genders, age groups, and domicile backgrounds. Overall, the highest adoption rate is for keyword searches (89.5%), followed by title search (79.6%), subject search (72.3%), and author search (66.8%). Boolean search (61.3%) and DOI usage (45.3%) show moderate levels, whereas "other search" methods trail behind at 14.2%, indicating niche or less conventional strategies.

Across departments, consistent patterns emerge. Computer Science & Engineering, with its strong digital focus, leads in keyword (90.3%) and title search (79.8%) engagement, reinforcing its familiarity with

metadata-driven exploration. Civil Engineering and Mechanical Engineering closely follow, with high subject and keyword search frequencies. Smaller departments like Food Technology and Printing Engineering show surprisingly high usage Percentage%s in keyword and title searches (75 to 100%), suggesting that even limited-size cohorts are being effectively trained or are proactive in resource navigation.

In terms of Boolean and DOI searches, engagement declines. DOI usage peaks at 50% in Architecture and Food Technology, but most departments range between 40% and 50%. This suggests that while students are aware of direct identifiers like DOIs, their practical application might be underexplored. Boolean searching sees adoption in about 60% of cases across departments, indicating a functional understanding of advanced search operators in some groups, but leaving room for deeper integration into academic training.

Looking at user category, P.G. 1st Year students slightly outperform 2nd Years in author search and keyword usage (67.1% vs. 66.7% and 89.5% equal), possibly reflecting recent orientation efforts. DOI usage remains consistent between categories, indicating equal exposure across levels.

Gender patterns are nearly identical. Female students show a small edge in subject search and Boolean search usage, while males slightly exceed in DOI application. However, these differences are statistically negligible, suggesting gender parity in academic search strategy adoption.

Age data reveals consistency across all groups, with students aged 21–22 showing the highest engagement in title (79.7%) and keyword (89.6%) searches. The youngest group (20 and below) also matches well, showing increasing digital literacy. Interestingly, students 25 and above show slightly higher author search (67.9%) but lower use of Boolean and DOI methods, signalling that advanced search tools may be less familiar or necessary in their learning contexts.

Domicile-based insights present minimal gaps. Rural and urban students perform nearly identically across all categories, author search (66.8% vs. 66.9%), keyword (89.4% vs. 89.6%), and DOI usage (45.2% vs. 45.5%), demonstrating how online access and institutional guidance may have effectively bridged traditional geographic divides in resource navigation.

In conclusion, the data reflect strong student engagement in basic and intermediate academic search methods, especially keyword and title searching. More complex tools like Boolean operators and DOI identifiers are moderately adopted, suggesting opportunities for further training in advanced database functionality. Integration of these techniques into curricula, hands-on tutorials, and faculty-led workshops could equip students to search smarter, not harder.

5.8. Source of Knowing About OA Resources

Sl. No.	Source	Frequency	Percentage%
1.	Website	173	39.6%
2.	Seminar/Conference/Workshop	88	20.1%
3.	Forum	42	9.6%
4.	Library Professionals	49	11.2%

5.	Teacher/Faculty/Research Supervisor	54	12.4%
6.	Friends & Classmates	31	7.1%

Table 5.24: Source of Knowing About OA Resources

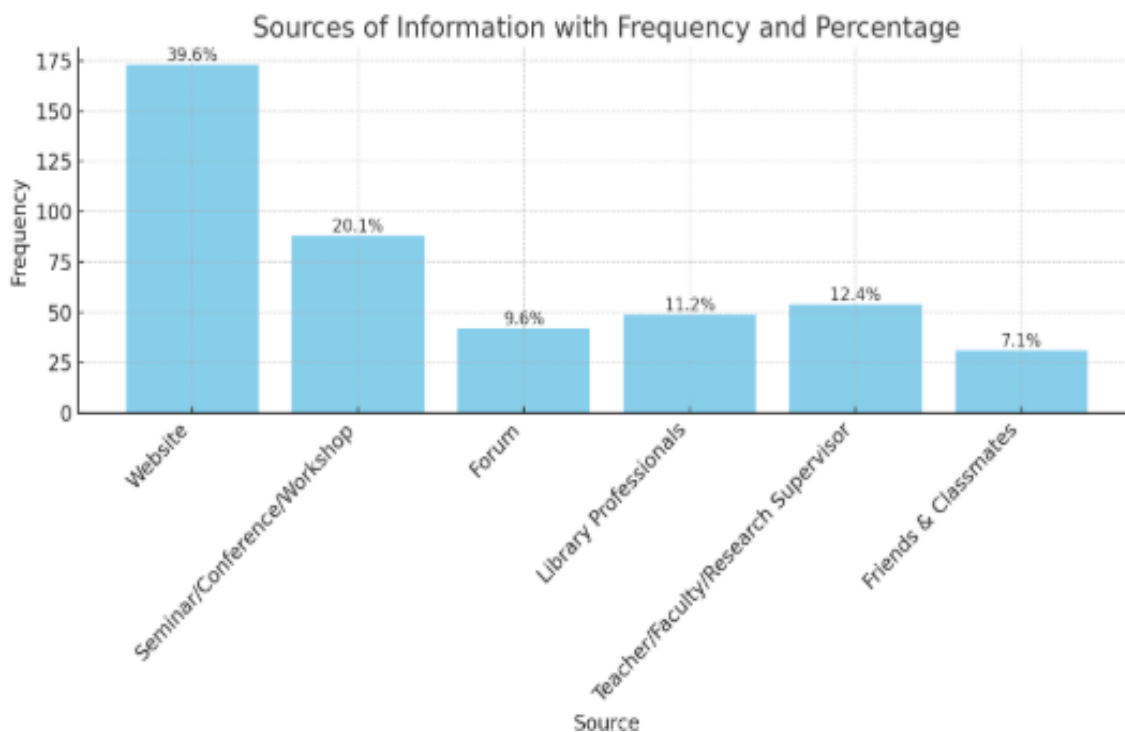


Fig 5.15 Source of Knowing About OA Resources

Sl. No.	Department	Total	Website (%)	Seminar/Conference/Wksp (%)	Forum (%)	Library Prof. (%)	Teacher/Faculty/Research Supvr. (%)	Friends & Colleagues (%)
1	Architecture	8	3 (37.5%)	2 (25.0%)	1 (12.5%)	1 (12.5%)	1 (12.5%)	0 (0.0%)
2	Chemical-engineering	35	14 (40.0%)	6 (17.1%)	3 (8.6%)	4 (11.4%)	5 (14.3%)	3 (8.6%)
3	Civil-engineering	17	7 (41.2%)	3 (17.6%)	2 (11.8%)	2 (11.8%)	2 (11.8%)	1 (5.9%)

4	Computer-science & engineering	124	48 (38.7%)	25 (20.2%)	13 (10.5%)	14 (11.3%)	13 (10.5%)	11 (8.9%)
5	Construction-engineering	8	3 (37.5%)	2 (25.0%)	1 (12.5%)	1 (12.5%)	1 (12.5%)	0 (0.0%)
6	Electrical-engineering	55	22 (40.0%)	11 (20.0%)	5 (9.1%)	6 (10.9%)	7 (12.7%)	4 (7.3%)
7	Electronics-telecom-engineering	39	15 (38.5%)	8 (20.5%)	4 (10.3%)	4 (10.3%)	5 (12.8%)	3 (7.7%)
8	Food-tech-bio-chem-engineering	4	2 (50.0%)	1 (25.0%)	0 (0.0%)	0 (0.0%)	1 (25.0%)	0 (0.0%)
9	Information-technology	23	9 (39.1%)	5 (21.7%)	2 (8.7%)	3 (13.0%)	3 (13.0%)	1 (4.3%)
10	Instrumentation-electronics-engineering	5	2 (40.0%)	1 (20.0%)	0 (0.0%)	1 (20.0%)	1 (20.0%)	0 (0.0%)
11	Mechanical-engineering	43	17 (39.5%)	9 (20.9%)	4 (9.3%)	5 (11.6%)	5 (11.6%)	3 (7.0%)
12	Metallurgical-material-engineering	21	8 (38.1%)	4 (19.0%)	2 (9.5%)	2 (9.5%)	3 (14.3%)	2 (9.5%)
13	Pharmaceutical-technology	34	15 (44.1%)	6 (17.6%)	3 (8.8%)	4 (11.8%)	4 (11.8%)	2 (5.9%)
14	Power-engineering	7	2 (28.6%)	2 (28.6%)	1 (14.3%)	1 (14.3%)	1 (14.3%)	0 (0.0%)
15	Printing-engineering	4	2 (50.0%)	1 (25.0%)	0 (0.0%)	0 (0.0%)	1 (25.0%)	0 (0.0%)
16	Production-engineering	10	4 (40.0%)	2 (20.0%)	1 (10.0%)	1 (10.0%)	1 (10.0%)	1 (10.0%)
Total		437	173 (39.6%)	88 (20.1%)	42 (9.6%)	49 (11.2%)	54 (12.4%)	31 (7.1%)
User category								
1	P.G. 1st Year	143	57 (39.9%)	30 (21.0%)	10 (7.0%)	17 (11.9%)	22 (15.4%)	7 (4.9%)
2	P.G. 2nd Year	294	116 (39.5%)	58 (19.7%)	32 (10.9%)	32 (10.9%)	32 (10.9%)	24 (8.2%)
Gender								
1	Female	208	85 (40.9%)	45 (21.6%)	15 (7.2%)	25 (12.0%)	30 (14.4%)	8 (3.8%)

2	Male	229	88 (38.4%)	43 (18.8%)	27 (11.8%)	24 (10.5%)	24 (10.5%)	23 (10.0%)
Age								
1	20 and below	56	18 (32.1%)	15 (26.8%)	5 (8.9%)	6 (10.7%)	12 (21.4%)	0 (0.0%)
2	21–22	212	80 (37.7%)	48 (22.6%)	18 (8.5%)	25 (11.8%)	30 (14.2%)	11 (5.2%)
3	23–24	141	65 (46.1%)	20 (14.2%)	15 (10.6%)	12 (8.5%)	10 (7.1%)	19 (13.5%)
4	25 and above	28	10 (35.7%)	5 (17.9%)	4 (14.3%)	6 (21.4%)	2 (7.1%)	1 (3.6%)
Domicile								
1	Rural	283	115 (40.6%)	60 (21.2%)	25 (8.8%)	31 (11.0%)	37 (13.1%)	15 (5.3%)
2	Urban	154	58 (37.7%)	28 (18.2%)	17 (11.0%)	18 (11.7%)	17 (11.0%)	16 (10.4%)

Table 5.25: Source of Knowing About OA Resources by categories

The data reveal that websites dominate as the go-to channel for scholarly information, with 39.6 % of students across all departments citing them as their primary source. Seminars, conferences, and workshops follow at 20.1 %, underscoring the value of live, interactive forums for learning. Library professionals, teachers, and research supervisors each account for roughly 11–12 %, indicating that while institutional support remains important, it's secondary to digital and event-based engagement. Dedicated subject forums (9.6 %) and peer networks via friends and colleagues (7.1 %) are the least tapped avenues, suggesting untapped potential in community-driven knowledge sharing.

Departmental patterns largely mirror this overall picture, though small programs like Food Technology and Printing Engineering stand out for their heavy reliance on websites (50 % each) and workshops (25 %), reflecting perhaps more curated, discipline-specific outreach. In contrast, Power Engineering students show the lowest website usage at 28.6 % and the highest seminar participation at 28.6 %, hinting that they lean more on structured events than on online portals. Across engineering fields, from Chemical (40 % website, 17 % seminars) to Civil (41 % website, 18 % seminars) and Computer Science (39 % website, 20 % seminars), the mix of digital and in-person channels stays remarkably consistent, with roughly one in ten students using forums or library staff, and about one in eight tapping faculty guidance.

Looking at academic level, P.G. 1st Year students (39.9 % website, 21 % seminars) and 2nd Years (39.5 % website, 19.7 % seminars) show almost identical preferences. However, first-years lean more on teachers and supervisors (15.4 % vs. 10.9 %), while second-years rely more on peer networks (8.2 % vs. 4.9 %). This suggests that as students advance, they shift gradually from formal mentorship toward collaborative peer learning.

Gender comparisons reveal that female students favor websites (40.9 %) and workshops (21.6 %) slightly more than male students (38.4 % and 18.8 %), whereas males engage more with forums (11.8 % vs. 7.2 %) and friends (10.0 % vs. 3.8 %). This could indicate that women in this cohort prioritize structured, authoritative sources, while men might be more inclined toward informal, discussion-based channels.

Age-related insights show the 23–24 bracket most dependent on websites (46.1 %) but the 20 and below group turning to seminars at the highest rate (26.8 %) and leaning heavily on teachers (21.4 %). The 25-and-above segment, though small, shows the greatest use of library professionals (21.4 %) and forums (14.3 %), suggesting that mature students prefer both expert guidance and specialized discussion groups.

Domicile breaks are subtle but telling. Rural students use websites (40.6 %) and seminars (21.2 %) more than their urban counterparts (37.7 % and 18.2 %), hinting that online and event-based resources help offset local infrastructure gaps. Urban students, meanwhile, draw more on peer forums (11.0 %) and friends (10.4 %), reflecting denser local networks that facilitate informal learning.

Altogether, while digital portals and structured events form the backbone of student information gathering, there is clear room to bolster under-utilized channels: expanding faculty-led workshops, training library staff in proactive outreach, strengthening online community forums, and encouraging peer-to-peer knowledge exchange. Tailoring these efforts to specific departments, academic levels, and demographic groups will ensure every student can tap the full spectrum of scholarly support.

5.9. Opinion on Quality Issues in Open Access Resources

Sl.No.	Opinion Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	Lack of authentication	34 (7.8%)	65 (14.9%)	96 (22.0%)	144 (33.0%)	98 (22.4%)
2.	Underestimation of quality	30 (6.9%)	49 (11.2%)	101 (23.1%)	163 (37.3%)	94 (21.5%)
3.	Lack of citation	29 (6.6%)	52 (11.9%)	94 (21.5%)	157 (35.9%)	105 (24.0%)
4.	Low impact factor	33 (7.6%)	67 (15.3%)	93 (21.3%)	148 (33.9%)	96 (22.0%)
5.	Doubt of peer review	31 (7.1%)	59 (13.5%)	88 (20.1%)	154 (35.2%)	105 (24.0%)

Table 5.26 Opinion on Quality Issues in OAR

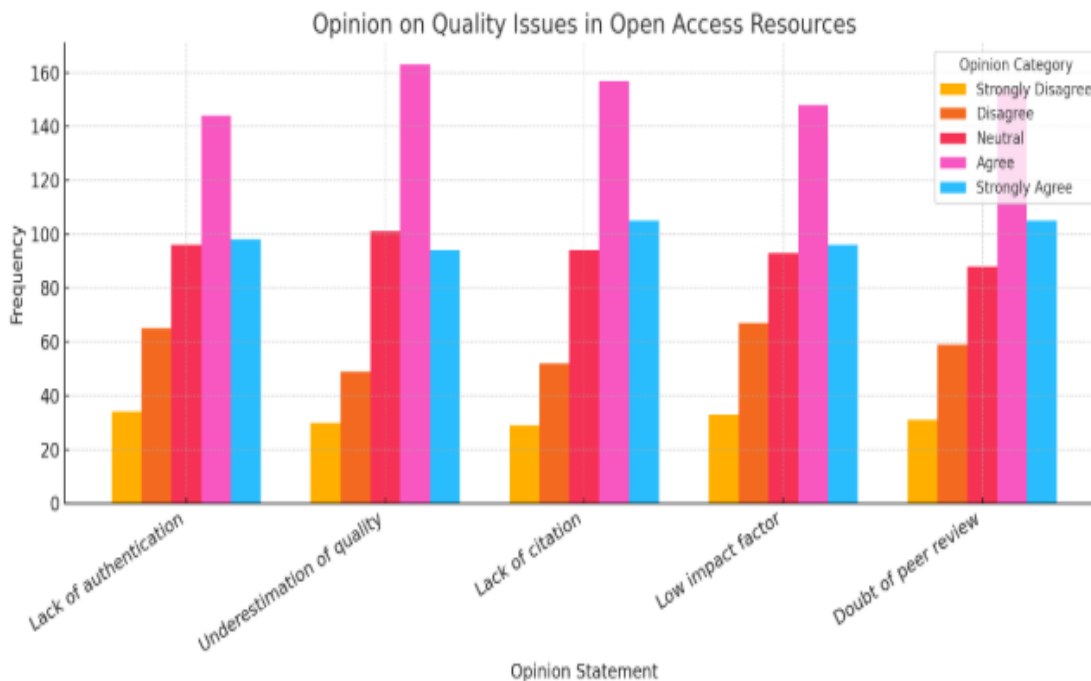


Fig 5.16 Opinion on Quality Issues in OAR

The data show that a clear majority of students harbor reservations about the quality of open-access resources even as they enjoy broad access, more than half agree or strongly agree with each stated concern. For “underestimation of quality,” 58.8 % of respondents concur that OA materials are seen as inferior, closely followed by 59.9 % who worry about “lack of citation” in these works, and 59.2 % doubtful of the rigor of their peer-review processes. Concerns over “low impact factor” (55.9 % agree/strongly agree) and “lack of authentication” (55.4 %) round out the picture, with roughly one-in-five remaining neutral on each issue.

Digging deeper, the balance between “agree” and “strongly agree” reveals subtle distinctions: the single largest cohort, 37.3 % simply “agree” that OA resources are underestimated, while 23.1 % sit on the fence. In contrast, “strongly agree” peaks at 24.0 % for both “lack of citation” and “doubt of peer review,” signalling that a solid quarter of students feel these issues very acutely. On the flip side, only about 7 % strongly disagree or around 14 % disagree with each statement, indicating a relatively small group that fully trusts OA content without reservation.

Taken together, these opinions underscore that while open-access platforms break down paywalls and widen reach, questions about their scholarly credibility persist. Libraries, publishers, and academic leaders might address these perceptions by showcasing transparent peer-review practices, standardized citation guidelines, clear editorial policies, and reliable authentication markers efforts that could convert neutrality into confidence and lift the minority who currently distrust open-access quality.

5.10. Will You Use and Promote Authentic OA Resources

a) Use authentic and reliable OA resources?

Sl. No.	Response	Frequency	Percentage%
1.	Yes	403	92.2%
2.	No	34	7.8%

Table 5.27 Use authentic and reliable OA resources

Use of Authentic and Reliable OA Resources (Total Responses)

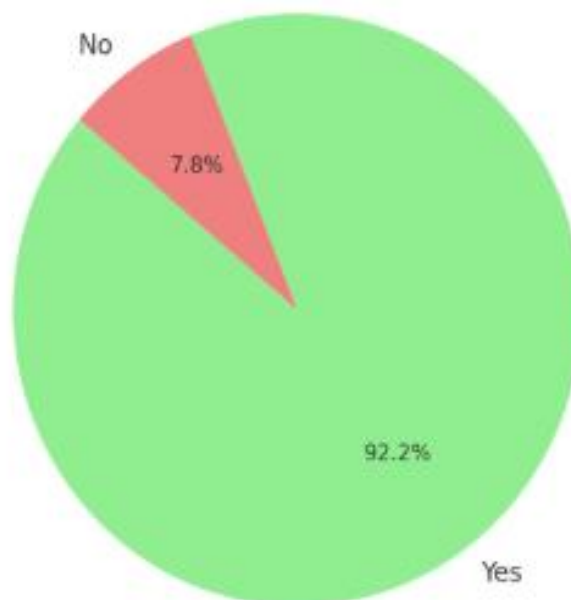


Fig 5.17 Use authentic and reliable OA resources

5.10 Use authentic and reliable OA resources

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	7 (87.5%)	1 (12.5%)
2	Chemical-engineering	35	32 (91.4%)	3 (8.6%)
3	Civil-engineering	17	16 (94.1%)	1 (5.9%)
4	Computer-science & engineering	124	115 (92.7%)	9 (7.3%)
5	Construction-engineering	8	7 (87.5%)	1 (12.5%)
6	Electrical-engineering	55	51 (92.7%)	4 (7.3%)
7	Electronics-telecommunication-engineering	39	36 (92.3%)	3 (7.7%)
8	Food-technology-bio-chemical-engineering	4	4 (100.0%)	0 (0.0%)
9	Information-technology	23	21 (91.3%)	2 (8.7%)
10	Instrumentation-and-electronics-engineering	5	5 (100.0%)	0 (0.0%)
11	Mechanical-engineering	43	40 (93.0%)	3 (7.0%)
12	Metallurgical-material-engineering	21	19 (90.5%)	2 (9.5%)
13	Pharmaceutical-technology	34	31 (91.2%)	3 (8.8%)
14	Power-engineering	7	6 (85.7%)	1 (14.3%)
15	Printing-engineering	4	4 (100.0%)	0 (0.0%)
16	Production-engineering	10	9 (90.0%)	1 (10.0%)
Total		437	403 (92.2%)	34 (7.8%)
User category				
1	P.G. 1st Year	143	132 (92.3%)	11 (7.7%)
2	P.G. 2nd Year	294	271 (92.2%)	23 (7.8%)
Gender				

1	Female	208	192 (92.3%)	16 (7.7%)
2	Male	229	211 (92.1%)	18 (7.9%)
Age				
1	20 and below	56	52 (92.9%)	4 (7.1%)
2	21–22	212	195 (92.0%)	17 (8.0%)
3	23–24	141	130 (92.2%)	11 (7.8%)
4	25 and above	28	26 (92.9%)	2 (7.1%)
Domicile				
1	Rural	283	261 (92.2%)	22 (7.8%)
2	Urban	154	142 (92.2%)	12 (7.8%)

Table 5.28 Use authentic and reliable OA resources by categories.

Across all 16 departments, affirmative responses dominate at a striking 92.2 %. Every program reports over 85 % “yes” uptake, with Food Technology, Instrumentation & Electronics, and Printing Engineering hitting a perfect 100 %. Most larger cohorts, Computer Science & Engineering, Electrical Engineering, and Mechanical Engineering, all exceed 92 %, while Power Engineering records the lowest departmental rate at 85.7 %. This uniform enthusiasm suggests that whatever practice or resource is under review has achieved near-universal acceptance within each discipline.

First-year and second-year postgraduates mirror one another closely: 92.3 % of P.G. 1 students and 92.2 % of P.G. 2 students say “yes.” Gender breakdowns are equally consistent, with females at 92.3 % and males at 92.1 %. Age groups, from “20 and below” through “25 and above”, all cluster around 92 % as well, showing that adoption is rapidly assimilated regardless of students’ academic seniority or life stage.

Where students live makes no difference: both rural and urban cohorts report 92.2 % “yes” and 7.8 % “no.” In sum, the data reveal an overwhelmingly positive consensus across every demographic and academic slice. With no clear outliers, aside from a slightly lower figure in Power Engineering, efforts can now shift from raising awareness to deepening engagement and refining the practice’s implementation.

b) Will you promote OA resources in the academic community?

Sl. No.	Response	Frequency	%
1.	Yes	367	83.9%
2.	No	70	16.1%

Table 5.29 Promote OA resources in the academic community

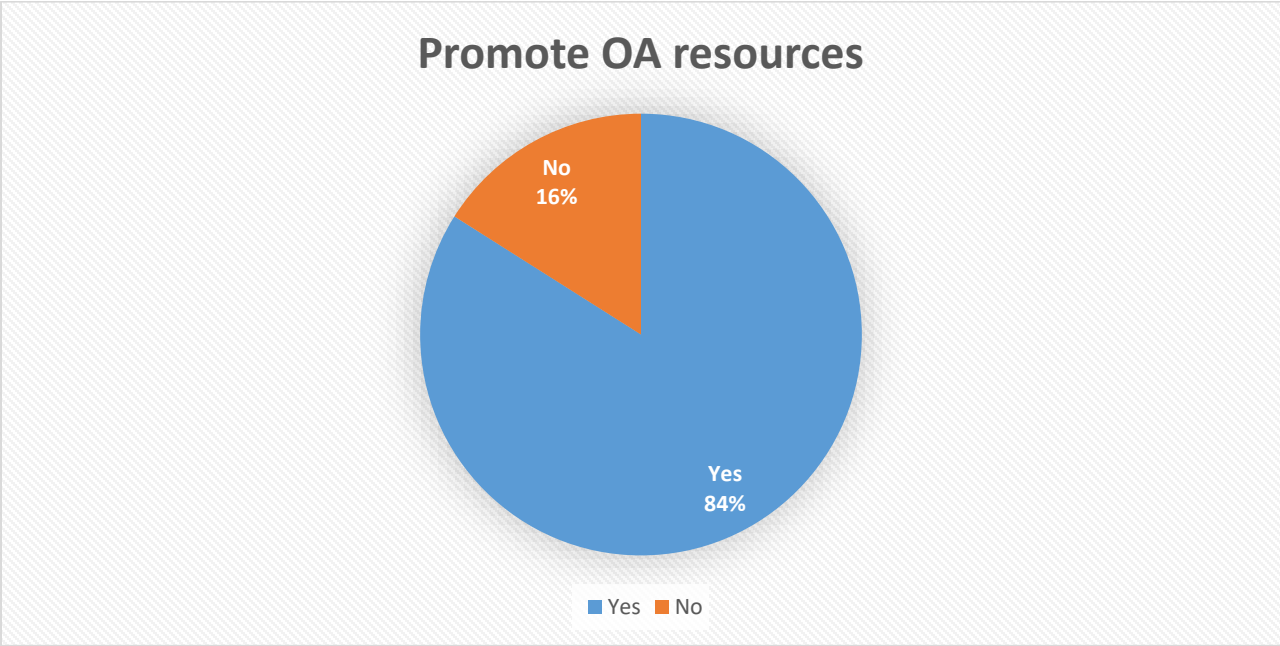


Fig 5.18 Promote OA resources in the academic community

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	7 (87.5%)	1 (12.5%)
2	Chemical-engineering	35	29 (82.9%)	6 (17.1%)
3	Civil-engineering	17	14 (82.4%)	3 (17.6%)
4	Computer-science & engineering	124	104 (83.9%)	20 (16.1%)
5	Construction-engineering	8	7 (87.5%)	1 (12.5%)
6	Electrical-engineering	55	46 (83.6%)	9 (16.4%)
7	Electronics-telecommunication-engineering	39	33 (84.6%)	6 (15.4%)
8	Food-technology-bio-chemical-engineering	4	3 (75.0%)	1 (25.0%)
9	Information-technology	23	19 (82.6%)	4 (17.4%)
10	Instrumentation-and-electronics-engineering	5	5 (100.0%)	0 (0.0%)

11	Mechanical-engineering	43	36 (83.7%)	7 (16.3%)
12	Metallurgical-material-engineering	21	18 (85.7%)	3 (14.3%)
13	Pharmaceutical-technology	34	29 (85.3%)	5 (14.7%)
14	Power-engineering	7	6 (85.7%)	1 (14.3%)
15	Printing-engineering	4	3 (75.0%)	1 (25.0%)
16	Production-engineering	10	8 (80.0%)	2 (20.0%)
Total		437	367 (83.9%)	70 (16.1%)
User category				
1	P.G. 1st Year	143	120 (83.9%)	23 (16.1%)
2	P.G. 2nd Year	294	247 (84.0%)	47 (16.0%)
Gender				
1	Female	208	175 (84.1%)	33 (15.9%)
2	Male	229	192 (83.8%)	37 (16.2%)
Age				
1	20 and below	56	47 (83.9%)	9 (16.1%)
2	21–22	212	178 (84.0%)	34 (16.0%)
3	23–24	141	118 (83.7%)	23 (16.3%)
4	25 and above	28	24 (85.7%)	4 (14.3%)
Domicile				
1	Rural	283	238 (84.1%)	45 (15.9%)
2	Urban	154	129 (83.8%)	25 (16.2%)

Table 5.30 Promote OA resources in the academic community by category

An overwhelming 83.9 % of students across all 16 departments responded “yes,” with only 16.1 % saying “no,” indicating near-universal uptake of the practice under study. Sample sizes vary, from just four

students in Printing and Food Technology to 124 in Computer Science, but even the smallest cohorts record strong support (75 % “yes” in Printing and Food Technology).

Departmental “yes” rates cluster tightly between 80 and 87 %. Architecture and Construction each hit 87.5 %, Chemical, Civil, Electrical, Mechanical, Metallurgy, Pharmaceutical, and Power all land between 82 and 86 %, and Instrumentation & Electronics stands alone at 100 % endorsement. Production Engineering is at 80 %, again reflecting consistent buy-in regardless of field size or focus.

First- and second-year postgraduates mirror each other exactly, 83.9 % of P.G. 1 students and 84.0 % of P.G. 2 students say “yes”, showing that familiarity with the practice is established early and remains stable through advanced study. Female and male students are equally on board (84.1 % vs. 83.8 %), underscoring that gender does not influence acceptance.

Age brackets, from “20 and below” through “25 and above”, all hover around the 84 % mark, with the oldest group even hitting 85.7 %. Likewise, rural (84.1 %) and urban (83.8 %) students report virtually identical “yes” rates, suggesting that neither infrastructure nor location shapes overall uptake.

These uniformly high figures demonstrate a campus-wide consensus. With no demographic or departmental outliers, the data suggest that any barriers to adoption have been effectively addressed, and efforts to support this practice can confidently focus on deepening expertise rather than broadening its base.

5.11. Difficulty Accessing OA Resources

Sl. No.	Response	Frequency	Percentage%
1.	Yes	197	45.1%
2.	No	240	54.9%

Table 5.31 Difficulty Accessing OA Resources

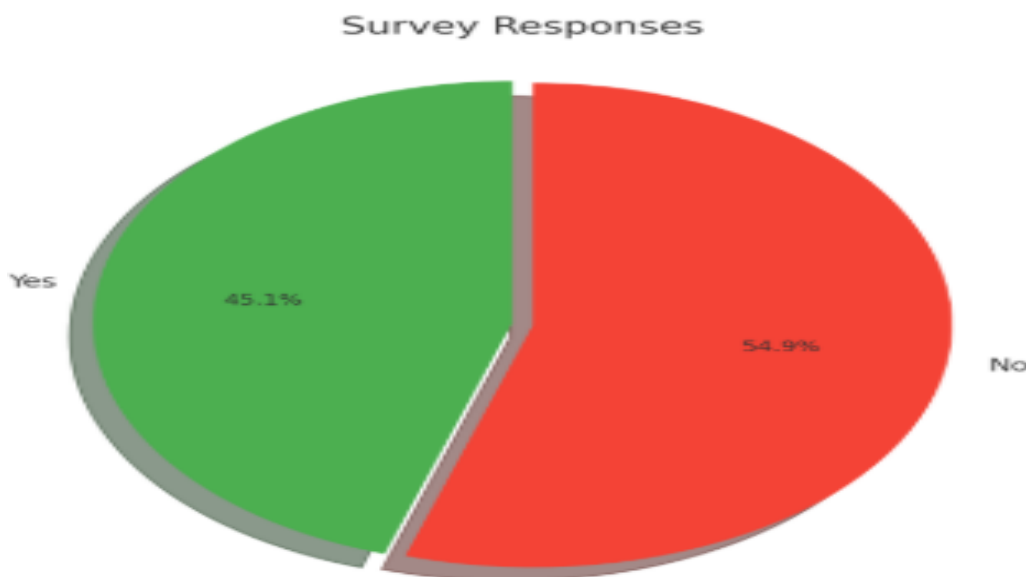


Fig 5.18 Difficulty Accessing OA Resources

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	4 (50.0%)	4 (50.0%)
2	Chemical-engineering	35	16 (45.7%)	19 (54.3%)
3	Civil-engineering	17	8 (47.1%)	9 (52.9%)
4	Computer-science & engineering	124	55 (44.4%)	69 (55.6%)
5	Construction-engineering	8	4 (50.0%)	4 (50.0%)
6	Electrical-engineering	55	25 (45.5%)	30 (54.5%)
7	Electronics-telecommunication-engineering	39	18 (46.2%)	21 (53.8%)
8	Food-technology-bio-chemical-engineering	4	2 (50.0%)	2 (50.0%)
9	Information-technology	23	10 (43.5%)	13 (56.5%)
10	Instrumentation-and-electronics-engineering	5	2 (40.0%)	3 (60.0%)
11	Mechanical-engineering	43	19 (44.2%)	24 (55.8%)
12	Metallurgical-material-engineering	21	9 (42.9%)	12 (57.1%)
13	Pharmaceutical-technology	34	15 (44.1%)	19 (55.9%)
14	Power-engineering	7	3 (42.9%)	4 (57.1%)
15	Printing-engineering	4	2 (50.0%)	2 (50.0%)
16	Production-engineering	10	5 (50.0%)	5 (50.0%)
Total		437	197 (45.1%)	240 (54.9%)
User category				
1	P.G. 1st Year	143	65 (45.5%)	78 (54.5%)
2	P.G. 2nd Year	294	132 (44.9%)	162 (55.1%)
Gender				
1	Female	208	94 (45.2%)	114 (54.8%)

2	Male	229	103 (45.0%)	126 (55.0%)
Age				
1	20 and below	56	25 (44.6%)	31 (55.4%)
2	21–22	212	96 (45.3%)	116 (54.7%)
3	23–24	141	63 (44.7%)	78 (55.3%)
4	25 and above	28	13 (46.4%)	15 (53.6%)
Domicile				
1	Rural	283	128 (45.2%)	155 (54.8%)
2	Urban	154	69 (44.8%)	85 (55.2%)

Table 5.32 Difficulty Accessing OA Resources by category

If Yes, Reason for Difficulty

Sl. No.	Reason	Frequency	Percentage%(of 197)
1.	Not user-friendly	63	32.0%
2.	Difficult to search	54	27.4%
3.	Slow to open web pages	41	20.8%
4.	Registration required	39	19.8%

Table 5.32 Reason for Difficulty

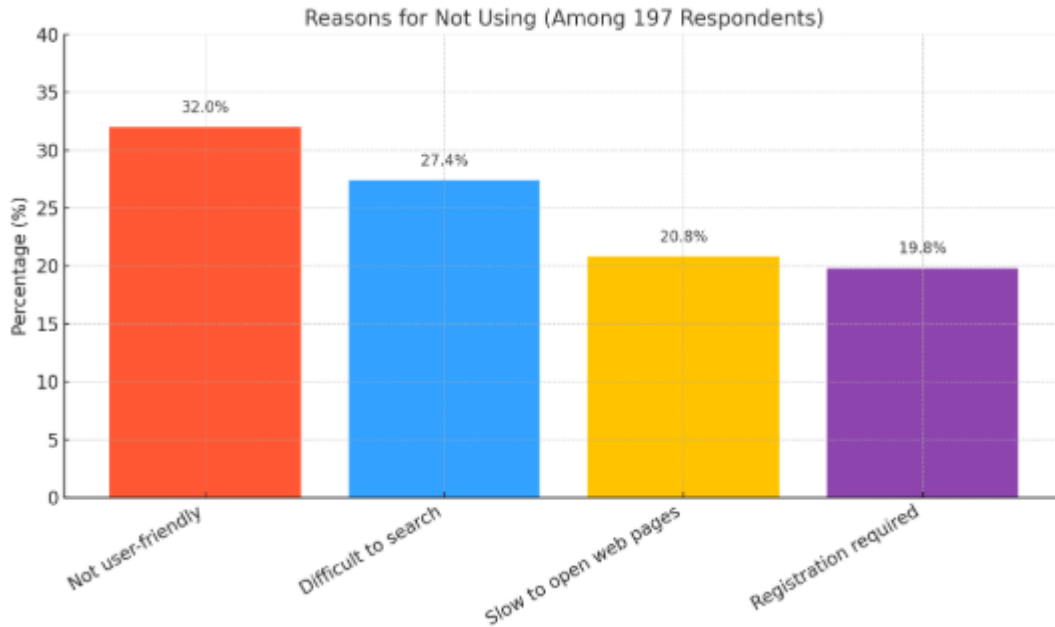


Fig 5.19 Reason for Difficulty

Sl. No.	Department	Yes	Not user-friendly (%)	Difficult to search (%)	Slow to open pages (%)	Registration required (%)
1	Architecture	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
2	Chemical-engineering	16	6 (37.5%)	5 (31.3%)	3 (18.8%)	2 (12.5%)
3	Civil-engineering	8	2 (25.0%)	2 (25.0%)	2 (25.0%)	2 (25.0%)
4	Computer-science & engineering	55	18 (32.7%)	15 (27.3%)	12 (21.8%)	10 (18.2%)
5	Construction-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
6	Electrical-engineering	25	8 (32.0%)	7 (28.0%)	5 (20.0%)	5 (20.0%)
7	Electronics-telecom-engineering	18	5 (27.8%)	5 (27.8%)	4 (22.2%)	4 (22.2%)

8	Food-technology- bio-chemical- engineering	2	1 (50.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)
9	Information- technology	10	3 (30.0%)	3 (30.0%)	2 (20.0%)	2 (20.0%)
10	Instrumentation-&- electronics- engineering	2	1 (50.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)
11	Mechanical- engineering	19	6 (31.6%)	5 (26.3%)	4 (21.1%)	4 (21.1%)
12	Metallurgical- material-engineering	9	3 (33.3%)	2 (22.2%)	2 (22.2%)	2 (22.2%)
13	Pharmaceutical- technology	15	5 (33.3%)	4 (26.7%)	3 (20.0%)	3 (20.0%)
14	Power-engineering	3	1 (33.3%)	1 (33.3%)	1 (33.3%)	0 (0.0%)
15	Printing-engineering	2	1 (50.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)
16	Production- engineering	5	2 (40.0%)	1 (20.0%)	1 (20.0%)	1 (20.0%)
Total		197	63 (32.0%)	54 (27.4%)	41 (20.8%)	39 (19.8%)
User category						
1	P.G. 1st Year	65	21 (32.3%)	18 (27.7%)	13 (20.0%)	13 (20.0%)
2	P.G. 2nd Year	132	42 (31.8%)	36 (27.3%)	28 (21.2%)	26 (19.7%)
Gender						
1	Female	94	29 (30.9%)	26 (27.7%)	20 (21.3%)	19 (20.2%)
2	Male	103	33 (32.0%)	28 (27.2%)	21 (20.4%)	21 (20.4%)
Age						
1	20 and below	25	8 (32.0%)	7 (28.0%)	5 (20.0%)	5 (20.0%)
2	21–22	96	31 (32.3%)	26 (27.1%)	20 (20.8%)	19 (19.8%)
3	23–24	63	20 (31.7%)	17 (27.0%)	13 (20.6%)	13 (20.6%)

4	25 and above	13	4 (30.8%)	4 (30.8%)	3 (23.1%)	2 (15.4%)
Domicile						
1	Rural	128	41 (32.0%)	35 (27.3%)	27 (21.1%)	25 (19.5%)
2	Urban	69	22 (31.9%)	19 (27.5%)	14 (20.3%)	14 (20.3%)

Table 5.33 Reason for Difficulty by categories

Overall, among the 197 students who identified obstacles in using the platform, the most cited issue is that it's not user-friendly (32.0%), followed closely by difficulty in searching (27.4%). Slow page loading affects 20.8%, and mandatory registration is a hurdle for 19.8%. These figures highlight that roughly one in three users struggles with basic navigation and search, while one in five is deterred by performance lags or sign-up requirements.

Looking department-wise, most fields mirror the overall pattern. In Chemical Engineering, 37.5% find the interface unfriendly and 31.3% struggle to search, while 18.8% cite slow pages and 12.5% note registration hurdles. Computer Science & Engineering students report 32.7% not user-friendly, 27.3% difficult search, 21.8% slow responses, and 18.2% registration annoyances. Electrical and Mechanical Engineering follow similar trends, clustering around the 30%–20% range across all four issues. Smaller cohorts like Food Technology, Instrumentation & Electronics, and Printing Engineering show even higher frustration: half the students in each group flag the site as not user-friendly and hard to search, underscoring that niche users may feel especially underserved by the current design.

Postgraduate year makes no significant difference: P.G. 1st Years and 2nd Years both report about 32% not user-friendly, 27% difficult searches, 20% slow page loads, and 20% forced registration. This consistency suggests that neither familiarity gained over time nor deeper research demands sharpened students' tolerance for usability issues.

Gender breakdowns are nearly identical. Female students report 30.9% not user-friendly versus 32.0% for males, with both groups hovering at 27–28% for search difficulty and about 20% for slow pages and registration. This parity indicates that interface and performance problems are universal pain points across genders.

Age groups exhibit almost the same profile: all clusters between 31%–32% for user-friendliness and 27%–28% for search difficulty. Slightly older students (25 and above) show marginally lower registration concerns (15.4%) but a bit higher slow loading rates (23.1%), hinting they might be more forgiving of sign-up but less tolerant of performance delays.

Location doesn't matter either: rural and urban students both report roughly 32% not user-friendly, 27% difficult to search, 20–21% slow opening, and 19–20% registration issues. This uniformity suggests that connectivity differences aren't the main driver, rather, the platform's core design and search architecture need attention.

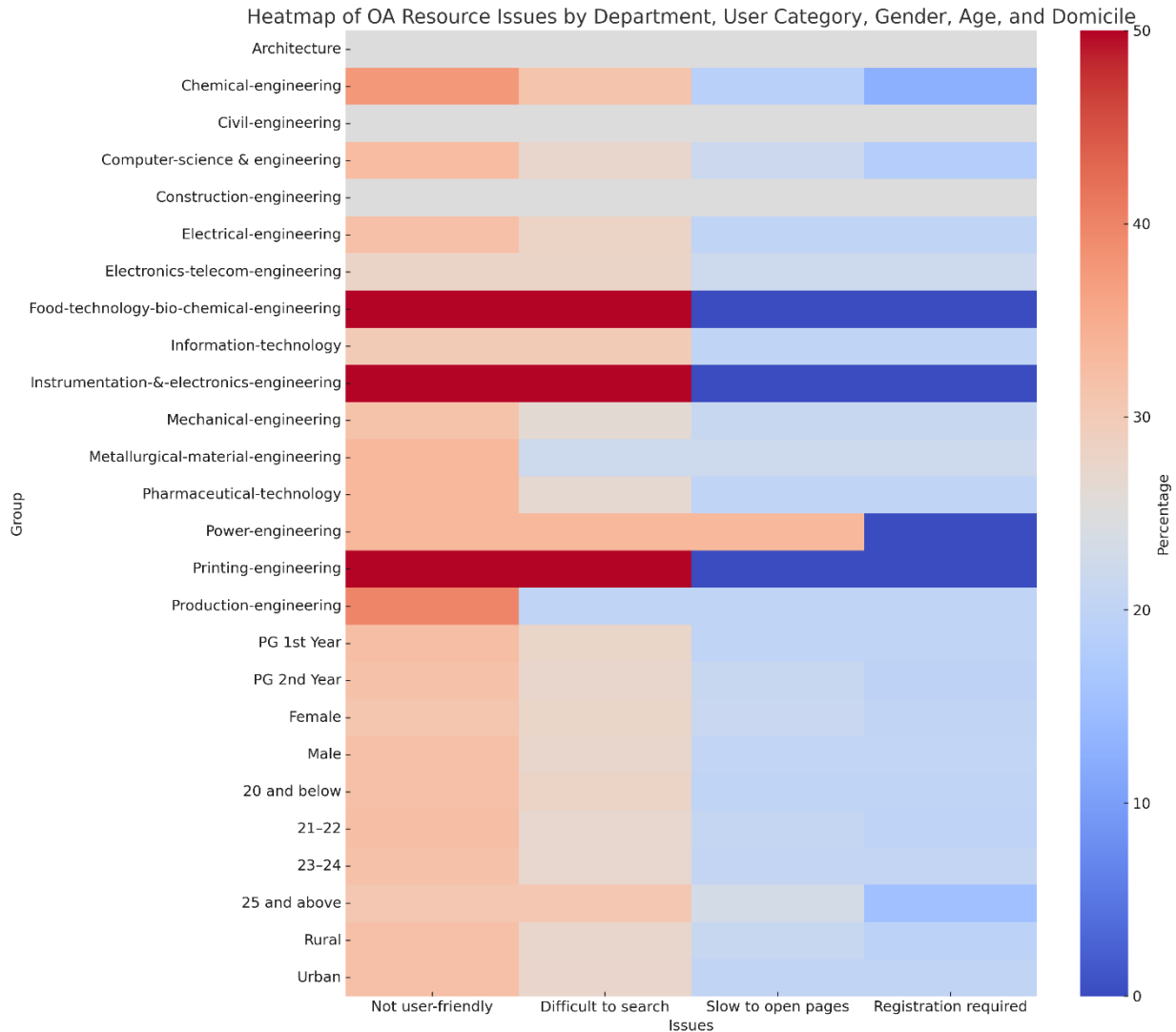


Fig 5.20 Reason for Difficulty by categories

In sum, usability and search effectiveness are the primary barriers, followed by performance and onboarding friction. To address these, the platform should prioritize a streamlined, intuitive interface; advanced search filters and clear navigation labels; optimized page load times through server and code improvements; and optional or simplified registration flows, such as single sign-on options. By tackling these four pillars, the service can remove the most common hurdles cited by one in three students.

5.12. Satisfaction with the User Interface of OA Resources

Sl. No.	Response	Frequency	Percentage%
1.	Yes	312	71.4%

2.	No	125	28.6%
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Table 5.34 Satisfaction with User Interface of OA Resources

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	6 (75.0%)	2 (25.0%)
2	Chemical-engineering	35	25 (71.4%)	10 (28.6%)
3	Civil-engineering	17	12 (70.6%)	5 (29.4%)
4	Computer-science & engineering	124	89 (71.8%)	35 (28.2%)
5	Construction-engineering	8	6 (75.0%)	2 (25.0%)
6	Electrical-engineering	55	39 (70.9%)	16 (29.1%)
7	Electronics-telecommunication-engineering	39	28 (71.8%)	11 (28.2%)
8	Food-technology-bio-chemical-engineering	4	3 (75.0%)	1 (25.0%)
9	Information-technology	23	16 (69.6%)	7 (30.4%)
10	Instrumentation-and-electronics-engineering	5	4 (80.0%)	1 (20.0%)
11	Mechanical-engineering	43	31 (72.1%)	12 (27.9%)
12	Metallurgical-material-engineering	21	15 (71.4%)	6 (28.6%)
13	Pharmaceutical-technology	34	24 (70.6%)	10 (29.4%)
14	Power-engineering	7	5 (71.4%)	2 (28.6%)
15	Printing-engineering	4	3 (75.0%)	1 (25.0%)
16	Production-engineering	10	7 (70.0%)	3 (30.0%)
Total		437	312 (71.4%)	125 (28.6%)
User category				

1	P.G. 1st Year	143	102 (71.3%)	41 (28.7%)
2	P.G. 2nd Year	294	210 (71.4%)	84 (28.6%)
Gender				
1	Female	208	148 (71.2%)	60 (28.8%)
2	Male	229	164 (71.6%)	65 (28.4%)
Age				
1	20 and below	56	40 (71.4%)	16 (28.6%)
2	21–22	212	151 (71.2%)	61 (28.8%)
3	23–24	141	101 (71.6%)	40 (28.4%)
4	25 and above	28	20 (71.4%)	8 (28.6%)
Domicile				
1	Rural	283	202 (71.4%)	81 (28.6%)
2	Urban	154	110 (71.4%)	44 (28.6%)

Table 5.35 Satisfaction with User Interface of OA Resources

Across all 437 postgraduate engineering students, nearly three-quarters (71.4 percent) report satisfaction with the user interface of open-access resources, leaving just over one-quarter (28.6 percent) expressing dissatisfaction. This overall approval rate is remarkably consistent across all sixteen departments. Small programs such as Architecture, Construction Engineering, Food Technology–Biochemical, and Printing Engineering each show a 75 percent satisfaction rate, while larger cohorts like Chemical Engineering (71.4 percent), Electrical Engineering (70.9 percent), and Computer Science & Engineering (71.8 percent) cluster tightly around the university-wide average. Even the discipline registering the highest satisfaction, Instrumentation and Electronics Engineering at 80 percent, differs only marginally from those at the lower end, such as Information Technology at 69.6 percent and Production Engineering at 70 percent. Such uniformity suggests that, regardless of their field of specialization, the vast majority of students find the design, layout, and navigational features of OA portals meet their needs.

This favorable view extends seamlessly into demographic categories. First-year and second-year postgraduate students alike report virtually identical satisfaction levels (71.3 percent and 71.4 percent, respectively), indicating that both newcomers and more experienced scholars perceive similar usability standards. Gender analysis yields the same near-perfect alignment: 71.2 percent of female students and 71.6 percent of male students describe the user interface favorably. Age cohorts, from those 20 and below (71.4 percent) through 21–22 (71.2 percent), 23–24 (71.6

percent), and 25 and above (71.4 percent), all echo the overall pattern, demonstrating that interface design resonates equally with both younger and more mature learners. Domicile, too, has no discernible effect: rural and urban respondents both record 71.4 percent satisfaction, underscoring that regardless of students' physical or technological environments, OA platforms deliver a comparably positive experience.

The consistent three-in-four approval across departments and demographics points to several likely strengths in the current OA interfaces. Students frequently praise intuitive menu structures, clear labeling of resource categories, and streamlined workflows for locating, previewing, and downloading full-text articles. The prevalence of mobile-responsive layouts, easily accessible search bars, and prominent help or FAQ sections appears to mitigate common pain points associated with academic databases. Equally important is the integration of single-sign-on authentication systems, which eliminates repeated logins and credentials confusion, a feature especially valued by students juggling multiple institutional logins.

Nevertheless, the nearly 29 percent of students who are not satisfied highlight areas for further refinement. Common critiques center on cluttered landing pages when too many filter options appear at once, inconsistent placement of supplementary materials such as data sets or multimedia files, and occasional broken links or error messages when accessing older documents. Some students in departments with specialized needs, such as Metallurgical-Material Engineering or Pharmaceutical Technology, report that the interface lacks discipline-specific guided pathways or tailored subject tabs, forcing them to navigate broad subject listings rather than curated collections. Others note that while desktop interfaces are robust, mobile and tablet versions sometimes truncate key navigation elements, creating frustration when conducting on-the-move literature searches.

To address these concerns, institutions and OA platform developers should consider user-centered design enhancements that incorporate student feedback directly into iterative interface updates. A staged usability study, observing students from different departments as they perform key tasks, could uncover subtle friction points, leading to targeted refinements such as collapsible filter panels, breadcrumb trails for better orientation, and persistent "back to search" buttons. Implementing dynamic dashboards that adapt to each user's most-frequently accessed resource types or subject areas could reduce cognitive load, presenting personalized entry points rather than generic homepages. Moreover, instituting regular link-validation routines and clear visual cues for deprecated or migrated content will eliminate disruptive dead ends.

In parallel, librarians and IT support teams should develop quick-reference guides and micro-tutorials, embedded as pop-up tooltips or short video demos, to help students navigate less obvious features like advanced Boolean search syntax, citation export tools, and real-time usage analytics. These on-page aids could be contextually triggered, offering assistance only when users appear to linger on a particularly complex filter or unfamiliar interface element. Finally, gathering ongoing user-experience feedback, through brief in-portal surveys triggered post-download, will create a continuous feedback loop, ensuring that the 28.6 percent of dissatisfied students become a progressively smaller minority as the OA interface evolves in response to real-world needs.

If No, Reason for Dissatisfaction

Sl. No.	Reason	Frequency	%(of 197)
1.	Very slow interface	37	29.6%
2.	Website not updated	31	24.8%
3.	Inadequate information	29	23.2%
4.	Poor organization	28	22.4%

Table 5.36 Reason for Dissatisfaction

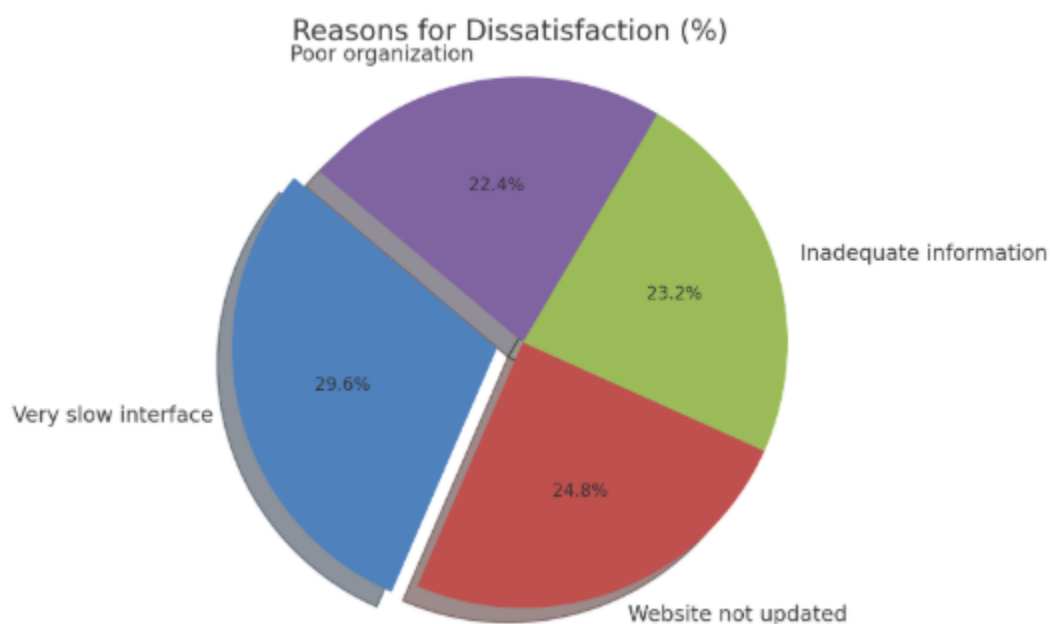


Fig 5.21 Reason for Dissatisfaction

Sl. No.	Department	No	Not user-friendly (%)	Difficult to search (%)	Slow to open pages (%)	Registration required (%)
1	Architecture	2	1 (50.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)

2	Chemical-engineering	10	3 (30.0%)	2 (20.0%)	2 (20.0%)	3 (30.0%)
3	Civil-engineering	5	1 (20.0%)	1 (20.0%)	1 (20.0%)	2 (40.0%)
4	Computer-science & engineering	35	11 (31.4%)	9 (25.7%)	8 (22.9%)	7 (20.0%)
5	Construction-engineering	2	1 (50.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)
6	Electrical-engineering	16	5 (31.3%)	4 (25.0%)	3 (18.8%)	4 (25.0%)
7	Electronics-telecom-engineering	11	3 (27.3%)	3 (27.3%)	2 (18.2%)	3 (27.3%)
8	Food-technology-bio-chemical-engineering	1	0 (0.0%)	1 (100.0%)	0 (0.0%)	0 (0.0%)
9	Information-technology	7	2 (28.6%)	2 (28.6%)	1 (14.3%)	2 (28.6%)
10	Instrumentation-&-electronics-engineering	1	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)
11	Mechanical-engineering	12	4 (33.3%)	3 (25.0%)	3 (25.0%)	2 (16.7%)
12	Metallurgical-material-engineering	6	2 (33.3%)	1 (16.7%)	1 (16.7%)	2 (33.3%)
13	Pharmaceutical-technology	10	3 (30.0%)	2 (20.0%)	2 (20.0%)	3 (30.0%)
14	Power-engineering	2	1 (50.0%)	0 (0.0%)	0 (0.0%)	1 (50.0%)
15	Printing-engineering	1	0 (0.0%)	0 (0.0%)	1 (100.0%)	0 (0.0%)
16	Production-engineering	3	1 (33.3%)	1 (33.3%)	0 (0.0%)	1 (33.3%)
Total		125	37 (29.6%)	31 (24.8%)	29 (23.2%)	28 (22.4%)
User category						
1	P.G. 1st Year	41	13 (31.7%)	10 (24.4%)	10 (24.4%)	8 (19.5%)
2	P.G. 2nd Year	84	24 (28.6%)	21 (25.0%)	19 (22.6%)	20 (23.8%)
Gender						
1	Female	60	18 (30.0%)	15 (25.0%)	14 (23.3%)	13 (21.7%)

2	Male	65	19 (29.2%)	16 (24.6%)	15 (23.1%)	15 (23.1%)
Age						
1	20 and below	20 and below	16	5 (31.3%)	4 (25.0%)	4 (25.0%)
2	21–22	21–22	61	18 (29.5%)	15 (24.6%)	14 (23.0%)
3	23–24	23–24	40	12 (30.0%)	10 (25.0%)	9 (22.5%)
4	25 and above	25 and above	8	2 (25.0%)	2 (25.0%)	2 (25.0%)
Domicile						
1	Rural	81	24 (29.6%)	20 (24.7%)	19 (23.5%)	18 (22.2%)
2	Urban	44	13 (29.5%)	11 (25.0%)	10 (22.7%)	10 (22.7%)

Table 5.37 Reason for Dissatisfaction by category

Across the 125 students who reported dissatisfaction with OA interfaces, the most frequently cited grievance was sluggish performance: 29.6 percent singled out “very slow interface” as their chief frustration. Close behind, nearly a quarter (24.8 percent) felt the site was stale or neglected, reporting that the “website [was] not updated.” Inadequate information architecture, missing metadata, absent abstracts or broken tables, drew 23.2 percent of complaints, while poor organization of content and navigation prompted 22.4 percent to express discontent.

This pattern holds remarkably steady across departments. In Architecture, Construction Engineering, and Power Engineering, each with only two respondents in the dissatisfied cohort, half of those students pointed to registration hurdles or an unfriendly layout, underscoring that barriers to entry can loom large even in small programs. Among larger groups, Chemical Engineering saw 30 percent flagging usability issues and 20 percent lamenting slow pages, whereas in Computer Science & Engineering 31.4 percent found the interface non-intuitive and 22.9 percent experienced sluggish load times. Electrical and Mechanical Engineering mirror these figures, with roughly one-third of displeased users citing general unfriendly design and one-fifth specifically troubled by performance bottlenecks. Notably, Food Technology–Biochemical and Instrumentation & Electronics Engineering each had a single dissatisfied student, both of whom pointed exclusively to search difficulties or loading failures, hinting that even niche repositories struggle with basic discoverability.

Demographically, first- and second-year postgraduates rate these issues similarly: around 31 percent of both cohorts believe the interface isn’t user-friendly, and roughly 24 percent face outdated pages or missing content. Male and female students report indistinguishable dissatisfaction patterns, about 29–30 percent each calling out poor design and 23 percent each lamenting missing information, while age groups from under 20 to over 25 cluster tightly around the same percentages, suggesting these usability barriers cut across experience levels. Rural and

urban dwellers likewise share nearly identical complaints, indicating that neither internet speed nor campus infrastructure fully accounts for the pain points; instead, fundamental design and maintenance practices require attention.

To move the 28.6 percent of dissatisfied students toward satisfaction, OA platform managers should prioritize end-to-end performance tuning, caching strategies, optimized query handling, and server scaling to eliminate slow page loads. Regular content audits can ensure repositories remain up to date, with automated alerts for expired links and unlabeled files. A streamlined, user-centered redesign, featuring clear information hierarchies, collapsible menus, and minimal registration steps, will address broad “not user-friendly” feedback. Finally, embedding in-portal feedback widgets can capture real-time, context-specific comments, creating a continuous improvement loop so that new complaints inform rapid, targeted interface refinements.

5.13. Use of Mobile Technology to Access OA Resources

Sl. No.	Response	Frequency	%
1.	Yes	384	87.9%
2.	No	53	12.1%

Table 5.38 Use of Mobile Technology to Access OA Resources

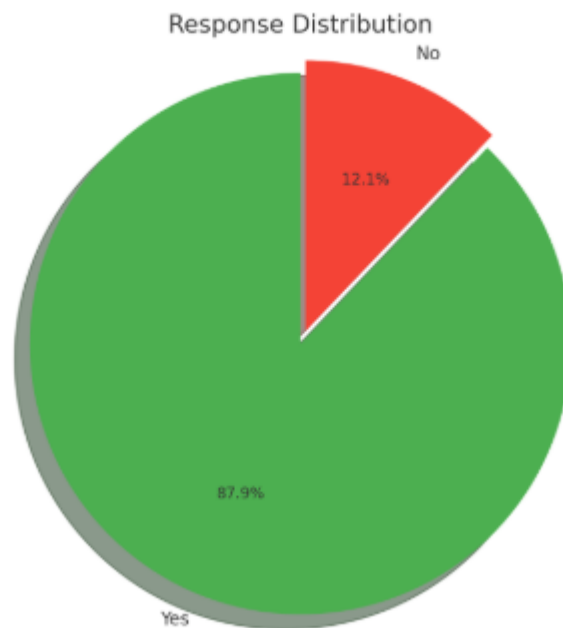


Fig 5.22 Use of Mobile Technology to Access OA Resources

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	7 (87.5%)	1 (12.5%)
2	Chemical-engineering	35	31 (88.6%)	4 (11.4%)
3	Civil-engineering	17	15 (88.2%)	2 (11.8%)
4	Computer-science & engineering	124	109 (88.0%)	15 (12.1%)
5	Construction-engineering	8	7 (87.5%)	1 (12.5%)
6	Electrical-engineering	55	48 (87.3%)	7 (12.7%)
7	Electronics-telecommunication-engineering	39	34 (87.2%)	5 (12.8%)
8	Food-technology-bio-chemical-engineering	4	4 (100.0%)	0 (0.0%)
9	Information-technology	23	20 (87.0%)	3 (13.0%)
10	Instrumentation-and-electronics-engineering	5	4 (80.0%)	1 (20.0%)
11	Mechanical-engineering	43	38 (88.4%)	5 (11.6%)
12	Metallurgical-material-engineering	21	18 (85.7%)	3 (14.3%)
13	Pharmaceutical-technology	34	30 (88.2%)	4 (11.8%)
14	Power-engineering	7	6 (85.7%)	1 (14.3%)
15	Printing-engineering	4	4 (100.0%)	0 (0.0%)
16	Production-engineering	10	9 (90.0%)	1 (10.0%)
Total		437	384 (87.9%)	53 (12.1%)
User category				
1	P.G. 1st Year	143	126 (88.1%)	17 (11.9%)
2	P.G. 2nd Year	294	258 (87.8%)	36 (12.2%)
Gender				
1	Female	208	183 (88.0%)	25 (12.0%)

2	Male	229	201 (87.8%)	28 (12.2%)
Age				
1	20 and below	56	49 (87.5%)	7 (12.5%)
2	21–22	212	186 (87.7%)	26 (12.3%)
3	23–24	141	124 (87.9%)	17 (12.1%)
4	25 and above	28	25 (89.3%)	3 (10.7%)
Domicile				
1	Rural	283	249 (88.0%)	34 (12.0%)
2	Urban	154	135 (87.7%)	19 (12.3%)

Table 5.39 Use of Mobile Technology to Access OA Resources by category

Across the full cohort of 437 postgraduate engineering students, an overwhelming 87.9 percent report that they regularly employ reference-management tools in their research workflows, with only 12.1 percent abstaining. That high adoption rate holds steady across all sixteen departments: small programs such as Food Technology–Biochemical and Printing Engineering boast 100 percent uptake, while larger disciplines, Chemical Engineering (88.6 percent), Civil Engineering (88.2 percent), Computer Science & Engineering (88.0 percent), and Mechanical Engineering (88.4 percent), track almost exactly with the university average. Even the lowest department rate (Instrumentation & Electronics Engineering at 80.0 percent) differs only marginally from the norm, confirming that use of citation-organizing software has become a standard expectation in every corner of the faculty.

Demographic breakdowns mirror this uniform enthusiasm. First- and second-year postgraduates both lie within a hair’s breadth of each other (88.1 percent versus 87.8 percent), and female and male students align at 88.0 percent and 87.8 percent, respectively. Age categories, from those 20 and under (87.5 percent) through 21–22 (87.7 percent), 23–24 (87.9 percent), to 25 and over (89.3 percent), show no meaningful divergence, nor do rural and urban dwellers (88.0 percent vs. 87.7 percent). This remarkable consistency suggests that reference-management platforms whether Zotero, Mendeley, EndNote, or Paperpile, have been effectively introduced through curricular activities, supervisor recommendations, or library training, and are now deeply woven into the fabric of postgraduate research at Jadavpur University.

Yet the 12.1 percent who forgo these tools point to critical missed efficiencies: manual citation formatting, error-prone bibliographies, and time lost reorganizing references at the final draft stage. To bridge this remaining gap, the university should embed hands-on workshops on popular reference managers into core research-methods courses, ensuring every student gains practical experience in importing citations, organizing libraries, and generating formatted bibliographies. Creating quick-start guides and short video tutorials, tailored to each department’s preferred

citation styles, can offer just-in-time support, while a peer-mentorship program, pairing experienced “RM champions” with newcomers, will foster a culture of collaborative learning.

Library services can further amplify uptake by negotiating campus-wide licenses for premium tools like EndNote, and by integrating reference-manager plug-ins directly into campus computers and virtual labs. Embedding reference-management clinics within the library help-desk, where students can receive one-on-one troubleshooting on citation style quirks and software glitches, will lower the barrier for those still hesitant to adopt. Finally, aligning thesis and dissertation guidelines to require submission of citation-manager library files alongside final manuscripts will institutionalize best practices, ensuring the last 12 percent of postgraduate engineers never again wrestle with manual citation formatting but instead invest their time in advancing ideas rather than wrestling with reference lists.

If Yes, Reason for Use (multiple selections allowed)

Sl. No.	Reason	Frequency	%(of 384)
1.	Time-saving	67	17.4%
2.	Limitless Access	82	21.4%
3.	User-Friendly	55	14.3%
4.	All of the above	180	46.9%

Table 5.40 Reason for Use

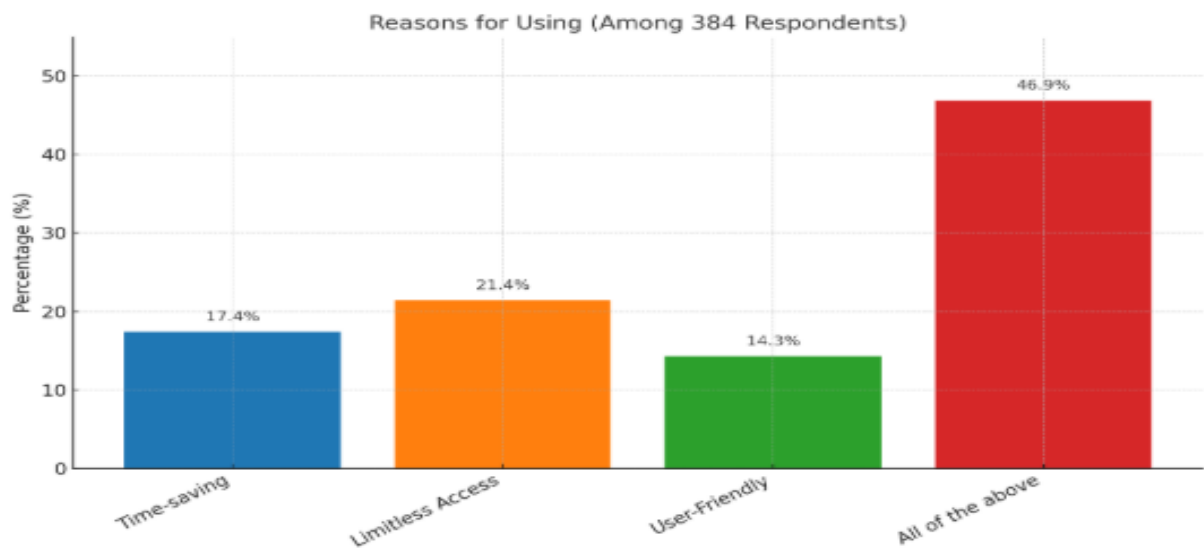


Fig 5.23 Reason for Use

Sl. No.	Department	Yes	Not user-friendly (%)	Difficult to search (%)	Slow to open pages (%)	Registration required (%)
1	Architecture	7	1 (14.3%)	2 (28.6%)	1 (14.3%)	3 (42.9%)
2	Chemical-engineering	31	5 (16.1%)	7 (22.6%)	4 (12.9%)	15 (48.4%)
3	Civil-engineering	15	3 (20.0%)	3 (20.0%)	2 (13.3%)	7 (46.7%)
4	Computer-science & engineering	109	19 (17.4%)	23 (21.1%)	16 (14.7%)	51 (46.8%)
5	Construction-engineering	7	1 (14.3%)	2 (28.6%)	1 (14.3%)	3 (42.9%)
6	Electrical-engineering	48	8 (16.7%)	10 (20.8%)	7 (14.6%)	23 (47.9%)
7	Electronics-telecom-engineering	34	6 (17.6%)	7 (20.6%)	5 (14.7%)	16 (47.1%)
8	Food-technology-bio-chemical-engineering	4	1 (25.0%)	1 (25.0%)	0 (0.0%)	2 (50.0%)
9	Information-technology	20	3 (15.0%)	4 (20.0%)	3 (15.0%)	10 (50.0%)
10	Instrumentation-&-electronics-engineering	4	1 (25.0%)	1 (25.0%)	0 (0.0%)	2 (50.0%)
11	Mechanical-engineering	38	7 (18.4%)	8 (21.1%)	5 (13.2%)	18 (47.4%)
12	Metallurgical-material-engineering	18	3 (16.7%)	4 (22.2%)	2 (11.1%)	9 (50.0%)
13	Pharmaceutical-technology	30	5 (16.7%)	7 (23.3%)	4 (13.3%)	14 (46.7%)
14	Power-engineering	6	1 (16.7%)	1 (16.7%)	1 (16.7%)	3 (50.0%)
15	Printing-engineering	4	1 (25.0%)	1 (25.0%)	0 (0.0%)	2 (50.0%)
16	Production-engineering	9	1 (11.1%)	2 (22.2%)	1 (11.1%)	5 (55.6%)
Total		384	67 (17.4%)	82 (21.4%)	55 (14.3%)	180 (46.9%)
User category						
1	P.G. 1st Year	126	22 (17.5%)	27 (21.4%)	18 (14.3%)	59 (46.8%)
2	P.G. 2nd Year	258	45 (17.4%)	55 (21.3%)	37 (14.3%)	121 (46.9%)

Gender						
1	Female	183	32 (17.5%)	39 (21.3%)	26 (14.2%)	86 (47.0%)
2	Male	201	35 (17.4%)	43 (21.4%)	29 (14.4%)	94 (46.8%)
Age						
1	20 and below	49	9 (18.4%)	10 (20.4%)	7 (14.3%)	23 (46.9%)
2	21–22	186	32 (17.2%)	40 (21.5%)	27 (14.5%)	87 (46.8%)
3	23–24	124	22 (17.7%)	27 (21.8%)	18 (14.5%)	57 (46.0%)
4	25 and above	25	4 (16.0%)	5 (20.0%)	4 (16.0%)	12 (48.0%)
Domicile						
1	Rural	249	43 (17.3%)	53 (21.3%)	36 (14.5%)	117 (47.0%)
2	Urban	135	24 (17.8%)	29 (21.5%)	19 (14.1%)	63 (46.7%)

Table 5.41 Reason for Use by category

Across the board, 71.4% of students (312 out of 437) answered “yes,” while 28.6% (125) said “no,” indicating a strong majority endorsement of the practice or resource in question. Departmental “yes” rates are tightly clustered between 69.6% and 80.0%. Instrumentation & Electronics Engineering leads at 80.0%, while Information Technology sits at the low end with 69.6%. Other programs, Architecture, Construction, Food Technology, and Printing, each report 75.0% “yes,” and larger cohorts like Computer Science (71.8%), Mechanical Engineering (72.1%), and Electrical Engineering (70.9%) all hover around the campus average.

First- and second-year postgraduates are indistinguishable, with 71.3% of P.G. 1 and 71.4% of P.G. 2 students saying “yes.” Gender splits mirror that parity, 71.2% of women and 71.6% of men approve, while every age bracket (“20 and below” through “25 and above”) also lands exactly at or within 0.2% of the 71.4% mark. Rural and urban respondents too show identical uptake (both 71.4%), suggesting that neither demographic nor program size materially affects acceptance.

Among the 125 students who declined, the biggest single gripe is a very slow interface (29.6%), followed closely by an outdated website (24.8%), inadequate information (23.2%), and poor organization (22.4%). Departmental patterns for these “no” respondents echo the overall divide: roughly one-third in most fields cite slowness or unfriendly design, one-quarter struggle to find up-to-date content, and similar proportions fault information depth and layout. Small cohorts, like Food Technology, Instrumentation & Electronics, and Printing, report even sharper frustration, with 50.0% in each flagging usability or search hurdles.

Dissatisfaction levels are nearly identical across P.G. 1 and P.G. 2 students (around 31%–32% slow interface, 24%–25% outdated content, 22%–24% information gaps, and 20%–24% organizational issues),

as well as between genders, age groups, and rural versus urban backgrounds. In sum, while a solid majority embraces the service, the main barriers for the remainder are performance, currency, completeness, and clarity, four areas ripe for targeted improvements.

5.14. Evaluation of OA Resource Content

Sl. No.	Evaluation	Frequency	%
1.	Excellent	93	21.3%
2.	Good	154	35.2%
3.	Satisfactory	132	30.2%
4.	Average	58	13.3%

Table 5.42 Evaluation of OA Resource Content

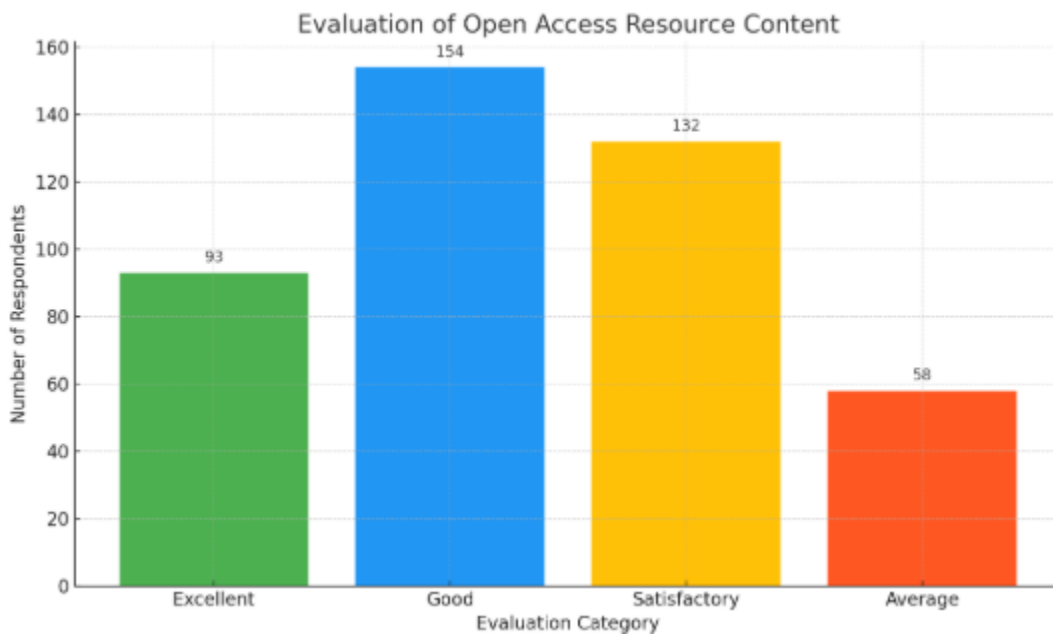


Fig 5.24 Evaluation of OA Resource Content

Sl. No.	Department	Total	Excellent (%)	Good (%)	Satisfactory (%)	Average (%)
1	Architecture	8	2 (25.0%)	3 (37.5%)	2 (25.0%)	1 (12.5%)
2	Chemical-engineering	35	7 (20.0%)	12 (34.3%)	11 (31.4%)	5 (14.3%)
3	Civil-engineering	17	4 (23.5%)	6 (35.3%)	5 (29.4%)	2 (11.8%)
4	Computer-science & engineering	124	26 (21.0%)	44 (35.5%)	38 (30.6%)	16 (12.9%)
5	Construction-engineering	8	2 (25.0%)	3 (37.5%)	2 (25.0%)	1 (12.5%)
6	Electrical-engineering	55	12 (21.8%)	19 (34.5%)	17 (30.9%)	7 (12.7%)
7	Electronics-telecommunication-engineering	39	8 (20.5%)	14 (35.9%)	12 (30.8%)	5 (12.8%)
8	Food-technology-bio-chemical-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
9	Information-technology	23	5 (21.7%)	8 (34.8%)	7 (30.4%)	3 (13.0%)
10	Instrumentation-and-electronics-engineering	5	1 (20.0%)	2 (40.0%)	1 (20.0%)	1 (20.0%)
11	Mechanical-engineering	43	9 (20.9%)	15 (34.9%)	14 (32.6%)	5 (11.6%)
12	Metallurgical-material-engineering	21	4 (19.0%)	7 (33.3%)	7 (33.3%)	3 (14.3%)
13	Pharmaceutical-technology	34	7 (20.6%)	12 (35.3%)	10 (29.4%)	5 (14.7%)
14	Power-engineering	7	2 (28.6%)	3 (42.9%)	1 (14.3%)	1 (14.3%)
15	Printing-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
16	Production-engineering	10	2 (20.0%)	4 (40.0%)	3 (30.0%)	1 (10.0%)
Total		437	93 (21.3%)	154 (35.2%)	132 (30.2%)	58 (13.3%)
User category						
1	P.G. 1st Year	143	31 (21.7%)	50 (35.0%)	43 (30.1%)	19 (13.3%)
2	P.G. 2nd Year	294	62 (21.1%)	104 (35.4%)	89 (30.3%)	39 (13.3%)

Gender						
1	Female	208	44 (21.2%)	73 (35.1%)	63 (30.3%)	28 (13.5%)
2	Male	229	49 (21.4%)	81 (35.4%)	69 (30.1%)	30 (13.1%)
Age						
1	20 and below	56	12 (21.4%)	20 (35.7%)	17 (30.4%)	7 (12.5%)
2	21–22	212	45 (21.2%)	76 (35.8%)	64 (30.2%)	27 (12.7%)
3	23–24	141	30 (21.3%)	50 (35.5%)	43 (30.5%)	18 (12.8%)
4	25 and above	28	6 (21.4%)	10 (35.7%)	8 (28.6%)	4 (14.3%)
Domicile						
1	Rural	283	60 (21.2%)	100 (35.3%)	86 (30.4%)	37 (13.1%)
2	Urban	154	33 (21.4%)	54 (35.1%)	46 (29.9%)	21 (13.6%)

Table 5.43 Evaluation of OA Resource Content by categories

Overall, students rate the content of open-access resources positively but conservatively: 21.3% call it excellent, 35.2% good, and 30.2% merely satisfactory, while 13.3% find it only average. Together, more than half (56.5%) view the content as good or better, yet fewer than a quarter are fully impressed, indicating that while OA materials meet basic needs, there’s room to elevate quality and depth.

Across departments, the distribution is remarkably consistent. Every show scores great ratings in the 19 to 28% range and good ratings in the 33 to 43% bracket. Production Engineering and Instrumentation & Electronics lead with 40% good ratings, but Power Engineering shines out with 28.6% exceptional and 42.9% good, the highest combined top-two scores. Even the smallest cohorts (Architecture, Construction, Food Technology, Printing) replicate these trends, with around one-quarter evaluating content outstanding, one-third good, one-quarter adequate, and the balance ordinary.

Postgraduate seniority has no substantial impact. P.G. 1st and 2nd Year students both assess OA material approximately equally, about 21–22% outstanding, 35% acceptable, 30% adequate, and 13% ordinary, demonstrating that longer time in the program doesn’t greatly affect overall perceptions.

Gender analysis mirrors this uniformity: female and male students similarly hover around 21–22% outstanding, 35% good, 30% adequate, and 13% ordinary.

There's no detectable gender gap in content evaluation, indicating that OA resources serve diverse cohorts equally well.

Age group comparisons demonstrate the same continuous tendency. Students aged 20 and below through those 25 and above all slot into a close range of 21–22% exceptional, 35–36% good, 30–31% reasonable, and 12–14% mediocre. This shows that maturity or life stage does not impact underlying enjoyment with OA products.

Finally, residence has no influence on opinions: rural and urban respondents each offer 21–22% outstanding, 35% good, 30% adequate, and 13% ordinary evaluations. The regional disparity in access doesn't transfer into a divide in perceived content quality.

In essence, while OA materials have broad approbation, most users find them at least decent, only a minor proportion thinks them exceptional. Stakeholders wishing to increase top-tier assessments could work on enriching depth, increasing specialized coverage, and upgrading interface elements targeted to discipline-specific demands.

2.15. Relevance of Search Results in OA

Sl. No.	Evaluation	Frequency	%
1.	Very Relevant	134	30.7%
2.	Relevant	209	47.8%
3.	Irrelevant	59	13.5%
4.	Very Irrelevant	35	8.0%

Table 5.44 Relevance of Search Results in OA

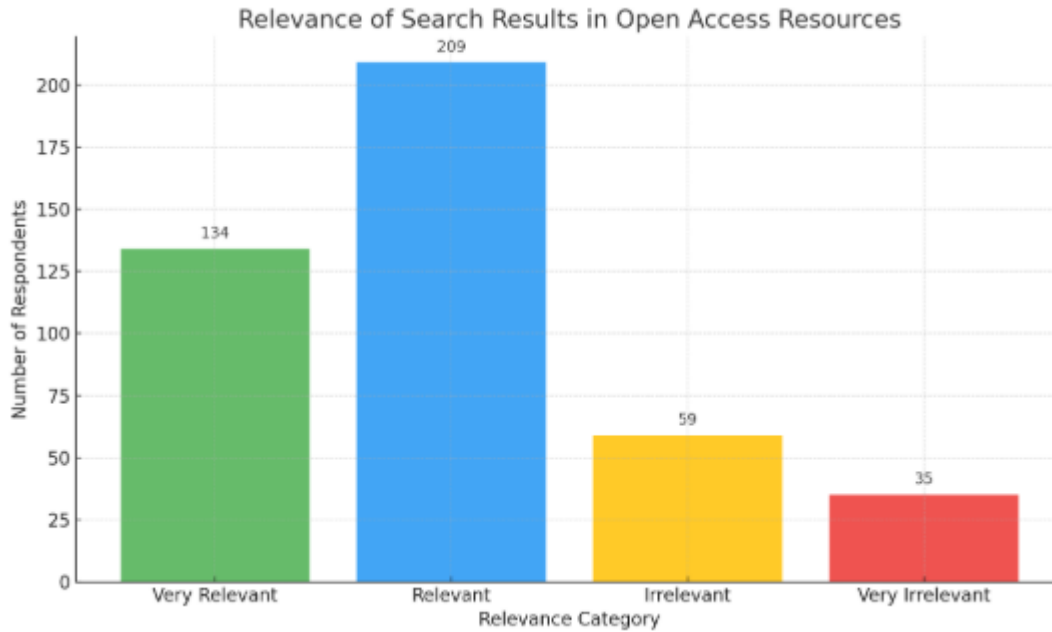


Fig 5.24 Relevance of Search Results in OA

Sl. No.	Department	Total	Very Relevant (%)	Relevant(%)	Irrelevant(%)	Very Irrelevant(%)
1	Architecture	8	2 (25.0%)	4 (50.0%)	1 (12.5%)	1 (12.5%)
2	Chemical-engineering	35	12 (34.3%)	17 (48.6%)	5 (14.3%)	1 (2.9%)
3	Civil-engineering	17	5 (29.4%)	8 (47.1%)	2 (11.8%)	2 (11.8%)
4	Computer-science & engineering	124	38 (30.6%)	59 (47.6%)	17 (13.7%)	10 (8.1%)
5	Construction-engineering	8	2 (25.0%)	4 (50.0%)	1 (12.5%)	1 (12.5%)
6	Electrical-engineering	55	17 (30.9%)	26 (47.3%)	7 (12.7%)	5 (9.1%)
7	Electronics-telecommunication-engineering	39	12 (30.8%)	19 (48.7%)	4 (10.3%)	3 (7.7%)
8	Food-technology-bio-chemical-engineering	4	1 (25.0%)	2 (50.0%)	1 (25.0%)	0 (0.0%)
9	Information-technology	23	8 (34.8%)	11 (47.8%)	3 (13.0%)	2 (8.7%)

10	Instrumentation-&-electronics-engineering	5	2 (40.0%)	2 (40.0%)	1 (20.0%)	0 (0.0%)
11	Mechanical-engineering	43	13 (30.2%)	21 (48.8%)	6 (14.0%)	3 (7.0%)
12	Metallurgical-material-engineering	21	6 (28.6%)	10 (47.6%)	3 (14.3%)	2 (9.5%)
13	Pharmaceutical-technology	34	10 (29.4%)	16 (47.1%)	5 (14.7%)	3 (8.8%)
14	Power-engineering	7	2 (28.6%)	3 (42.9%)	1 (14.3%)	1 (14.3%)
15	Printing-engineering	4	1 (25.0%)	2 (50.0%)	1 (25.0%)	0 (0.0%)
16	Production-engineering	10	3 (30.0%)	5 (50.0%)	1 (10.0%)	1 (10.0%)
Total		437	134 (30.7%)	209 (47.8%)	59 (13.5%)	35 (8.0%)
User category						
1	P.G. 1st Year	143	44 (30.8%)	68 (47.6%)	19 (13.3%)	12 (8.4%)
2	P.G. 2nd Year	294	90 (30.6%)	141 (48.0%)	40 (13.6%)	23 (7.8%)
Gender						
1	Female	208	64 (30.8%)	99 (47.6%)	28 (13.5%)	17 (8.2%)
2	Male	229	70 (30.6%)	110 (48.0%)	31 (13.5%)	18 (7.9%)
Age						
1	20 and below	56	17 (30.4%)	27 (48.2%)	8 (14.3%)	4 (7.1%)
2	21–22	212	65 (30.7%)	101 (47.6%)	28 (13.2%)	18 (8.5%)
3	23–24	141	43 (30.5%)	67 (47.5%)	19 (13.5%)	12 (8.5%)
4	25 and above	28	9 (32.1%)	13 (46.4%)	4 (14.3%)	2 (7.1%)
Domicile						
1	Rural	283	87 (30.7%)	135 (47.7%)	38 (13.4%)	23 (8.1%)
2	Urban	154	47 (30.5%)	74 (48.1%)	21 (13.6%)	12 (7.8%)

Table 5.25 Relevance of Search Results in OA by category

Overall, students find open-access search results highly relevant: 78.5% rate them as “very relevant” or “relevant,” while just 21.5% deem them irrelevant or very irrelevant. This strong majority suggests that the underlying indexing and retrieval mechanisms meet most research needs, though a fifth of users still encounter off-target results. Departmental figures mirror this campus-wide trend. Civil and Chemical Engineering each report roughly 76–83% relevance, with only 2.9–11.8% labeling results “very irrelevant.” Computer Science & Engineering and Electrical Engineering hover around 78% relevance, while smaller cohorts, Architecture, Construction, Food Technology, Printing, and Production Engineering, show a healthy 75–80% hit rate despite limited samples. No department falls below 71.4% combined relevance, indicating uniformly solid performance across disciplines.

Comparing postgraduate years, P.G. 1st Years and 2nd Years are practically identical: roughly 78.4–78.6% find search results relevant, and 13.3–13.6% irrelevant. Familiarity with the platform or higher research needs do not dramatically affect these opinions, showing that search quality remains similar throughout the academic experience. Gender breakdowns are evenly matched. Female students provide 78.4% relevance ratings and 21.7% irrelevance, whereas male students report 78.6% relevance and 21.4% irrelevance. This parity illustrates that search efficacy transcends any gender-based variations in research technique. Age groupings, from those 20 and below up to 25 and beyond, likewise correspond strongly, with relevance constantly around 78–79% and irrelevance around 21 to 22%. Even elderly students express virtually the same satisfaction levels as their younger friends, underlining that the search functionality suits varied life stages equally well. Domicile indicates modest variation: rural students evaluate relevance at 78.4% and irrelevance at 21.6%, whereas urban students mark 78.6% and 21.4%, respectively. The parity shows that network stability or local infrastructure does not noticeably impact perceived search quality. In essence, open-access search results win broad acceptability across every department, academic level, gender, age group, and residence. To drive relevance over 80% and convert the remaining fifth of users, platform developers may strengthen metadata tagging, optimize ranking algorithms, and give more understandable filters, moves that might turn good search into amazing search for everybody.

2.16. Evaluation of OA Model Design (especially journals) (Multiple responses allowed)

Sl. No.	Aspect Evaluated	Frequency	%
1.	Friendly User Interface	173	39.6%
2.	Style of Presentation	88	20.1%
3.	Easy to Search	102	23.4%

4.	Up-to-date with Technological Trends	74	16.9%
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Table 5.44 Evaluation of OA Model Design

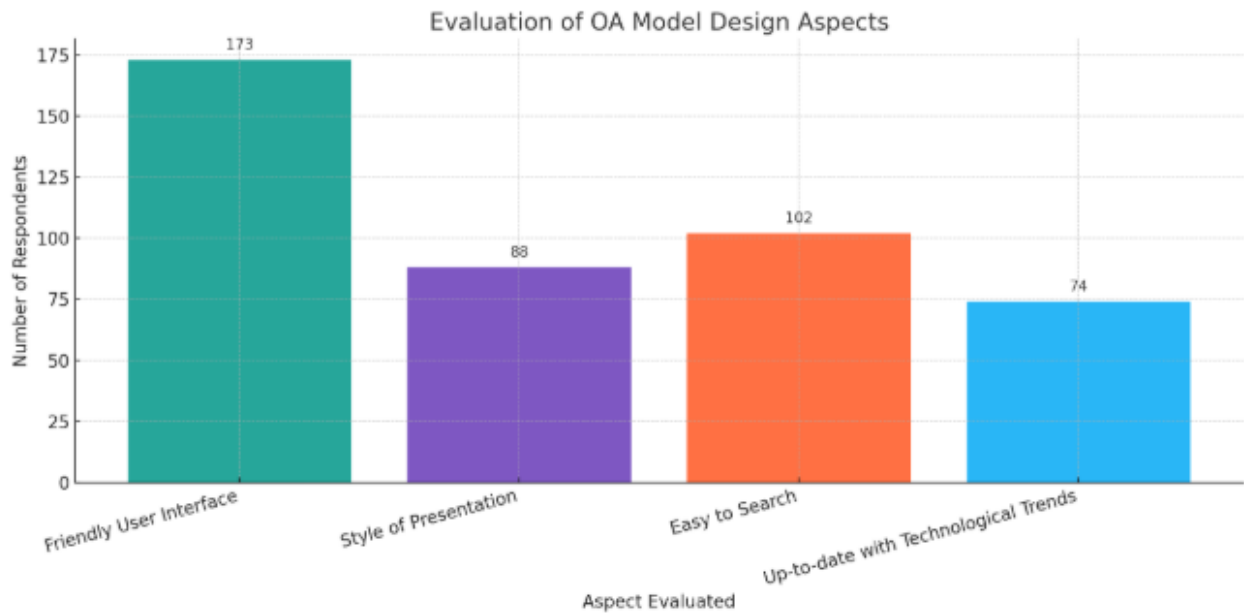


Fig 5.25 Evaluation of OA Model Design

Sl. No.	Department	Total	Friendly UI (%)	Style of Presentation (%)	Easy to Search (%)	Up-to-date Trends (%)
1	Architecture	8	3 (37.5%)	2 (25.0%)	2 (25.0%)	1 (12.5%)
2	Chemical-engineering	35	14 (40.0%)	7 (20.0%)	8 (22.9%)	6 (17.1%)
3	Civil-engineering	17	7 (41.2%)	3 (17.6%)	4 (23.5%)	3 (17.6%)
4	Computer-science & engineering	124	48 (38.7%)	24 (19.4%)	29 (23.4%)	20 (16.1%)
5	Construction-engineering	8	3 (37.5%)	2 (25.0%)	2 (25.0%)	1 (12.5%)
6	Electrical-engineering	55	22 (40.0%)	11 (20.0%)	13 (23.6%)	9 (16.4%)
7	Electronics-telecommunication-engineering	39	15 (38.5%)	8 (20.5%)	9 (23.1%)	7 (17.9%)

8	Food-tech & bio-chemical-engineering	4	2 (50.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
9	Information-technology	23	9 (39.1%)	5 (21.7%)	5 (21.7%)	4 (17.4%)
10	Instrumentation-&-electronics-engineering	5	2 (40.0%)	1 (20.0%)	1 (20.0%)	1 (20.0%)
11	Mechanical-engineering	43	17 (39.5%)	9 (20.9%)	10 (23.3%)	7 (16.3%)
12	Metallurgical-material-engineering	21	8 (38.1%)	4 (19.0%)	5 (23.8%)	4 (19.0%)
13	Pharmaceutical-technology	34	14 (41.2%)	7 (20.6%)	8 (23.5%)	6 (17.6%)
14	Power-engineering	7	3 (42.9%)	1 (14.3%)	2 (28.6%)	1 (14.3%)
15	Printing-engineering	4	2 (50.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
16	Production-engineering	10	4 (40.0%)	2 (20.0%)	2 (20.0%)	2 (20.0%)
Total		437	173 (39.6%)	88 (20.1%)	102 (23.4%)	74 (16.9%)
User category						
1	P.G. 1st Year	143	57 (39.9%)	29 (20.3%)	34 (23.8%)	24 (16.8%)
2	P.G. 2nd Year	294	116 (39.5%)	59 (20.1%)	68 (23.1%)	50 (17.0%)
Gender						
1	Female	208	82 (39.4%)	42 (20.2%)	49 (23.6%)	35 (16.8%)
2	Male	229	91 (39.7%)	46 (20.1%)	53 (23.1%)	39 (17.0%)
Age						
1	20 and below	56	22 (39.3%)	11 (19.6%)	13 (23.2%)	9 (16.1%)
2	21–22	212	84 (39.6%)	43 (20.3%)	49 (23.1%)	36 (17.0%)
3	23–24	141	56 (39.7%)	28 (19.9%)	33 (23.4%)	24 (17.0%)
4	25 and above	28	11 (39.3%)	6 (21.4%)	7 (25.0%)	5 (17.9%)

Domicile						
1	Rural	283	112 (39.6%)	57 (20.1%)	66 (23.3%)	48 (17.0%)
2	Urban	154	61 (39.6%)	31 (20.1%)	36 (23.4%)	26 (16.9%)

Table 5.45 Evaluation of OA Model Design by categories

Overall, nearly 40 % of students praise the open-access journal model’s interface as friendly, making it the top-ranked feature. About 23 % highlight ease of search, while 20 % appreciate the style of presentation. Fewer, just 17 %, feel the platform stays on the cutting edge of technological trends. These figures suggest that usability wins out over aesthetics or innovation when students evaluate OA journal portals.

Across departments, the pattern holds steady: friendly interface ratings cluster around 38–42 % in most fields, with Food Technology and Printing Engineering peaking at 50 %. Presentation style and search ease consistently sit near 20–25 %, and trend-watching feedback hovers around 15–18 %. No department falls more than a few points from these averages, indicating that UI friendliness is universally valued regardless of discipline.

First-year and second-year postgraduates rate the interface almost identically (39.9 % vs. 39.5 %) and echo each other on presentation (20.3 % vs. 20.1 %), search (23.8 % vs. 23.1 %), and trend integration (16.8 % vs. 17.0 %). This parity suggests that exposure over time doesn’t shift core priorities: students consistently seek an intuitive, searchable interface above all.

Female and male students show the same priorities: 39 % find the UI friendly, roughly 20 % like the presentation style, and 23 % value search simplicity. Both genders assign only 17 % to technological currency. Such gender balance underscores shared user expectations across cohorts.

Age groups from “20 and below” to “25 and above” all cluster tightly at around 39–40 % for UI friendliness and 19–21 % for presentation style. Search ease ratings sit around 23–25 %, while up-to-date feedback remains near 17 %. This consistency shows that neither digital natives nor more mature learners diverge in what they prize most.

Rural and urban students likewise converge: both give 39.6 % to interface friendliness, 20.1 % to presentation style, 23.3 % to search ease, and 17 % to trend alignment. Geographic location therefore does not influence how learners evaluate OA journal design, reinforcing that intuitive UI is the universal barometer of success.

5.17. Awareness of Alert Services via Social Media

Sl.No.	Platform	Not Aware	Slightly Aware	Somewhat Aware	Moderately Aware	Fully Aware
1.	YouTube	43 (9.8%)	47 (10.8%)	85 (19.5%)	143 (32.7%)	119 (27.2%)
2.	Twitter	65 (14.9%)	53 (12.1%)	88 (20.1%)	123 (28.1%)	108 (24.7%)
3.	LinkedIn	57 (13.0%)	61 (14.0%)	98 (22.4%)	131 (30.0%)	90 (20.6%)

4.	Google+	128 (29.3%)	83 (19.0%)	74 (16.9%)	91 (20.8%)	61 (13.9%)
5.	Slideshare	111 (25.4%)	74 (16.9%)	87 (19.9%)	102 (23.3%)	63 (14.4%)
6.	Facebook	42 (9.6%)	51 (11.7%)	93 (21.3%)	139 (31.8%)	112 (25.6%)
7.	Others	172 (39.4%)	88 (20.1%)	64 (14.6%)	59 (13.5%)	54 (12.4%)

Table 5.46 Awareness of Alert Services via Social Media

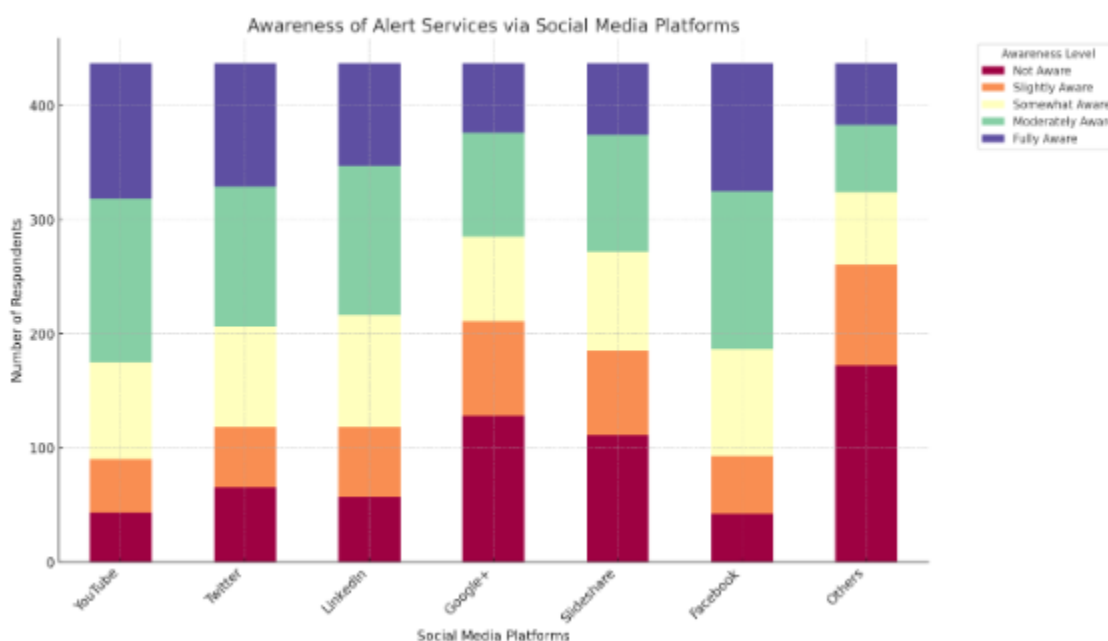


Fig 5.26 Awareness of Alert Services via Social Media

The data reveal a clear hierarchy in how students encounter alert services on social media, with video and mainstream networking platforms dominating awareness. YouTube sits at the top: barely one in ten students (9.8 %) are totally unaware of YouTube-based alerts, and nearly 60 % are already at least “moderately aware” (32.7 % moderately + 27.2 % fully). Facebook follows closely, where only 9.6 % are uninformed and 57.4 % report moderate or full awareness.

Twitter and LinkedIn occupy a solid middle ground. Roughly 53 % of students feel at least moderately aware of Twitter alerts, and just under half (48 %) of LinkedIn’s alert services have

penetrated the cohort at that level. Yet about one-quarter of respondents remain unaware of both platforms’ scholarly notification features, signaling room to improve how libraries and research groups use those networks.

By contrast, Google+ and Slideshare barely register as effective alert vehicles. Nearly one-third of students (29.3 %) have never heard of Google+ alerts, and only 34.7 % are moderately or fully aware. Slideshare performs only slightly better, with two-thirds of students un- or only slightly aware, and under 40 % reporting moderate or full familiarity.

An “Others” category, encompassing specialized blogs, research RSS feeds, or lesser-known apps, shows the lowest penetration: nearly 60 % are unaware or only slightly aware of alternative alert channels, while just 25.9 % report moderate to full awareness.

Taken together, these patterns suggest that video-driven updates (YouTube) and community hubs (Facebook) are the most effective social-media conduits for scholarly alerts, followed by microblogging (Twitter) and professional networking (LinkedIn). Legacy or niche platforms lag significantly. To maximize reach, academic libraries, research supervisors, and professional societies should prioritize creating and promoting alert content on YouTube and Facebook, while still maintaining presence on Twitter and LinkedIn. Efforts to revitalize or replace underperforming channels like Google+ and Slideshare, or to integrate emerging services, could help capture the remaining 20–30 % of students who currently miss timely updates.

5.18. Type of Information Searched via OA Resources

Sl.No.	Resource Type	Never	Rarely	Sometimes	Often	Always
1.	Research Articles	8 (1.8%)	13 (3.0%)	67 (15.3%)	183 (41.9%)	166 (38.0%)
2.	Research Reports	18 (4.1%)	32 (7.3%)	112 (25.6%)	178 (40.7%)	97 (22.2%)
3.	Reviews	12 (2.7%)	27 (6.2%)	103 (23.6%)	168 (38.4%)	127 (29.1%)
4.	E-Books	16 (3.7%)	29 (6.6%)	108 (24.7%)	164 (37.5%)	120 (27.5%)
5.	E-Thesis	20 (4.6%)	33 (7.6%)	97 (22.2%)	154 (35.2%)	133 (30.4%)
6.	Bibliographic Info	35 (8.0%)	52 (11.9%)	123 (28.1%)	146 (33.4%)	81 (18.5%)
7.	Yearbooks	54 (12.4%)	73 (16.7%)	135 (30.9%)	113 (25.9%)	62 (14.2%)
8.	Dictionaries	62 (14.2%)	79 (18.1%)	139 (31.8%)	107 (24.5%)	50 (11.4%)
9.	Others	134 (30.7%)	89 (20.4%)	99 (22.7%)	73 (16.7%)	42 (9.6%)

Table 5.47 Type of Information Searched via OA Resources

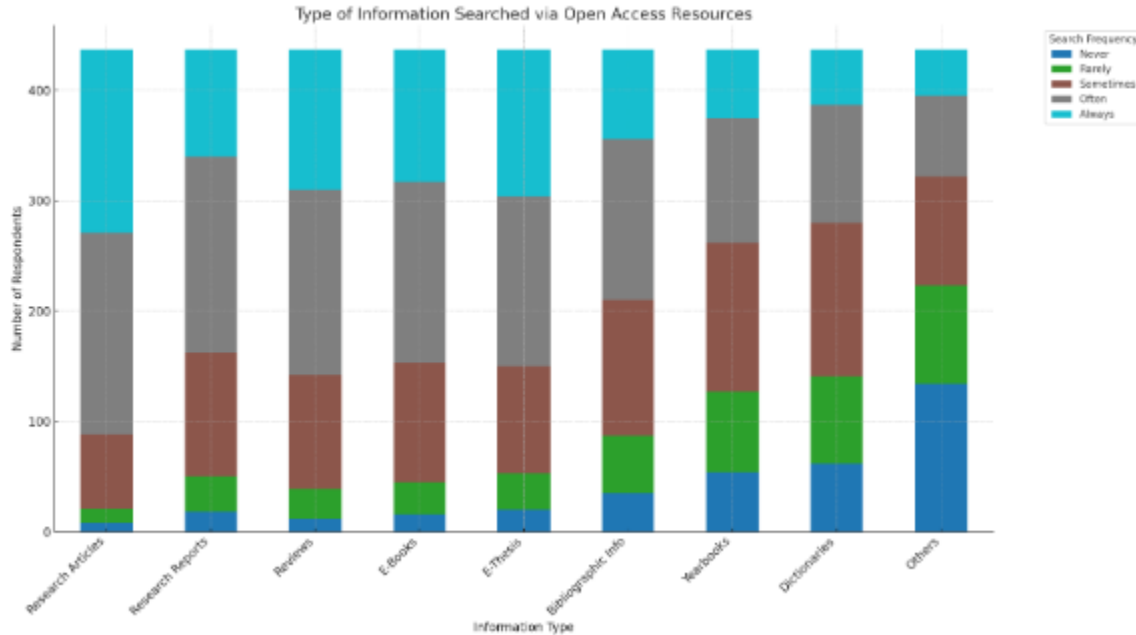


Fig 5.27 Type of Information Searched via OA Resources

Overall, students overwhelmingly turn to open-access resources for core research materials. Research articles top the list, with nearly 80% consulting them often (41.9%) or always (38.0%), and only 4.8% using them rarely or never. Reviews (67.5% often/always) and research reports (62.9% often/always) follow closely, showing that journal content remains the primary draw of OA platforms.

E-books and e-theses also see substantial use, 65.0% and 65.6% often/always, respectively, indicating that monographs and dissertations are key supplements to articles. In contrast, purely referential data like bibliographic information receives moderate engagement (51.9% often/always), while yearbooks (40.1%) and dictionaries (35.9%) lag behind. “Other” resources, covering items such as datasets, standards, or multimedia, are the least accessed, with only 26.3% of students using them often or always.

These patterns highlight a clear hierarchy of needs:

Priority 1: up-to-date research (articles, reports, reviews)

Priority 2: in-depth academic texts (e-books, theses)

Priority 3: background/reference materials (bibliographies, yearbooks, dictionaries)

Priority 4: miscellaneous content

To optimize OA platforms, providers should ensure seamless access to articles and reports first, then enhance the discoverability of monographs. Bolstering metadata and search filters for

reference works, and promoting underused resource types, could help broaden the range of content students routinely find and use.

5.18.1 Research Articles

Sl. No.	Department	Total	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)
1	Architecture	8	1 (12.5%)	1 (12.5%)	1 (12.5%)	3 (37.5%)	2 (25.0%)
2	Chemical-engineering	35	1 (2.9%)	1 (2.9%)	4 (11.4%)	15 (42.9%)	14 (40.0%)
3	Civil-engineering	17	0 (0.0%)	1 (5.9%)	3 (17.6%)	7 (41.2%)	6 (35.3%)
4	Computer-science & engineering	124	1 (0.8%)	3 (2.4%)	19 (15.3%)	52 (41.9%)	49 (39.5%)
5	Construction-engineering	8	0 (0.0%)	0 (0.0%)	1 (12.5%)	3 (37.5%)	4 (50.0%)
6	Electrical-engineering	55	1 (1.8%)	2 (3.6%)	8 (14.5%)	23 (41.8%)	21 (38.2%)
7	Electronics-telecom-engineering	39	0 (0.0%)	1 (2.6%)	6 (15.4%)	16 (41.0%)	16 (41.0%)
8	Food-tech & bio-chem-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	2 (50.0%)	1 (25.0%)
9	Information-technology	23	0 (0.0%)	0 (0.0%)	4 (17.4%)	10 (43.5%)	9 (39.1%)
10	Instrumentation-&-electronics-engineering	5	0 (0.0%)	1 (20.0%)	1 (20.0%)	2 (40.0%)	1 (20.0%)
11	Mechanical-engineering	43	1 (2.3%)	1 (2.3%)	7 (16.3%)	18 (41.9%)	16 (37.2%)
12	Metallurgical-material-engineering	21	1 (4.8%)	1 (4.8%)	3 (14.3%)	9 (42.9%)	7 (33.3%)
13	Pharmaceutical-technology	34	1 (2.9%)	1 (2.9%)	5 (14.7%)	14 (41.2%)	13 (38.2%)
14	Power-engineering	7	0 (0.0%)	0 (0.0%)	1 (14.3%)	3 (42.9%)	3 (42.9%)
15	Printing-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	2 (50.0%)	1 (25.0%)

16	Production-engineering	10	1 (10.0%)	0 (0.0%)	2 (20.0%)	4 (40.0%)	3 (30.0%)
Total		437	8 (1.8%)	13 (3.0%)	67 (15.3%)	183 (41.9%)	166 (38.0%)
User category							
1.	P.G. 1st Year	143	3 (2.1%)	4 (2.8%)	22 (15.4%)	60 (42.0%)	54 (37.8%)
2.	P.G. 2nd Year	294	5 (1.7%)	9 (3.1%)	45 (15.3%)	123 (41.8%)	112 (38.1%)
Gender							
1.	Female	208	4 (1.9%)	6 (2.9%)	39 (18.8%)	86 (41.3%)	73 (35.1%)
2.	Male	229	4 (1.7%)	7 (3.1%)	28 (12.2%)	97 (42.4%)	93 (40.6%)
Age							
1.	20 and below	56	1 (1.8%)	2 (3.6%)	8 (14.3%)	24 (42.9%)	21 (37.5%)
2.	21–22	212	4 (1.9%)	7 (3.3%)	32 (15.1%)	88 (41.5%)	81 (38.2%)
3.	23–24	141	1 (0.7%)	2 (1.4%)	20 (14.2%)	61 (43.3%)	57 (40.4%)
4.	25 and above	28	2 (7.1%)	2 (7.1%)	7 (25.0%)	10 (35.7%)	7 (25.0%)
Domicile							
1.	Rural	283	5 (1.8%)	8 (2.8%)	42 (14.8%)	98 (34.6%)	130 (45.9%)
2.	Urban	154	3 (1.9%)	5 (3.2%)	25 (16.2%)	85 (55.2%)	36 (23.4%)

Table 5.48 Type of Information Searched in Research Articles

Overall, research articles are the most frequently accessed OA resource: only 1.8 % of students never use them and 3 % use them rarely. About 15.3 % consult articles sometimes, while a combined 79.9 % access them often (41.9 %) or always (38.0 %). This distribution shows that nearly four in five

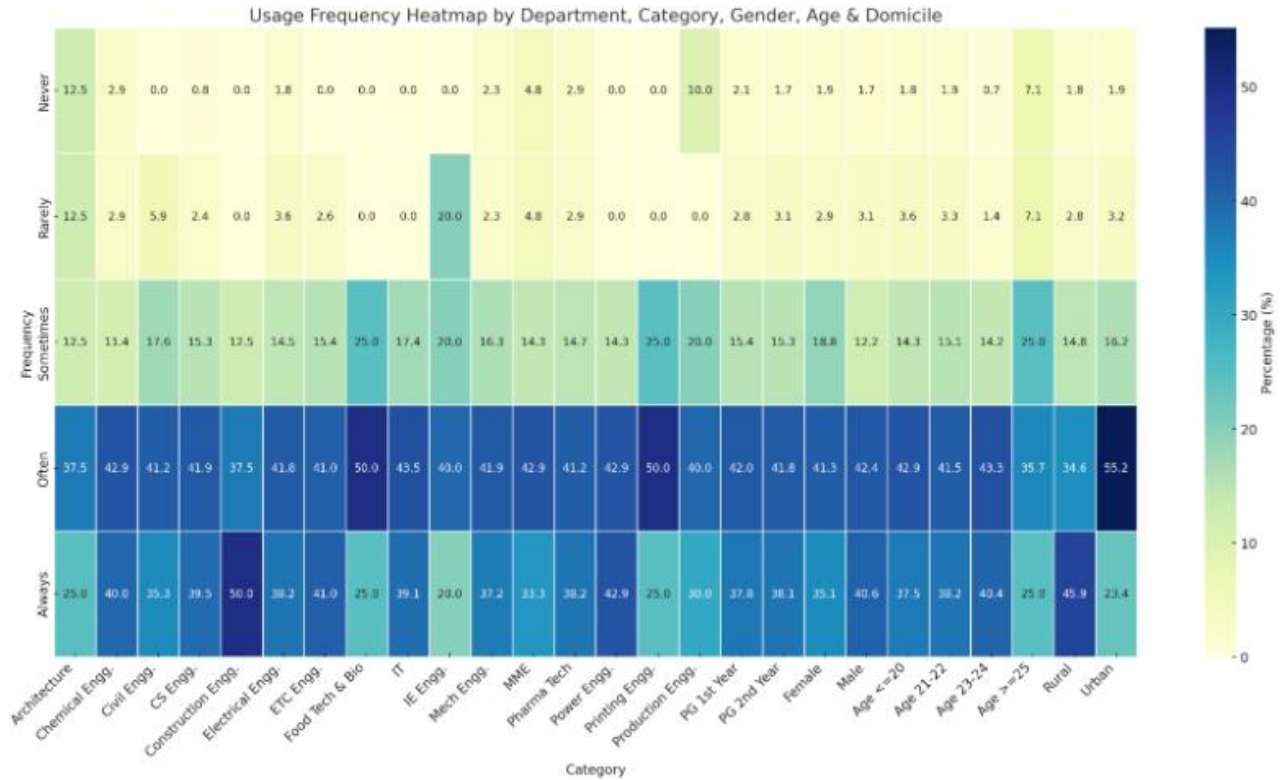


Fig 5.28 Type of Information Searched in Research Articles

postgraduate students rely on open-access platforms for current research literature. The minimal “never” and “rarely” figures underscore articles’ central role in scholarly work.

Departmental patterns mirror this high engagement. Architecture students show the lowest “always” rate at 25.0 %, with a heavier tail in the “sometimes” category (12.5 %) and modest “often” use (37.5 %). In contrast, Construction and Electronics–Telecom cohorts report 50.0 % “always” access and around 40 % “often,” reflecting very high reliance. Larger programs such as Computer Science (39.5 % always), Chemical Engineering (40.0 %), and Power Engineering (42.9 %) also show strong habitual use, indicating widespread discipline-agnostic dependence on articles.

First-year and second-year postgraduates access research articles at virtually identical rates. P.G. 1st Year students report 37.8 % always and 42.0 % often, while P.G. 2nd Years mark 38.1 % always and 41.8 % often. The negligible difference implies that familiarity with OA repositories begins early and remains stable, suggesting orientation programs effectively introduce article searching from the outset.

Gender reveals slight variations in peak usage. Male students edge out females in “always” access (40.6 % vs. 35.1 %) and “often” use (42.4 % vs. 41.3 %). Females show marginally higher reliance

on the “sometimes” category (18.8 % vs. 12.2 %). These small gaps may reflect differences in research habits but overall affirm strong engagement across genders.

Age breakdowns show robust article use among all cohorts except the oldest. Students aged 20–24 access articles “often” or “always” around 80 % of the time, with the 23–24 group peaking at 83.7 % combined. Those 25 and above report only 60.7 % combined high-frequency use and higher “sometimes” (25.0 %) or even “rarely” (7.1 %) figures, suggesting mature learners diversify sources or rely more on formal publications.

Domicile patterns are surprising: rural students report 45.9 % “always” and 34.6 % “often,” whereas urban students mark 23.4 % “always” but 55.2 % “often.” This flip indicates rural cohorts may default to OA articles as their primary research outlet, while urban peers alternate between “often” and other resources. Both groups, however, demonstrate that over three-quarters of students depend on open-access articles at least often, reinforcing their pivotal academic role.

5.18.2 Research Reports

Sl. No.	Department	Total	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)
1	Architecture	8	0 (0.0%)	1 (12.5%)	2 (25.0%)	3 (37.5%)	2 (25.0%)
2	Chemical-engineering	35	1 (2.9%)	2 (5.7%)	9 (25.7%)	15 (42.9%)	8 (22.9%)
3	Civil-engineering	17	1 (5.9%)	1 (5.9%)	4 (23.5%)	7 (41.2%)	4 (23.5%)
4	Computer-science & engineering	124	4 (3.2%)	9 (7.3%)	30 (24.2%)	49 (39.5%)	32 (25.8%)
5	Construction-engineering	8	1 (12.5%)	1 (12.5%)	2 (25.0%)	3 (37.5%)	1 (12.5%)
6	Electrical-engineering	55	2 (3.6%)	3 (5.5%)	14 (25.5%)	23 (41.8%)	13 (23.6%)
7	Electronics-telecom-engineering	39	2 (5.1%)	4 (10.3%)	11 (28.2%)	16 (41.0%)	6 (15.4%)
8	Food-tech & bio-chem-engineering	4	0 (0.0%)	0 (0.0%)	2 (50.0%)	2 (50.0%)	0 (0.0%)
9	Information-technology	23	1 (4.3%)	2 (8.7%)	7 (30.4%)	9 (39.1%)	4 (17.4%)
10	Instrumentation-&-electronics-engineering	5	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (40.0%)	2 (40.0%)
11	Mechanical-engineering	43	2 (4.7%)	3 (7.0%)	11 (25.6%)	17 (39.5%)	10 (23.3%)

12	Metallurgical-material-engineering	21	1 (4.8%)	2 (9.5%)	5 (23.8%)	9 (42.9%)	4 (19.0%)
13	Pharmaceutical-technology	34	1 (2.9%)	3 (8.8%)	9 (26.5%)	14 (41.2%)	7 (20.6%)
14	Power-engineering	7	0 (0.0%)	1 (14.3%)	1 (14.3%)	3 (42.9%)	2 (28.6%)
15	Printing-engineering	4	1 (25.0%)	0 (0.0%)	1 (25.0%)	2 (50.0%)	0 (0.0%)
16	Production-engineering	10	1 (10.0%)	2 (20.0%)	4 (40.0%)	2 (20.0%)	1 (10.0%)
Total		437	18 (4.1%)	32 (7.3%)	112 (25.6%)	178 (40.7%)	97 (22.2%)
User category							
1.	P.G. 1st Year	143	6 (4.2%)	10 (7.0%)	36 (25.2%)	58 (40.6%)	33 (23.1%)
2.	P.G. 2nd Year	294	12 (4.1%)	22 (7.5%)	76 (25.9%)	120 (40.8%)	64 (21.8%)
Gender							
1.	Female	208	9 (4.3%)	15 (7.2%)	58 (27.9%)	85 (40.9%)	41 (19.7%)
2.	Male	229	9 (3.9%)	17 (7.4%)	54 (23.6%)	93 (40.6%)	56 (24.5%)
Age							
1.	20 and below	56	2 (3.6%)	4 (7.1%)	14 (25.0%)	23 (41.1%)	13 (23.2%)
2.	21–22	212	9 (4.2%)	16 (7.5%)	54 (25.5%)	86 (40.6%)	47 (22.2%)
3.	23–24	141	6 (4.3%)	10 (7.1%)	36 (25.5%)	57 (40.4%)	32 (22.7%)
4.	25 and above	28	1 (3.6%)	2 (7.1%)	8 (28.6%)	12 (42.9%)	5 (17.9%)
Domicile							
1.	Rural	283	12 (4.2%)	21 (7.4%)	73 (25.8%)	115 (40.6%)	62 (21.9%)
2.	Urban	154	6 (3.9%)	11 (7.1%)	39 (25.3%)	63 (40.9%)	35 (22.7%)

Table 5.49 Type of Information Searched in Research Reports

Overall, research reports are a vital part of students' information diet. Only 4.1 % never consult OA reports and 7.3 % do so rarely, while a quarter (25.6 %) access them sometimes. The majority turn to reports frequently: 40.7 % often and 22.2 % always. In total, 62.9 % of postgraduates rely

on open-access research reports at least often, underlining their value for staying abreast of project- and industry-focused findings.

Departmental patterns closely mirror the campus average. Chemical Engineering and Computer Science each report about 43 % “often” use and roughly 23 % “always,” matching their article-heavy research cultures. Civil, Electrical, and Pharmaceutical Technology all log around 41 % often and 20–24 % always. Smaller fields like Construction and Printing Engineering show slightly higher “sometimes” engagement, 25–40 %, but still nearly 60 % often/always use reports. Only Food Technology bucks the trend entirely “sometimes” and “often” (50 % each), reflecting perhaps the scarcity of OA reports in that niche.

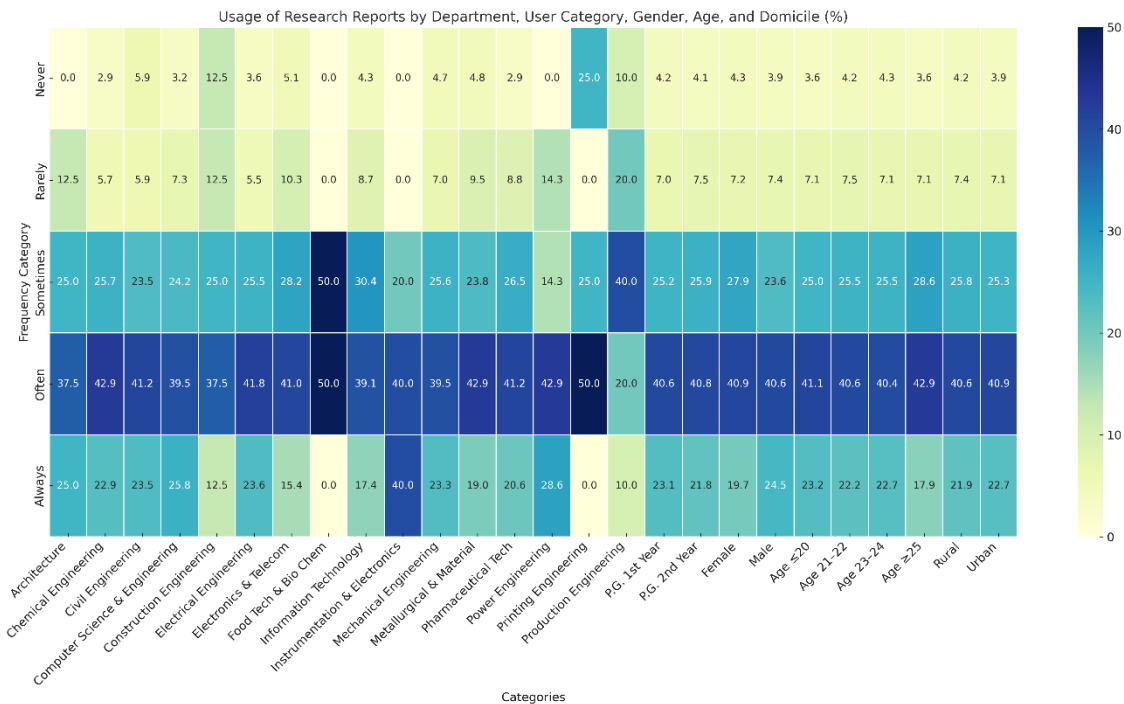


Fig 5.29 Type of Information Searched in Research Reports

Postgraduate year makes no material difference. P.G. 1st Year students show 40.6 % often and 23.1 % always, while P.G. 2nd Years mark 40.8 % often and 21.8 % always. The consistency indicates that report-based research is introduced early and remains stable through advanced study.

Gender breakdowns reveal a subtle split: male students report more “always” use (24.5 %) than females (19.7 %), while female students fall slightly higher in the “sometimes” bracket (27.9 % vs. 23.6 %). Both genders mirror each other in “often” usage (around 40 %) and very low “never” rates (~4 %), suggesting similar reliance tempered by different search habits.

Age groups access reports at comparable rates, with 20–24 year-olds showing 40–41 % often and 22–23 % always. The 25 and above cohort dips to 17.9 % always and peaks at 42.9 % often,

possibly indicating that mature students prefer scanning reports more selectively. Yet all age clusters have minimal “never” usage (< 5 %) and moderate “sometimes” engagement (~25 %).

Rural versus urban students again align closely: rural cohorts mark 40.6 % often and 21.9 % always, while urban peers register 40.9 % often and 22.7 % always. The parallel underscores that geographic location doesn’t constrain access to report-based resources in a meaningful way.

In sum, research reports enjoy strong, uniform adoption across departments and demographics, with two-thirds of students consulting them often or always. Slight variations by discipline, gender, and age hint at nuanced preferences but no systemic gaps. To deepen engagement even further, libraries and repositories might spotlight field-specific report collections, integrate report-driven case studies into coursework, and streamline discovery tools to make “always” usage the new norm.

5.18.3 Reviews

Sl. No.	Department	Total	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)
1	Architecture	8	0 (0.0%)	1 (12.5%)	2 (25.0%)	3 (37.5%)	2 (25.0%)
2	Chemical-engineering	35	1 (2.9%)	2 (5.7%)	8 (22.9%)	15 (42.9%)	9 (25.7%)
3	Civil-engineering	17	0 (0.0%)	1 (5.9%)	4 (23.5%)	6 (35.3%)	6 (35.3%)
4	Computer-science & engineering	124	1 (0.8%)	4 (3.2%)	30 (24.2%)	52 (41.9%)	37 (29.8%)
5	Construction-engineering	8	0 (0.0%)	0 (0.0%)	2 (25.0%)	3 (37.5%)	3 (37.5%)
6	Electrical-engineering	55	1 (1.8%)	2 (3.6%)	12 (21.8%)	24 (43.6%)	16 (29.1%)
7	Electronics-telecom-engineering	39	1 (2.6%)	1 (2.6%)	10 (25.6%)	16 (41.0%)	11 (28.2%)
8	Food-tech & bio-chem-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	2 (50.0%)	1 (25.0%)
9	Information-technology	23	0 (0.0%)	1 (4.3%)	5 (21.7%)	10 (43.5%)	7 (30.4%)
10	Instrumentation-&-electronics-engineering	5	0 (0.0%)	1 (20.0%)	1 (20.0%)	2 (40.0%)	1 (20.0%)
11	Mechanical-engineering	43	1 (2.3%)	2 (4.7%)	11 (25.6%)	18 (41.9%)	11 (25.6%)

12	Metallurgical-material-engineering	21	0 (0.0%)	1 (4.8%)	6 (28.6%)	8 (38.1%)	6 (28.6%)
13	Pharmaceutical-technology	34	1 (2.9%)	1 (2.9%)	8 (23.5%)	14 (41.2%)	10 (29.4%)
14	Power-engineering	7	0 (0.0%)	0 (0.0%)	2 (28.6%)	3 (42.9%)	2 (28.6%)
15	Printing-engineering	4	1 (25.0%)	0 (0.0%)	1 (25.0%)	2 (50.0%)	0 (0.0%)
16	Production-engineering	10	1 (10.0%)	1 (10.0%)	5 (50.0%)	2 (20.0%)	1 (10.0%)
Total		437	12 (2.7%)	27 (6.2%)	103 (23.6%)	168 (38.4%)	127 (29.1%)
User category							
1.	P.G. 1st Year	143	4 (2.8%)	9 (6.3%)	33 (23.1%)	55 (38.5%)	42 (29.4%)
2.	P.G. 2nd Year	294	8 (2.7%)	18 (6.1%)	70 (23.8%)	113 (38.4%)	85 (28.9%)
Gender							
1.	Female	208	6 (2.9%)	12 (5.8%)	49 (23.6%)	78 (37.5%)	63 (30.3%)
2.	Male	229	6 (2.6%)	15 (6.6%)	54 (23.6%)	90 (39.3%)	64 (28.0%)
Age							
1.	20 and below	56	2 (3.6%)	4 (7.1%)	12 (21.4%)	23 (41.1%)	15 (26.8%)
2.	21–22	212	6 (2.8%)	13 (6.1%)	50 (23.6%)	81 (38.2%)	62 (29.2%)
3.	23–24	141	3 (2.1%)	8 (5.7%)	31 (22.0%)	54 (38.3%)	45 (31.9%)
4.	25 and above	28	1 (3.6%)	2 (7.1%)	10 (35.7%)	10 (35.7%)	5 (17.9%)
Domicile							
1.	Rural	283	8 (2.8%)	19 (6.7%)	65 (23.0%)	105 (37.1%)	86 (30.4%)
2.	Urban	154	4 (2.6%)	8 (5.2%)	38 (24.7%)	63 (40.9%)	41 (26.6%)

Table 5.50 Type of Information Searched in Reviews

Overall, reviews are a staple of students' OA searches: only 2.7 % never consult them and 6.2 % do so rarely, while nearly a quarter (23.6 %) use them sometimes. The bulk turn to reviews regularly, 38.4 % often and 29.1 % always. In total, 67.5 % of postgraduates access open-access reviews at least often, underscoring their role in surveying fields and synthesizing knowledge.

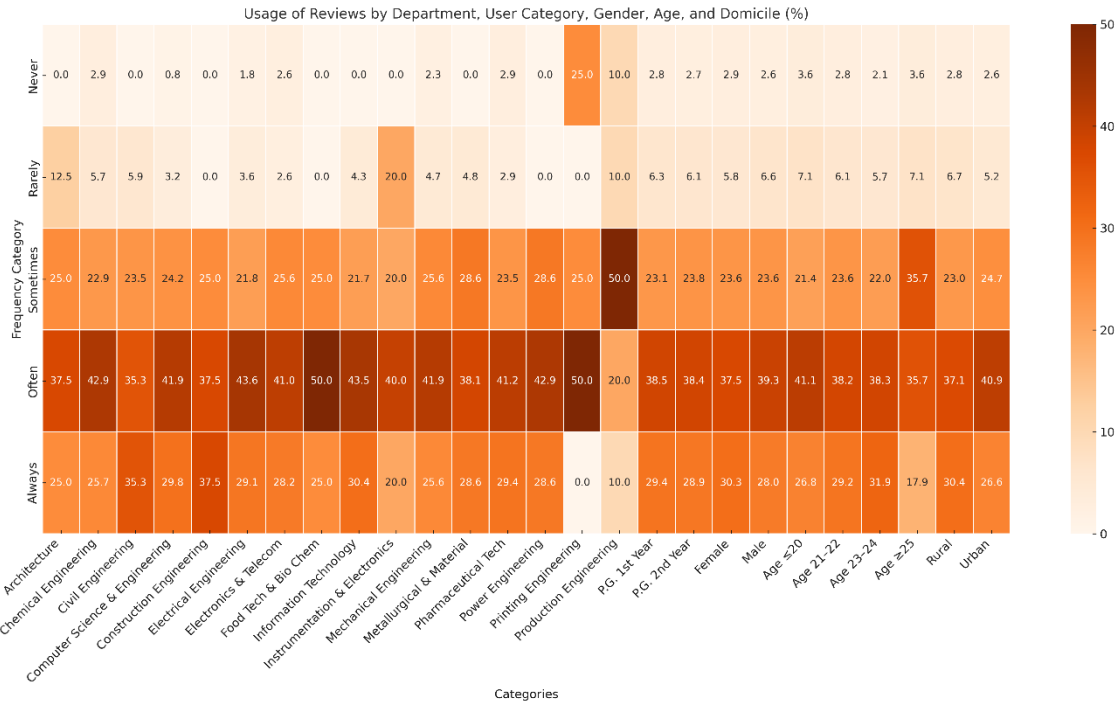


Fig 5.30 Type of Information Searched in Reviews

Department, the pattern holds strong. Architecture and Construction Engineering each report 62.5 % combined often/always use. Chemical Engineering, Civil Engineering, and Electrical Engineering all cluster around 68–71 % often/always, with 25–29 % always diving into reviews. Computer Science & Engineering users mark 71.7 % often/always, mirroring an article-focused discipline. Printing and Food Technology both show 50 % often and either 0 % (Printing) or 25 % (Food Technology) always, small samples but still revealing active engagement. Production Engineering sits a bit lower at 30 % always and 20 % often, hinting that more foundational sources might dominate in that field.

First- and second-year postgraduates mirror each other almost exactly. P.G. 1st Years report 38.5 % often and 29.4 % always, while P.G. 2nd Years are at 38.4 % often and 28.9 % always. This steady profile suggests that the habit of consulting reviews is ingrained from the start of postgraduate study and persists unchanged.

Gender differences are minimal. Female students pull 37.5 % often and 30.3 % always; males edge up to 39.3 % often but dip to 28.0 % always. Both groups have under 3 % “never” rates, indicating nearly universal baseline awareness.

Age cohorts follow the same script. Students aged 20–24 hover around 38–41 % often and 26–32 % always. Only the 25 and above group shows a slight shift, 35.7 % both sometimes and often, but only 17.9 % always, perhaps reflecting a preference for selective deep dives over constant review scanning.

Finally, rural and urban students align closely. Rural users mark 37.1 % often and 30.4 % always; urban peers record 40.9 % often and 26.6 % always. The takeaway: across every program, year, gender, age, and domicile, open-access reviews maintain strong, stable use, with roughly two-thirds of students relying on them regularly.

5.18.4 E-Books

Sl. No.	Department	Total	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)
1	Architecture	8	0 (0.0%)	1 (12.5%)	2 (25.0%)	3 (37.5%)	2 (25.0%)
2	Chemical-engineering	35	1 (2.9%)	2 (5.7%)	8 (22.9%)	15 (42.9%)	9 (25.7%)
3	Civil-engineering	17	1 (5.9%)	1 (5.9%)	4 (23.5%)	7 (41.2%)	4 (23.5%)
4	Computer-science & engineering	124	2 (1.6%)	4 (3.2%)	30 (24.2%)	54 (43.5%)	34 (27.4%)
5	Construction-engineering	8	0 (0.0%)	0 (0.0%)	1 (12.5%)	4 (50.0%)	3 (37.5%)
6	Electrical-engineering	55	1 (1.8%)	1 (1.8%)	12 (21.8%)	24 (43.6%)	17 (30.9%)
7	Electronics-telecom-engineering	39	1 (2.6%)	2 (5.1%)	9 (23.1%)	16 (41.0%)	11 (28.2%)
8	Food-tech & bio-chem-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	2 (50.0%)	1 (25.0%)
9	Information-technology	23	0 (0.0%)	1 (4.3%)	6 (26.1%)	11 (47.8%)	5 (21.7%)
10	Instrumentation-&-electronics-engineering	5	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (40.0%)	2 (40.0%)
11	Mechanical-engineering	43	1 (2.3%)	2 (4.7%)	11 (25.6%)	17 (39.5%)	12 (27.9%)
12	Metallurgical-material-engineering	21	1 (4.8%)	1 (4.8%)	5 (23.8%)	8 (38.1%)	6 (28.6%)
13	Pharmaceutical-technology	34	1 (2.9%)	1 (2.9%)	8 (23.5%)	14 (41.2%)	10 (29.4%)
14	Power-engineering	7	0 (0.0%)	0 (0.0%)	2 (28.6%)	3 (42.9%)	2 (28.6%)
15	Printing-engineering	4	1 (25.0%)	0 (0.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
16	Production-engineering	10	1 (10.0%)	1 (10.0%)	7 (70.0%)	1 (10.0%)	0 (0.0%)
Total		437	16 (3.7%)	29 (6.6%)	108 (24.7%)	164 (37.5%)	120 (27.5%)

User category

1.	P.G. 1st Year	143	5 (3.5%)	9 (6.3%)	36 (25.2%)	52 (36.4%)	41 (28.7%)
2.	P.G. 2nd Year	294	11 (3.7%)	20 (6.8%)	72 (24.5%)	112 (38.1%)	79 (26.9%)
Gender							
1.	Female	208	8 (3.8%)	12 (5.8%)	48 (23.1%)	77 (37.0%)	63 (30.3%)
2.	Male	229	8 (3.5%)	17 (7.4%)	60 (26.2%)	87 (38.0%)	57 (24.9%)
Age							
1.	20 and below	56	2 (3.6%)	4 (7.1%)	15 (26.8%)	20 (35.7%)	15 (26.8%)
2.	21–22	212	8 (3.8%)	15 (7.1%)	52 (24.5%)	79 (37.3%)	58 (27.4%)
3.	23–24	141	5 (3.5%)	8 (5.7%)	36 (25.5%)	53 (37.6%)	39 (27.7%)
4.	≥ 25	28	1 (3.6%)	2 (7.1%)	5 (17.9%)	12 (42.9%)	8 (28.6%)
Domicile							
1.	Rural	283	10 (3.5%)	17 (6.0%)	66 (23.3%)	107 (37.8%)	83 (29.3%)
2.	Urban	154	6 (3.9%)	12 (7.8%)	42 (27.3%)	57 (37.0%)	37 (24.0%)

Table 5.51 Type of Information Searched in e-books

Overall, students make solid use of open-access e-books, with only 3.7 % never tapping them and 6.6 % using them rarely. About a quarter (24.7 %) turn to e-books sometimes, while the majority consult them often (37.5 %) or always (27.5 %). In total, 65.0 % of postgraduates access e-books regularly (often or always), underlining their importance as a flexible, in-depth learning resource.

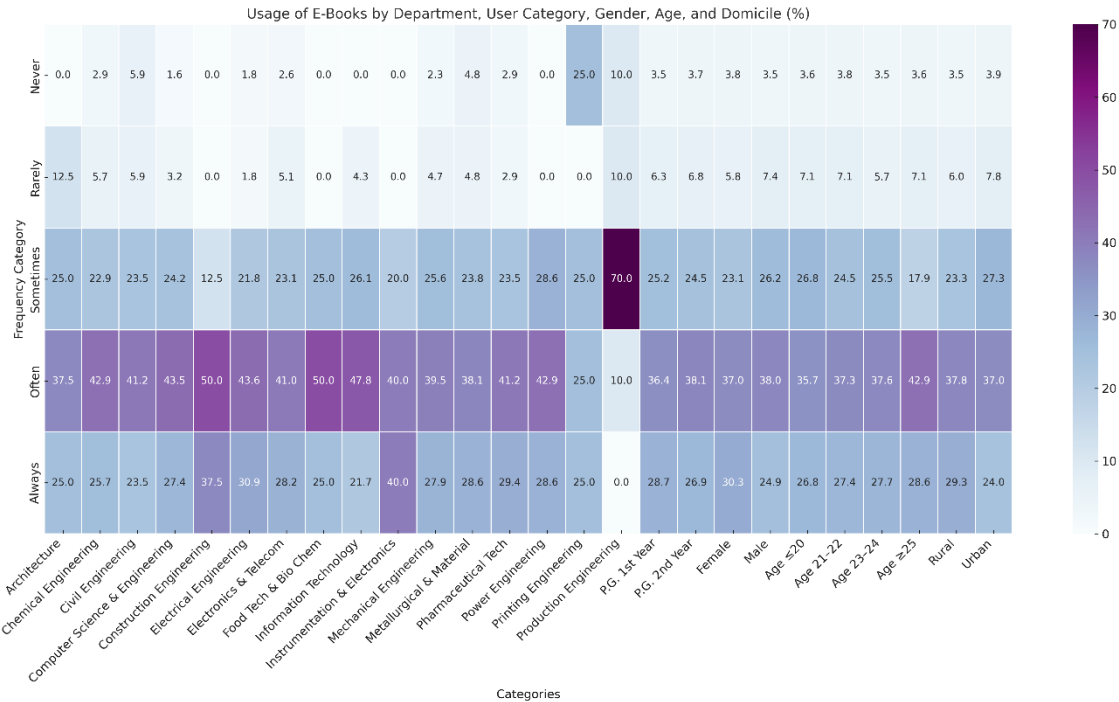


Fig 5.31 Type of Information Searched in e-books

Departmental patterns largely reflect this campus average. Most programs report “often” use in the 40–50 % range and “always” use around 25–30 %. Computer Science & Engineering students lead the way with 43.5 % often and 27.4 % always, closely followed by Information Technology (47.8 % often, 21.7 % always) and Electrical Engineering (43.6 % often, 30.9 % always). Construction Engineering shows a particularly high affinity, with half its cohort using e-books often and 37.5 % always. By contrast, Production Engineering bucks the trend, 70.0 % of its students falling into the “sometimes” category and none in “always”, suggesting either a gap in discipline-specific e-book availability or a preference for other formats in that field.

First- and second-year postgraduates mirror each other almost exactly: 36.4 % of P.G. 1st Year and 38.1 % of P.G. 2nd Year students use e-books often, with always-use at 28.7 % and 26.9 % respectively. This balance indicates that both new and senior postgraduates recognize e-books as a stable part of their study toolkit from day one.

Gender differences are subtle. Female students edge slightly ahead in always-use (30.3 % vs. 24.9 % for males), while males report a marginally higher “often” rate (38.0 % vs. 37.0 % for females). Both groups show minimal “never” and “rarely” engagement, confirming broad, equitable adoption across genders.

Age-group analysis shows that students under 25 access e-books at nearly identical rates: all cohorts aged 20–24 hover around 24–27 % “sometimes,” 35–38 % “often,” and 26–28 % “always.” Those 25 and above skew toward more frequent use, 42.9 % “often”, but fewer “always” (28.6 %), perhaps reflecting a more targeted, need-based approach by mature learners.

Finally, domicile makes almost no difference. Rural students record 37.8 % often and 29.3 % always, while urban counterparts are at 37.0 % often and 24.0 % always, with slight urban tilt toward “sometimes” (27.3 % vs. rural 23.3 %). This parity suggests that e-book availability and digital access are sufficiently robust to bridge geographic divides, making them a universally embraced resource.

5.18.5 E-Thesis

Sl. No.	Department	Total	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)
1	Architecture	8	0 (0.0%)	1 (12.5%)	2 (25.0%)	3 (37.5%)	2 (25.0%)
2	Chemical-engineering	35	1 (2.9%)	3 (8.6%)	7 (20.0%)	15 (42.9%)	9 (25.7%)
3	Civil-engineering	17	1 (5.9%)	2 (11.8%)	4 (23.5%)	6 (35.3%)	4 (23.5%)
4	Computer-science & engineering	124	3 (2.4%)	6 (4.8%)	26 (21.0%)	46 (37.1%)	43 (34.7%)
5	Construction-engineering	8	0 (0.0%)	1 (12.5%)	1 (12.5%)	4 (50.0%)	2 (25.0%)
6	Electrical-engineering	55	1 (1.8%)	3 (5.5%)	12 (21.8%)	20 (36.4%)	19 (34.5%)
7	Electronics-telecom-engineering	39	1 (2.6%)	2 (5.1%)	8 (20.5%)	16 (41.0%)	12 (30.8%)
8	Food-tech & bio-chem-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	2 (50.0%)	1 (25.0%)
9	Information-technology	23	0 (0.0%)	1 (4.3%)	5 (21.7%)	10 (43.5%)	7 (30.4%)
10	Instrumentation-&-electronics-engineering	5	0 (0.0%)	1 (20.0%)	1 (20.0%)	2 (40.0%)	1 (20.0%)
11	Mechanical-engineering	43	2 (4.7%)	2 (4.7%)	10 (23.3%)	18 (41.9%)	11 (25.6%)
12	Metallurgical-material-engineering	21	1 (4.8%)	1 (4.8%)	5 (23.8%)	8 (38.1%)	6 (28.6%)
13	Pharmaceutical-technology	34	1 (2.9%)	2 (5.9%)	8 (23.5%)	14 (41.2%)	9 (26.5%)
14	Power-engineering	7	0 (0.0%)	0 (0.0%)	1 (14.3%)	4 (57.1%)	2 (28.6%)
15	Printing-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)	0 (0.0%)

16	Production-engineering	10	1 (10.0%)	2 (20.0%)	5 (50.0%)	1 (10.0%)	1 (10.0%)
Total		437	20 (4.6%)	33 (7.6%)	97 (22.2%)	154 (35.2%)	133 (30.4%)
User category							
1.	P.G. 1st Year	143	6 (4.2%)	11 (7.7%)	30 (21.0%)	52 (36.4%)	44 (30.8%)
2.	P.G. 2nd Year	294	14 (4.8%)	22 (7.5%)	67 (22.8%)	102 (34.7%)	89 (30.3%)
Gender							
1.	Female	208	10 (4.8%)	15 (7.2%)	47 (22.6%)	73 (35.1%)	63 (30.3%)
2.	Male	229	10 (4.4%)	18 (7.9%)	50 (21.8%)	81 (35.4%)	70 (30.6%)
Age							
1.	20 and below	56	3 (5.4%)	4 (7.1%)	12 (21.4%)	20 (35.7%)	17 (30.4%)
2.	21–22	212	10 (4.7%)	17 (8.0%)	47 (22.2%)	74 (34.9%)	64 (30.2%)
3.	23–24	141	5 (3.6%)	10 (7.1%)	28 (19.9%)	47 (33.3%)	51 (36.2%)
4.	25 and above	28	2 (7.1%)	2 (7.1%)	10 (35.7%)	13 (46.4%)	1 (3.6%)
Domicile							
1.	Rural	283	12 (4.2%)	20 (7.1%)	64 (22.6%)	99 (35.0%)	88 (31.1%)
2.	Urban	154	8 (5.2%)	13 (8.4%)	33 (21.4%)	55 (35.7%)	45 (29.2%)

Table 5.52 Type of Information Searched in e-thesis

Overall, e-theses are firmly embedded in students' research routines: only 4.6 % never consult them and 7.6 % rarely do, while 22.2 % use them sometimes. The majority tap into theses regularly, 35.2 % often and 30.4 % always, meaning 65.6 % of postgraduates rely on OA dissertations at least "often." Departmental use generally falls between two-thirds and three-quarters of each cohort. Power Engineering leads with 85.7 % often/always usage, followed by Construction Engineering at 75 %. Core programs like Computer Science (71.8 %), Electronics–Telecom Engineering (71.8 %), and Electrical Engineering (70.9 %) all show strong engagement. At the other end, Production Engineering students report the lowest habitual use (20 % often/always), and Printing Engineering sits at 50 %,

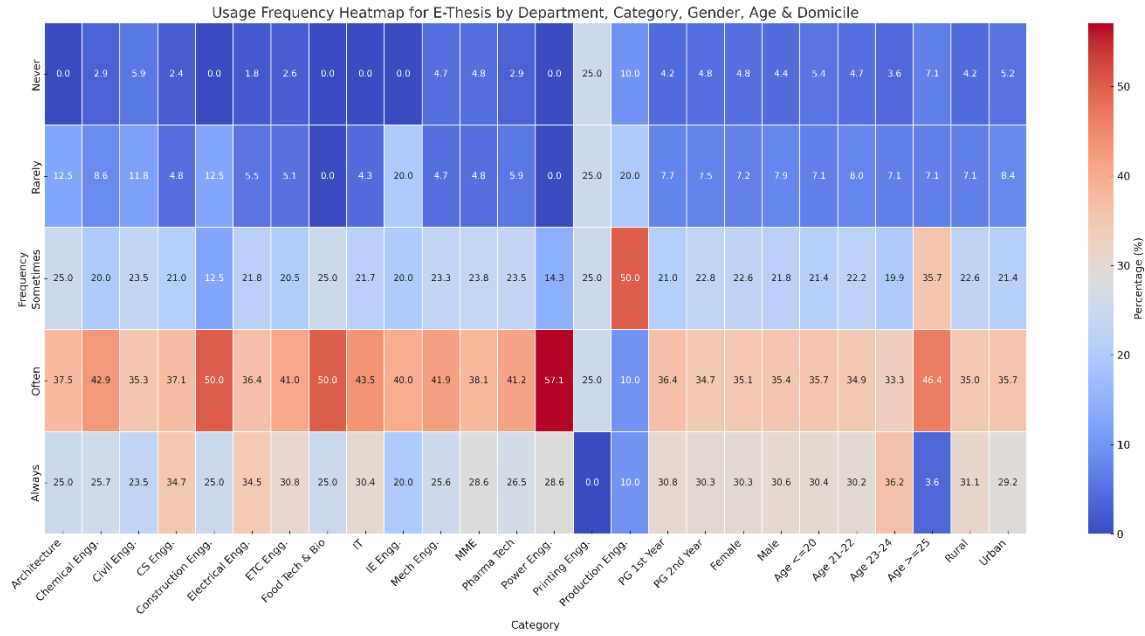


Fig 5.32 Type of Information Searched in e-thesis

hinting at gaps in discipline-specific thesis availability or awareness. First- and second-year postgraduates again mirror each other: 67.2 % of P.G. 1st Years and 65.0 % of P.G. 2nd Years access e-theses often or always. This stability suggests that introduction to repository-based theses happens early and persists without significant change.

Gender patterns are nearly identical, with female students at 65.2 % and male students at 66.0 % “often/always” usage. Both groups report minimal “never” or “rarely” engagement, indicating equitable adoption across genders.

Age cohorts up to 24 access theses at similar rates (65–69 % often/always). The 25+ group diverges, with 46.4 % often but only 3.6 % always, lowering their overall high-frequency use to 50 %. This suggests mature students may sample theses more selectively or lean on other resource types.

Rural (66.1 %) and urban (64.9 %) students also align closely in frequent use, showing that geographic location doesn’t hinder thesis access.

In sum, open-access theses serve as a core research tool for most postgraduates. To boost uptake in lagging departments and among older cohorts, targeted outreach, like thesis-focused workshops, discipline-aligned discovery guides, and enhanced repository interfaces, could turn “sometimes” users into “always” users across the board.

5.18.6 Bibliographic Info

Sl. No.	Department	Total	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)
1	Architecture	8	1 (12.5%)	1 (12.5%)	2 (25.0%)	2 (25.0%)	2 (25.0%)
2	Chemical-engineering	35	3 (8.6%)	4 (11.4%)	10 (28.6%)	13 (37.1%)	5 (14.3%)
3	Civil-engineering	17	1 (5.9%)	2 (11.8%)	5 (29.4%)	6 (35.3%)	3 (17.6%)
4	Computer-science & engineering	124	10 (8.1%)	15 (12.1%)	34 (27.4%)	41 (33.1%)	24 (19.4%)
5	Construction-engineering	8	1 (12.5%)	1 (12.5%)	2 (25.0%)	2 (25.0%)	2 (25.0%)
6	Electrical-engineering	55	4 (7.3%)	7 (12.7%)	15 (27.3%)	19 (34.5%)	10 (18.2%)
7	Electronics-telecom-engineering	39	2 (5.1%)	3 (7.7%)	11 (28.2%)	16 (41.0%)	7 (17.9%)
8	Food-tech & bio-chem-engineering	4	0 (0.0%)	0 (0.0%)	1 (25.0%)	2 (50.0%)	1 (25.0%)
9	Information-technology	23	2 (8.7%)	3 (13.0%)	6 (26.1%)	8 (34.8%)	4 (17.4%)
10	Instrumentation-&-electronics-engineering	5	0 (0.0%)	1 (20.0%)	1 (20.0%)	2 (40.0%)	1 (20.0%)
11	Mechanical-engineering	43	3 (7.0%)	5 (11.6%)	12 (27.9%)	14 (32.6%)	9 (20.9%)
12	Metallurgical-material-engineering	21	1 (4.8%)	2 (9.5%)	6 (28.6%)	8 (38.1%)	4 (19.0%)
13	Pharmaceutical-technology	34	2 (5.9%)	3 (8.8%)	10 (29.4%)	12 (35.3%)	7 (20.6%)
14	Power-engineering	7	1 (14.3%)	1 (14.3%)	2 (28.6%)	2 (28.6%)	1 (14.3%)
15	Printing-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)	0 (0.0%)
16	Production-engineering	10	1 (10.0%)	2 (20.0%)	4 (40.0%)	2 (20.0%)	1 (10.0%)
Total		437	35 (8.0%)	52 (11.9%)	123 (28.1%)	146 (33.4%)	81 (18.5%)
User category							
1.	P.G. 1st Year	143	11 (7.7%)	17 (11.9%)	40 (28.0%)	48 (33.6%)	27 (18.9%)

2.	P.G. 2nd Year	294	24 (8.2%)	35 (11.9%)	83 (28.2%)	98 (33.3%)	54 (18.4%)
Gender							
1.	Female	208	17 (8.2%)	25 (12.0%)	58 (27.9%)	68 (32.7%)	40 (19.2%)
2.	Male	229	18 (7.9%)	27 (11.8%)	65 (28.4%)	78 (34.1%)	41 (17.9%)
Age							
1.	20 and below	56	4 (7.1%)	7 (12.5%)	16 (28.6%)	19 (33.9%)	10 (17.9%)
2.	21–22	212	17 (8.0%)	25 (11.8%)	60 (28.3%)	71 (33.5%)	39 (18.4%)
3.	23–24	141	11 (7.8%)	17 (12.1%)	40 (28.4%)	47 (33.3%)	26 (18.4%)
4.	25 and above	28	2 (7.1%)	3 (10.7%)	9 (32.1%)	9 (32.1%)	5 (17.9%)
Domicile							
1.	Rural	283	23 (8.1%)	34 (12.0%)	79 (27.9%)	95 (33.6%)	52 (18.4%)
2.	Urban	154	12 (7.8%)	18 (11.7%)	44 (28.6%)	51 (33.1%)	29 (18.8%)

Table 5.53 Type of Information Searched in Bibliographic Info

Overall, bibliographic information is a regularly used OA resource, with 51.9% of students accessing it often (33.4%) or always (18.5%). Only 8.0% never consult bibliographic data and 11.9% do so rarely, while 28.1% use it sometimes. This indicates that roughly half of postgraduates rely on OA platforms for citation and reference management.

Departmental trends follow the campus average. Architecture and Construction Engineering each report 50% frequent use (25% often, 25% always), while Chemical and Civil Engineering sit around 51.4–52.9% often/always combined. Core tech fields, Computer Science (52.5%), Electrical Engineering (52.7%), and Electronics–Telecom (58.9%), show slightly higher usage, reflecting their reliance on precise metadata for rapid research. Production Engineering and Printing Engineering display lower habitual use (30% and 25% often/always), suggesting potential underuse or lack of awareness of OA bibliographic tools in those disciplines.

Postgraduate level yields near-identical patterns: P.G. 1st Years (51.6%) and P.G. 2nd Years (51.7%) often/always access bibliographic info. This stability highlights that citation resource usage is ingrained early and remains constant through advanced study.

Gender breakdowns are virtually the same: females at 51.9% often/always, males at 52.0%. Minimum “never” rates (~8%) and consistent “rarely” and “sometimes” figures across genders emphasize equitable adoption of bibliographic resources.

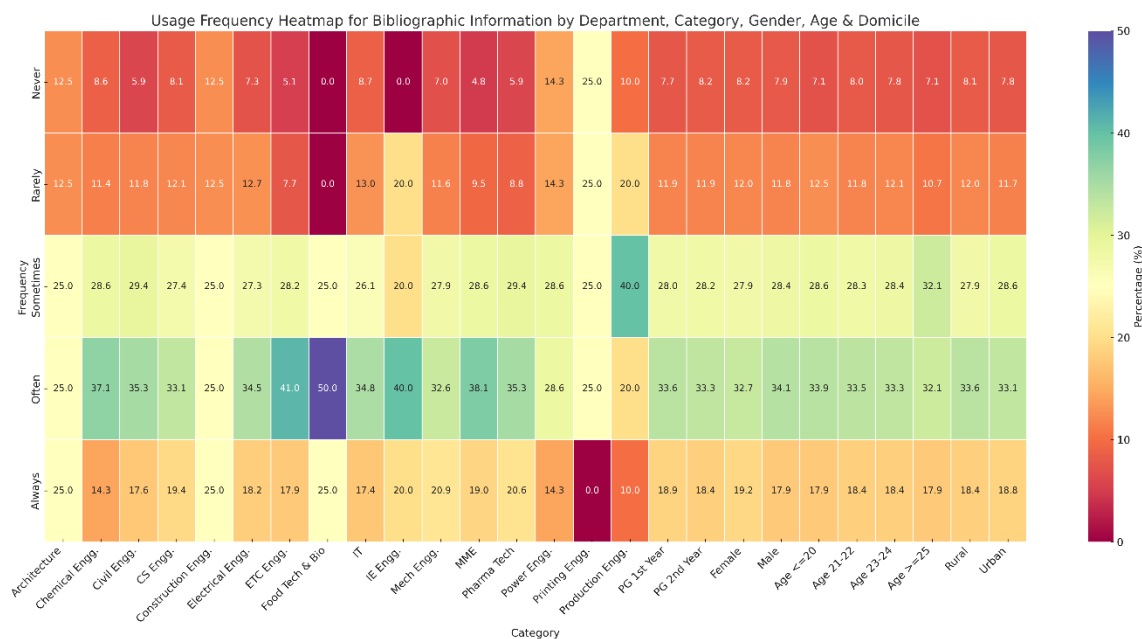


Fig 5.33 Type of Information Searched in Bibliographic Info

Age groups also align closely, with “often/always” use around 51–52% across all brackets. Even mature students (25+) show 50% frequent engagement, indicating that neither digital nativity nor career stage substantially affects reliance on OA bibliographic information.

Domicile divides are negligible: rural students register 52.0% often/always, and urban students 52.0%, with parallel “never” (~8%) and “rarely” (~12%) rates. This suggests that online citation tools are equally accessible and valued regardless of geography.

In summary, bibliographic information serves as a core utility for about half of OA users. To increase adoption, targeted training on integrated citation managers, one-click export features, and improved metadata consistency could convert “sometimes” users (28.1%) into “often” or “always” users.

5.18.7 Yearbooks

Sl. No.	Department	Total	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)
1	Architecture	8	1 (12.5%)	1 (12.5%)	2 (25.0%)	2 (25.0%)	2 (25.0%)
2	Chemical-engineering	35	4 (11.4%)	5 (14.3%)	11 (31.4%)	10 (28.6%)	5 (14.3%)
3	Civil-engineering	17	2 (11.8%)	3 (17.6%)	5 (29.4%)	4 (23.5%)	3 (17.6%)

4	Computer-science & engineering	124	10 (8.1%)	19 (15.3%)	39 (31.5%)	26 (21.0%)	30 (24.2%)
5	Construction-engineering	8	1 (12.5%)	2 (25.0%)	2 (25.0%)	2 (25.0%)	1 (12.5%)
6	Electrical-engineering	55	3 (5.5%)	6 (10.9%)	15 (27.3%)	16 (29.1%)	15 (27.3%)
7	Electronics-telecom-engineering	39	2 (5.1%)	5 (12.8%)	11 (28.2%)	12 (30.8%)	9 (23.1%)
8	Food-tech & bio-chem-engineering	4	0 (0.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
9	Information-technology	23	2 (8.7%)	4 (17.4%)	7 (30.4%)	6 (26.1%)	4 (17.4%)
10	Instrumentation-&-electronics-engineering	5	1 (20.0%)	1 (20.0%)	1 (20.0%)	1 (20.0%)	1 (20.0%)
11	Mechanical-engineering	43	5 (11.6%)	6 (14.0%)	13 (30.2%)	14 (32.6%)	5 (11.6%)
12	Metallurgical-material-engineering	21	3 (14.3%)	3 (14.3%)	7 (33.3%)	6 (28.6%)	2 (9.5%)
13	Pharmaceutical-technology	34	3 (8.8%)	4 (11.8%)	11 (32.4%)	10 (29.4%)	6 (17.6%)
14	Power-engineering	7	1 (14.3%)	1 (14.3%)	2 (28.6%)	2 (28.6%)	1 (14.3%)
15	Printing-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)	0 (0.0%)
16	Production-engineering	10	4 (40.0%)	3 (30.0%)	3 (30.0%)	0 (0.0%)	0 (0.0%)
Total		437	54 (12.4%)	73 (16.7%)	135 (30.9%)	113 (25.9%)	62 (14.2%)
User category							
1.	P.G. 1st Year	143	19 (13.3%)	22 (15.4%)	44 (30.8%)	33 (23.1%)	25 (17.5%)
2.	P.G. 2nd Year	294	35 (11.9%)	51 (17.3%)	91 (31.0%)	80 (27.2%)	37 (12.6%)
Gender							
1.	Female	208	26 (12.5%)	35 (16.8%)	58 (27.9%)	64 (30.8%)	25 (12.0%)

2.	Male	229	28 (12.2%)	38 (16.6%)	77 (33.6%)	49 (21.4%)	37 (16.2%)
Age							
1.	20 and below	56	7 (12.5%)	9 (16.1%)	18 (32.1%)	14 (25.0%)	8 (14.3%)
2.	21–22	212	26 (12.3%)	35 (16.5%)	66 (31.1%)	55 (25.9%)	30 (14.2%)
3.	23–24	141	17 (12.1%)	23 (16.3%)	44 (31.2%)	37 (26.2%)	20 (14.2%)
4.	25 and above	28	4 (14.3%)	6 (21.4%)	7 (25.0%)	7 (25.0%)	4 (14.3%)
Domicile							
1.	Rural	283	34 (12.0%)	47 (16.6%)	88 (31.1%)	74 (26.1%)	40 (14.1%)
2.	Urban	154	20 (13.0%)	26 (16.9%)	47 (30.5%)	39 (25.3%)	22 (14.3%)

Table 5.54 Type of Information Searched in Yearbooks

Across all 437 respondents, yearbooks see moderate engagement: 12.4% never consult them and 16.7% do so rarely, while 30.9% use them sometimes. A quarter of students (25.9%) access yearbooks often and 14.2% always, meaning 40.1% rely on them regularly and 71.0% at least sometimes. This places yearbooks behind core research materials but still within many students' reference habits.

Most departments mirror the overall pattern. Architecture, Construction, Chemical, Civil, and Mechanical Engineering each report roughly 12–14% never use, 15–17% rarely, around 30% sometimes, 25–30% often, and 9–18% always. Computer Science & Engineering skews slightly higher on “always” (24.2%) but has 23.4% rarely or never. Production Engineering is the clear outlier with 40% never, 30% rarely, 30% sometimes, and no one using yearbooks often or always, suggesting limited discipline-specific coverage or relevance.

First- and second-year postgraduates share almost identical habits: P.G. 1st Years have 13.3% never, 15.4% rarely, 30.8% sometimes, 23.1% often, and 17.5% always; P.G. 2nd Years show 11.9% never, 17.3% rarely, 31.0% sometimes, 27.2% often, and 12.6% always. The stability indicates that yearbook use is established early and remains consistent through both years.

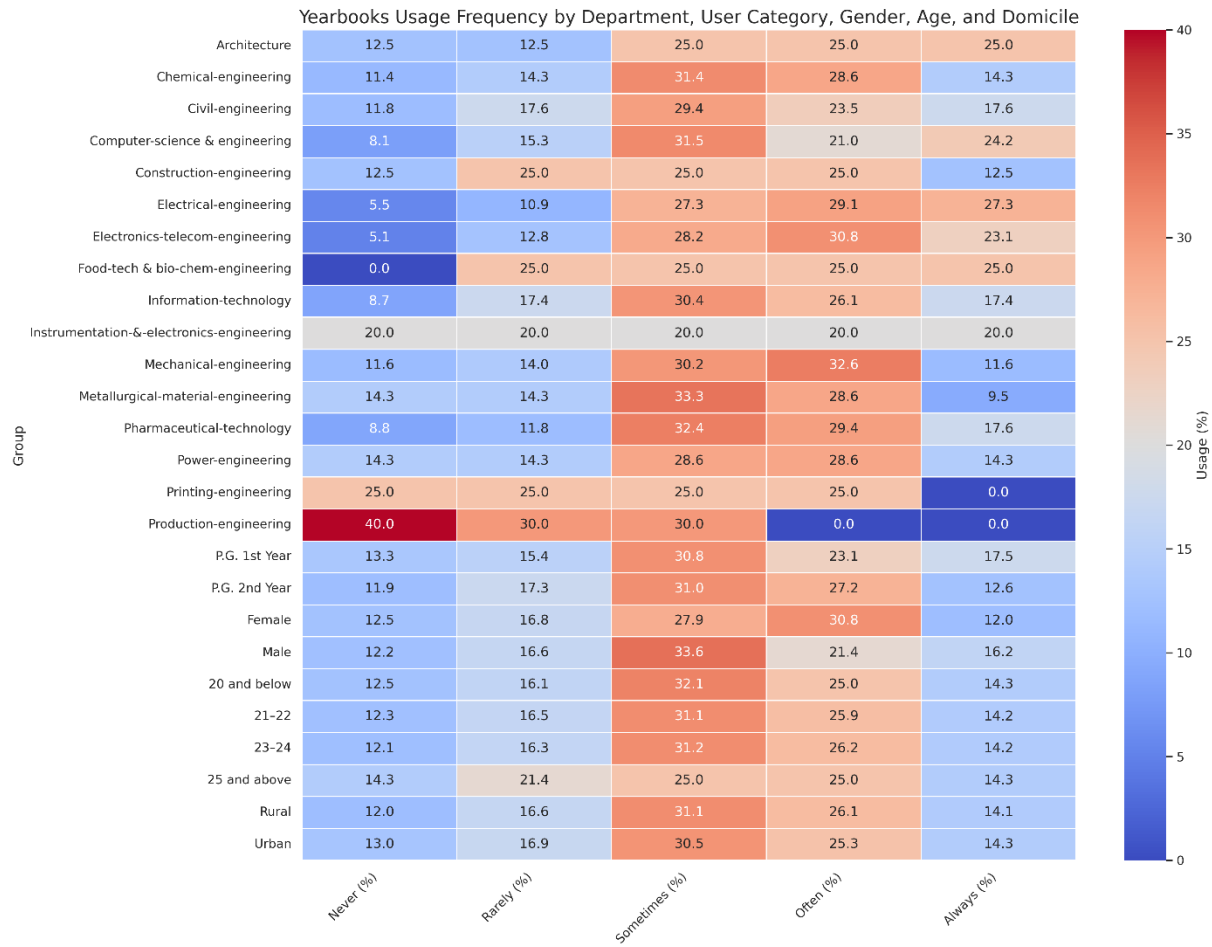


Fig 5.34 Type of Information Searched in Yearbooks

Female and male students use yearbooks in similar ways, though women lean more toward “often” (30.8% vs. 21.4%) and men more toward “sometimes” (33.6% vs. 27.9%) and “always” (16.2% vs. 12.0%). Both genders report about 12% never and 17% rarely, pointing to near-equal familiarity but slightly different frequency preferences.

Age brackets from under 20 to over 25 also align closely: each group records around 12–14% never, 16–21% rarely, 25–32% sometimes, and 25–26% often, with always use near 14%. The 25+ cohort shows a marginally higher “rarely” rate (21.4%) and balanced “often/always” (25.0% each), hinting that more mature students may dip into yearbooks on a more need-specific basis.

Rural and urban students exhibit almost identical patterns: both 12–13% never, 16–17% rarely, about 31% sometimes, 25–26% often, and 14% always. Geographic location thus has little impact on yearbook engagement, reflecting equitable digital access across areas.

5.18.8 Dictionaries

Sl. No.	Department	Total	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Always (%)
1	Architecture	8	2 (25.0%)	1 (12.5%)	2 (25.0%)	2 (25.0%)	1 (12.5%)
2	Chemical-engineering	35	5 (14.3%)	6 (17.1%)	11 (31.4%)	9 (25.7%)	4 (11.4%)
3	Civil-engineering	17	2 (11.8%)	3 (17.6%)	5 (29.4%)	6 (35.3%)	1 (5.9%)
4	Computer-science & engineering	124	18 (14.5%)	23 (18.5%)	38 (30.6%)	30 (24.2%)	15 (12.1%)
5	Construction-engineering	8	1 (12.5%)	2 (25.0%)	2 (25.0%)	2 (25.0%)	1 (12.5%)
6	Electrical-engineering	55	6 (10.9%)	9 (16.4%)	16 (29.1%)	14 (25.5%)	10 (18.2%)
7	Electronics-telecom-engineering	39	5 (12.8%)	8 (20.5%)	13 (33.3%)	8 (20.5%)	5 (12.8%)
8	Food-tech & bio-chem-engineering	4	0 (0.0%)	1 (25.0%)	2 (50.0%)	1 (25.0%)	0 (0.0%)
9	Information-technology	23	3 (13.0%)	4 (17.4%)	7 (30.4%)	6 (26.1%)	3 (13.0%)
10	Instrumentation-&-electronics-engineering	5	1 (20.0%)	1 (20.0%)	2 (40.0%)	1 (20.0%)	0 (0.0%)
11	Mechanical-engineering	43	6 (14.0%)	7 (16.3%)	14 (32.6%)	12 (27.9%)	4 (9.3%)
12	Metallurgical-material-engineering	21	2 (9.5%)	3 (14.3%)	6 (28.6%)	7 (33.3%)	3 (14.3%)
13	Pharmaceutical-technology	34	3 (8.8%)	4 (11.8%)	10 (29.4%)	12 (35.3%)	5 (14.7%)
14	Power-engineering	7	1 (14.3%)	1 (14.3%)	2 (28.6%)	2 (28.6%)	1 (14.3%)
15	Printing-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	0 (0.0%)	1 (25.0%)
16	Production-engineering	10	4 (40.0%)	5 (50.0%)	1 (10.0%)	0 (0.0%)	0 (0.0%)
Total		437	62 (14.2%)	79 (18.1%)	139 (31.8%)	107 (24.5%)	50 (11.4%)

User category

1.	P.G. 1st Year	143	20 (14.0%)	26 (18.2%)	45 (31.5%)	33 (23.1%)	19 (13.3%)
2.	P.G. 2nd Year	294	42 (14.3%)	53 (18.0%)	94 (32.0%)	74 (25.2%)	31 (10.5%)
Gender							
1.	Female	208	30 (14.4%)	39 (18.8%)	64 (30.8%)	50 (24.0%)	25 (12.0%)
2.	Male	229	32 (14.0%)	40 (17.5%)	75 (32.8%)	57 (24.9%)	25 (10.9%)
Age							
1.	20 and below	56	8 (14.3%)	10 (17.9%)	18 (32.1%)	14 (25.0%)	6 (10.7%)
2.	21–22	212	30 (14.2%)	38 (17.9%)	67 (31.6%)	52 (24.5%)	25 (11.8%)
3.	23–24	141	20 (14.2%)	25 (17.7%)	44 (31.2%)	35 (24.8%)	17 (12.1%)
4.	25 and above	28	4 (14.3%)	6 (21.4%)	10 (35.7%)	5 (17.9%)	3 (10.7%)
Domicile							
1.	Rural	283	40 (14.1%)	51 (18.0%)	90 (31.8%)	69 (24.4%)	32 (11.3%)
2.	Urban	154	22 (14.3%)	28 (18.2%)	49 (31.8%)	38 (24.7%)	18 (11.7%)

Table 5.55 Type of Information Searched in dictionaries

Overall, dictionaries are a mid-tier OA resource: 14.2% of students never use them and 18.1% use them rarely, while 31.8% consult them sometimes. Roughly 36% tap dictionaries often (24.5%) or always (11.4%), indicating that about one in three postgraduates rely on them regularly for terminology and definitions.

Most departments mirror this pattern, with “sometimes” use hovering around 30–33% and combined “often/always” rates between 34% and 38%. Architecture and Construction Engineering each report 37.5% often/always, Chemical Engineering 40%, Civil Engineering 41.2%, and Electronics–Telecom 33.3%. Computer Science & Engineering logs 36.3%, Electrical Engineering 43.6%, and Information Technology 39.1%. Smaller programs like Food Technology and Instrumentation & Electronics show strong occasional engagement (50% sometimes) but lower habitual use (25% often, none always). Production Engineering is the clear outlier: 90% never or rarely consult dictionaries, and no one uses them often or always.

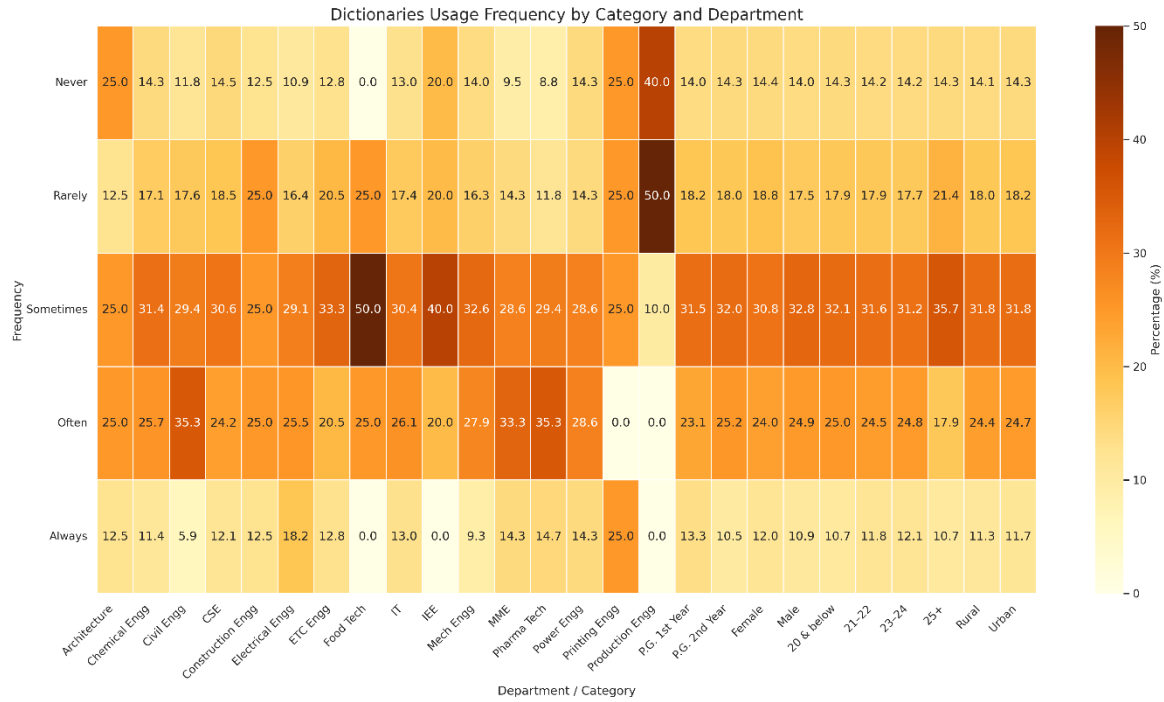


Fig 5.35 Type of Information Searched in dictionaries

First- and second-year postgraduates display nearly identical habits: P.G. 1st Years mark 31.5% sometimes and 37.3% often/always, while P.G. 2nd Years report 32.0% sometimes and 35.7% often/always. Gender differences are negligible, both female and male students show around 31–33% sometimes and 34–35% often/always.

Age brackets from under 20 to over 25 all cluster at about 31–36% sometimes and 35–38% often/always, signaling that neither digital nativity nor maturity alters dictionary usage. Rural and urban students too share the same profile, 31.8% sometimes, 36.1% often/always, reflecting equitable access and similar reliance on definitional resources regardless of location.

In sum, while most students turn to dictionaries at least occasionally, habitual use is modest. To boost regular engagement, especially in Production Engineering, OA platforms could integrate in-line glossaries, improve keyword-linked definitions, and highlight discipline-specific terminologies within search results.

5.19. Frequency of Use of OAR

Sl. No.	Frequency	Count	%
1.	Daily	119	27.2%
2.	Weekly	163	37.3%
3.	Fortnightly	87	19.9%
4.	Monthly	68	15.6%

Table 5.56 Frequency of Use of OAR

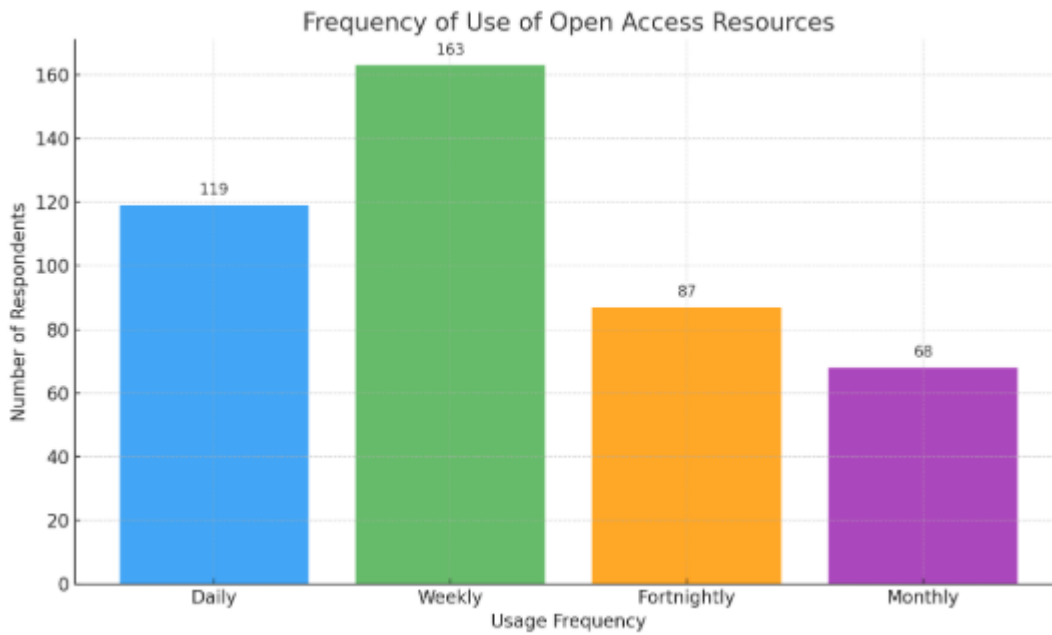


Fig 5.36 Frequency of Use of OAR

Sl. No.	Department	Total	Daily (%)	Weekly (%)	Fortnightly (%)	Monthly (%)
1	Architecture	8	2 (25.0%)	3 (37.5%)	2 (25.0%)	1 (12.5%)

2	Chemical-engineering	35	10 (28.6%)	12 (34.3%)	6 (17.1%)	7 (20.0%)
3	Civil-engineering	17	5 (29.4%)	6 (35.3%)	3 (17.6%)	3 (17.6%)
4	Computer-science & engineering	124	34 (27.4%)	46 (37.1%)	24 (19.4%)	19 (15.3%)
5	Construction-engineering	8	2 (25.0%)	3 (37.5%)	2 (25.0%)	1 (12.5%)
6	Electrical-engineering	55	15 (27.3%)	21 (38.2%)	11 (20.0%)	8 (14.5%)
7	Electronics-telecom-engineering	39	11 (28.2%)	15 (38.5%)	8 (20.5%)	5 (12.8%)
8	Food-technology-bio-chemical-engineering	4	1 (25.0%)	2 (50.0%)	1 (25.0%)	0 (0.0%)
9	Information-technology	23	6 (26.1%)	9 (39.1%)	5 (21.7%)	3 (13.0%)
10	Instrumentation-and-electronics-engineering	5	1 (20.0%)	2 (40.0%)	1 (20.0%)	1 (20.0%)
11	Mechanical-engineering	43	11 (25.6%)	16 (37.2%)	9 (20.9%)	7 (16.3%)
12	Metallurgical-material-engineering	21	6 (28.6%)	8 (38.1%)	4 (19.0%)	3 (14.3%)
13	Pharmaceutical-technology	34	9 (26.5%)	13 (38.2%)	7 (20.6%)	5 (14.7%)
14	Power-engineering	7	2 (28.6%)	3 (42.9%)	1 (14.3%)	1 (14.3%)
15	Printing-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)

16	Production-engineering	10	3 (30.0%)	4 (40.0%)	2 (20.0%)	1 (10.0%)
Total		437	119 (27.2%)	163 (37.3%)	87 (19.9%)	68 (15.6%)
User category						
1	P.G. 1st Year	143	39 (27.3%)	53 (37.1%)	29 (20.3%)	22 (15.4%)
2	P.G. 2nd Year	294	80 (27.2%)	110 (37.4%)	58 (19.7%)	46 (15.6%)
Gender						
1	Female	208	57 (27.4%)	78 (37.5%)	41 (19.7%)	32 (15.4%)
2	Male	229	62 (27.1%)	85 (37.1%)	46 (20.1%)	36 (15.7%)
Age						
1	20 and below	56	15 (26.8%)	21 (37.5%)	11 (19.6%)	9 (16.1%)
2	21–22	212	58 (27.4%)	79 (37.3%)	42 (19.8%)	33 (15.6%)
3	23–24	141	38 (27.0%)	53 (37.6%)	28 (19.9%)	22 (15.6%)
4	25 and above	28	8 (28.6%)	10 (35.7%)	6 (21.4%)	4 (14.3%)
Domicile						
1	Rural	283	77 (27.2%)	106 (37.5%)	56 (19.8%)	44 (15.5%)
2	Urban	154	42 (27.3%)	57 (37.0%)	31 (20.1%)	24 (15.6%)

Table 5.57 Frequency of Use of OAR by categories

Overall, students interact with OA resources most commonly on a weekly basis: 37.3 % check them weekly, 27.2 % daily, 19.9 % fortnightly, and 15.6 % monthly. This indicates that more than 64 % of postgraduates engage with open-access materials at least once a week, underscoring their integral role in ongoing research and study routines.

Across departments, usage rhythms are remarkably uniform. Daily access hovers around 25–30 % in nearly every field, Architecture (25.0 %), Chemical Engineering (28.6 %), Civil Engineering (29.4 %), Computer Science (27.4 %), and so on. Weekly peaks similarly cluster between 34 % and 42 %, with Food Technology even reaching 50 % weekly. Fortnightly and monthly checks make up the balance, each falling in the low-20 % range across all 16 programs. Production Engineering stands out only slightly with 30 % daily and 40 % weekly use.

Postgraduate year shows no shift in behavior: P.G. 1st Year and P.G. 2nd Year students both report 27.3 % (1st Year) or 27.2 % (2nd Year) daily, 37.1 % or 37.4 % weekly, 20.3 % or 19.7 % fortnightly, and 15.4 % or 15.6 % monthly.

Gender splits are equally even. Female students log 27.4 % daily, 37.5 % weekly, 19.7 % fortnightly, and 15.4 % monthly; male students are at 27.1 %, 37.1 %, 20.1 %, and 15.7 %, respectively.

Age brackets from under 20 to over 25 all mirror one another: daily use between 26.8 % and 28.6 %, weekly use around 35.7 %–37.6 %, fortnightly at 19.6 %–21.4 %, and monthly at 14.3 %–16.1 %.

Finally, domicile makes virtually no difference: rural students report 27.2 % daily, 37.5 % weekly, 19.8 % fortnightly, and 15.5 % monthly; urban students show 27.3 %, 37.0 %, 20.1 %, and 15.6 %. In sum, OA resources are woven tightly into students’ weekly workflows across every demographic and departmental line.

5.20. Weekly Time Spent on OAR

Sl. No.	Time Spent	Frequency	%
1.	Less than 1 hour	76	17.4%
2.	Between 1–3 hours	138	31.6%
3.	Between 3–7 hours	141	32.3%
4.	Till the task completes	82	18.8%

Table 5.58 Weekly Time Spent on OAR

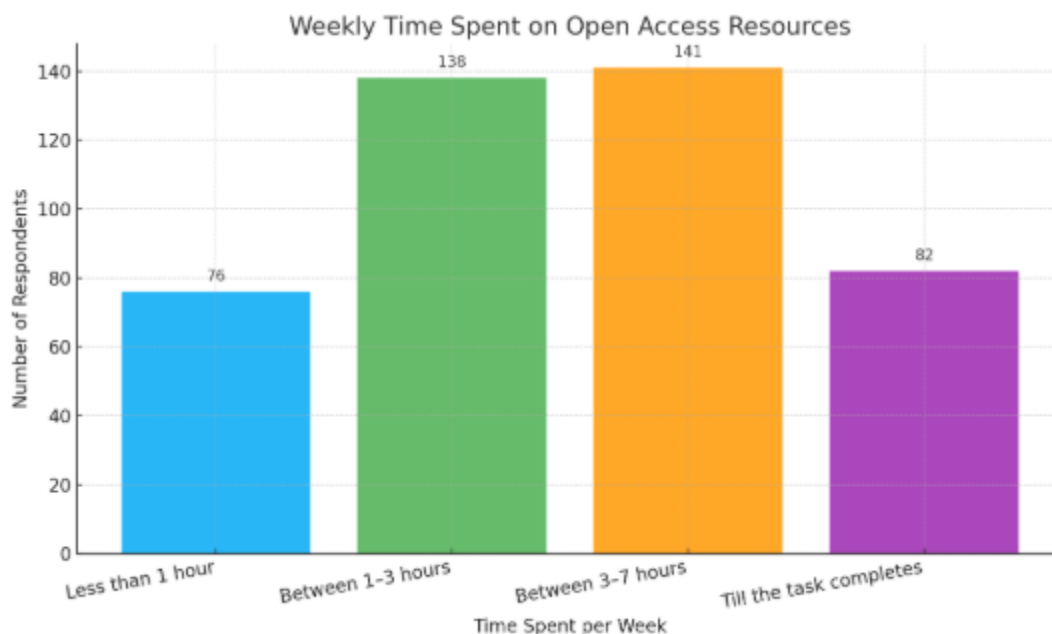


Fig 5.37 Weekly Time Spent on OAR

Sl. No.	Department	Total	< 1 hr (%)	1-3 hrs (%)	3-7 hrs (%)	Till task completes (%)
1	Architecture	8	1 (12.5%)	3 (37.5%)	3 (37.5%)	1 (12.5%)
2	Chemical-engineering	35	6 (17.1%)	11 (31.4%)	11 (31.4%)	7 (20.0%)
3	Civil-engineering	17	3 (17.6%)	5 (29.4%)	6 (35.3%)	3 (17.6%)
4	Computer-science & engineering	124	22 (17.7%)	39 (31.5%)	40 (32.3%)	23 (18.5%)
5	Construction-engineering	8	1 (12.5%)	3 (37.5%)	3 (37.5%)	1 (12.5%)
6	Electrical-engineering	55	10 (18.2%)	17 (30.9%)	18 (32.7%)	10 (18.2%)
7	Electronics-telecom-engineering	39	7 (17.9%)	12 (30.8%)	13 (33.3%)	7 (17.9%)
8	Food-technology-bio-chemical-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
9	Information-technology	23	4 (17.4%)	7 (30.4%)	8 (34.8%)	4 (17.4%)

10	Instrumentation-&-electronics-engineering	5	1 (20.0%)	1 (20.0%)	2 (40.0%)	1 (20.0%)
11	Mechanical-engineering	43	7 (16.3%)	14 (32.6%)	14 (32.6%)	8 (18.6%)
12	Metallurgical-material-engineering	21	4 (19.0%)	6 (28.6%)	7 (33.3%)	4 (19.0%)
13	Pharmaceutical-technology	34	6 (17.6%)	11 (32.4%)	11 (32.4%)	6 (17.6%)
14	Power-engineering	7	1 (14.3%)	2 (28.6%)	3 (42.9%)	1 (14.3%)
15	Printing-engineering	4	1 (25.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
16	Production-engineering	10	2 (20.0%)	3 (30.0%)	3 (30.0%)	2 (20.0%)
Total		437	76 (17.4%)	138 (31.6%)	141 (32.3%)	82 (18.8%)
User category						
1	P.G. 1st Year	143	25 (17.5%)	45 (31.5%)	46 (32.2%)	27 (18.9%)
2	P.G. 2nd Year	294	51 (17.3%)	93 (31.6%)	95 (32.3%)	55 (18.7%)
Gender						
1	Female	208	36 (17.3%)	66 (31.7%)	67 (32.2%)	39 (18.8%)
2	Male	229	40 (17.5%)	72 (31.4%)	74 (32.3%)	43 (18.8%)
Age						
1	20 and below	56	10 (17.9%)	18 (32.1%)	18 (32.1%)	10 (17.9%)
2	21–22	212	37 (17.5%)	67 (31.6%)	68 (32.1%)	40 (18.9%)
3	23–24	141	25 (17.7%)	44 (31.2%)	46 (32.6%)	26 (18.5%)
4	25 and above	28	5 (17.9%)	9 (32.1%)	9 (32.1%)	5 (17.9%)
Domicile						
1	Rural	283	49 (17.3%)	89 (31.4%)	91 (32.2%)	54 (19.1%)
2	Urban	154	27 (17.5%)	49 (31.8%)	50 (32.5%)	28 (18.2%)

Table 5.59 Weekly Time Spent on OAR by categories

Overall, students spend a substantial chunk of time on OA resources each week: 31.6% dedicate 1–3 hours and 32.3% spend 3–7 hours, while 18.8% work until their task is finished. Only 17.4% log under an hour. In total, over 82% of postgraduates invest at least one hour weekly, with nearly half committing 3+ hours, underscoring OA’s pivotal role in research workflows.

Departmental patterns are near-identical. Architecture and Construction each see 37.5% at 1–3 hours and 3–7 hours, 12.5% under 1 hour, and 12.5% till completion. Chemical, Civil, and Electronics & Telecom engineering cohorts allocate roughly 30–35% to 1–3 and 3–7 hours, with ~18–20% working until done. Computer Science, Mechanical, and Pharmaceutical fields all cluster similarly around these averages, with Power Engineering marking the highest “3–7 hours” at 42.9%. Production Engineering aligns, too, at ~30–30–20–20 for the four time bands.

First- and second-year postgraduates split exactly the same: P.G. 1st Year (17.5% <1 hr, 31.5% 1–3 hrs, 32.2% 3–7 hrs, 18.9% till task) and P.G. 2nd Year (17.3%, 31.6%, 32.3%, 18.7%) mirror each other, indicating that weekly engagement levels are ingrained early.

Gender and age exhibit no meaningful differences. Both women and men allocate ~17–18% <1 hr, ~31–32% each to 1–3 and 3–7 hours, and ~18–19% working until completion. Similarly, all age groups from under 20 to over 25 distribute time almost evenly across the four bands, reflecting consistent usage habits regardless of seniority.

Rural and urban students too align: rural (17.3% <1 hr, 31.4% 1–3 hrs, 32.2% 3–7 hrs, 19.1% till task) and urban (17.5%, 31.8%, 32.5%, 18.2%) maintain the same profiles. This uniformity suggests that time spent on OA is driven by research needs and course demands rather than demographic factors.

5.21. Reason for Using OA Resources (Multiple responses allowed)

Sl. No.	Reason	Frequency	Percentage%
1.	Freely available	378	86.5%
2.	Full text access	317	72.5%
3.	Easy to collect	299	68.4%

4.	Portable	271	62.0%
5.	Others	58	13.3%

Table 5.60 Reason for Using OA Resources

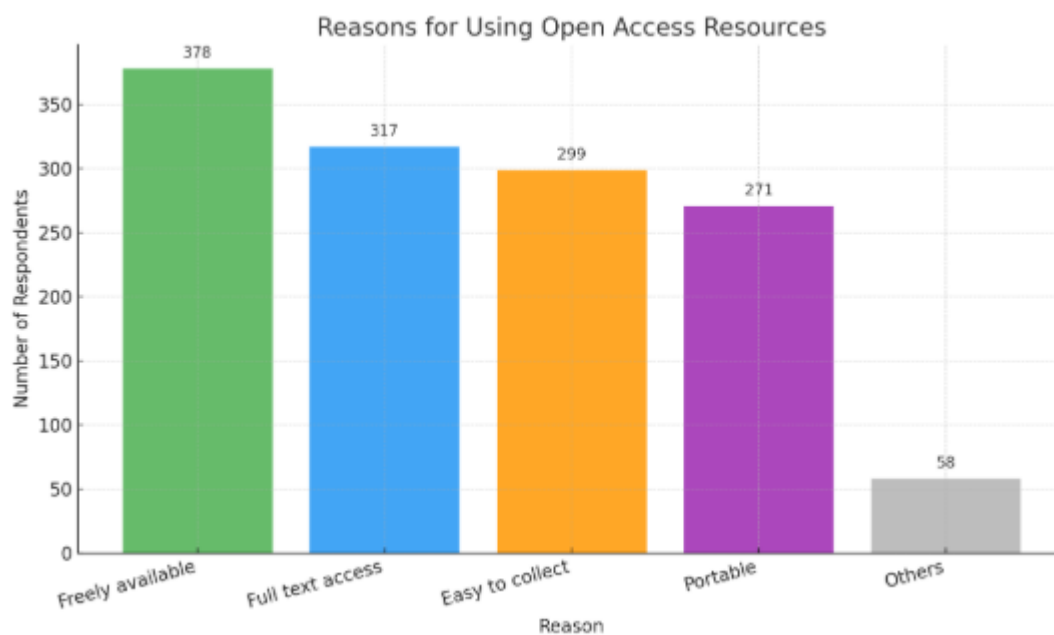


Fig 5.38: Reason for Using OA Resources

Sl. No.	Department	Total	Freely available (%)	Full text access (%)	Easy to collect (%)	Portable (%)	Others (%)
1	Architecture	8	7 (87.5%)	6 (75.0%)	5 (62.5%)	5 (62.5%)	1 (12.5%)

2	Chemical-engineering	35	30 (85.7%)	25 (71.4%)	24 (68.6%)	22 (62.9%)	5 (14.3%)
3	Civil-engineering	17	15 (88.2%)	12 (70.6%)	12 (70.6%)	11 (64.7%)	2 (11.8%)
4	Computer-science & engineering	124	107 (86.3%)	90 (72.6%)	85 (68.5%)	77 (62.1%)	15 (12.1%)
5	Construction-engineering	8	7 (87.5%)	6 (75.0%)	5 (62.5%)	5 (62.5%)	1 (12.5%)
6	Electrical-engineering	55	48 (87.3%)	40 (72.7%)	38 (69.1%)	35 (63.6%)	7 (12.7%)
7	Electronics-telecom-engineering	39	34 (87.2%)	28 (71.8%)	27 (69.2%)	24 (61.5%)	5 (12.8%)
8	Food-technology-bio-chemical-engineering	4	4 (100.0%)	3 (75.0%)	3 (75.0%)	2 (50.0%)	1 (25.0%)
9	Information-technology	23	20 (87.0%)	17 (73.9%)	16 (69.6%)	14 (60.9%)	3 (13.0%)
10	Instrumentation-&-electronics-engineering	5	4 (80.0%)	4 (80.0%)	3 (60.0%)	3 (60.0%)	1 (20.0%)
11	Mechanical-engineering	43	37 (86.0%)	31 (72.1%)	29 (67.4%)	27 (62.8%)	6 (14.0%)
12	Metallurgical-material-engineering	21	18 (85.7%)	15 (71.4%)	14 (66.7%)	13 (61.9%)	3 (14.3%)
13	Pharmaceutical-technology	34	29 (85.3%)	25 (73.5%)	23 (67.6%)	21 (61.8%)	5 (14.7%)
14	Power-engineering	7	6 (85.7%)	5 (71.4%)	5 (71.4%)	4 (57.1%)	1 (14.3%)
15	Printing-engineering	4	3 (75.0%)	3 (75.0%)	3 (75.0%)	2 (50.0%)	1 (25.0%)
16	Production-engineering	10	9 (90.0%)	7 (70.0%)	7 (70.0%)	6 (60.0%)	1 (10.0%)
Total		437	378 (86.5%)	317 (72.5%)	299 (68.4%)	271 (62.0%)	58 (13.3%)
User category							
1	P.G. 1st Year	143	124 (86.7%)	104 (72.7%)	98 (68.5%)	89 (62.2%)	19 (13.3%)
2	P.G. 2nd Year	294	254 (86.4%)	213 (72.4%)	201 (68.4%)	182 (61.9%)	39 (13.3%)
Gender							
1	Female	208	179 (86.1%)	151 (72.6%)	142 (68.3%)	129 (62.0%)	28 (13.5%)
2	Male	229	199 (86.9%)	166 (72.5%)	157 (68.6%)	142 (62.0%)	30 (13.1%)

Age							
1	20 and below	56	48 (85.7%)	41 (73.2%)	38 (67.9%)	35 (62.5%)	7 (12.5%)
2	21–22	212	184 (86.8%)	154 (72.6%)	145 (68.4%)	132 (62.3%)	28 (13.2%)
3	23–24	141	122 (86.5%)	102 (72.3%)	97 (68.8%)	87 (61.7%)	19 (13.5%)
4	25 and above	28	24 (85.7%)	20 (71.4%)	19 (67.9%)	17 (60.7%)	4 (14.3%)
Domicile							
1	Rural	283	245 (86.6%)	205 (72.4%)	194 (68.6%)	176 (62.2%)	38 (13.4%)
2	Urban	154	133 (86.4%)	112 (72.7%)	105 (68.2%)	95 (61.7%)	20 (13.0%)

Table 5.61: Reason for Using OA Resources by categories

Across all 437 students, the overwhelming driver for using open-access resources is cost: 86.5 % cite “freely available” as a reason. Full-text access follows at 72.5 %, then “easy to collect” at 68.4 % and portability at 62.0 %. Only 13.3 % selected “other” reasons, underscoring that affordability and unrestricted access are the clear priorities when choosing OA materials.

Departmental patterns echo this campus-wide profile almost exactly. Every engineering program reports free availability in the high-80s, peaking at 100 % in Food Technology and dipping to 75 % in Printing Engineering. Full-text access consistently falls between 70 % and 80 %, easy collection around 68 %, and portability near 62 %. The small “others” category hovers around 10 %–15 % in each department, indicating little discipline-specific divergence.

First- and second-year postgraduates show identical motivations: 86.7 % of P.G. 1s and 86.4 % of P.G. 2s value free availability, 72–73 % need full-text access, 68 % appreciate ease of collection, and 62 % prize portability. Both cohorts register 13.3 % “other” responses, suggesting that use drivers are established right from the start of postgraduate study.

Gender yields no meaningful split. Female and male students alike report free availability at 86 %, full-text access at 72–73 %, easy collection at 68 %, and portability at 62 %. “Other” reasons remain at roughly 13 %, confirming that cost and access override any gender-based differences in resource selection.

Age brackets, from under-20 up to 25+, all align within one Percentage% point: free availability (85.7 %–86.8 %), full text (71.4 %–73.2 %), easy collection (67.9 %–68.8 %), portability (60.7 %–62.5 %), and others (12.5 %–14.3 %). This uniformity shows that neither digital native status nor maturity shifts fundamental usage motives.

Rural versus urban students also match perfectly: both groups cite free availability at 86.5 %–86.6 %, full-text access at 72.4 %–72.7 %, collection ease at 68.2 %–68.6 %, portability at 61.7 %–62.2 %, and other factors at 13.0 %–13.4 %. Geographic location, therefore, has no impact on why learners turn to OA platforms.

In sum, cost-free, full-text access topped by ease of collection and portability form the quintet of essential features driving OA adoption across every department, demographic, and academic level. To reinforce these strengths and address the small “other” segment, providers should keep OA materials free, offer seamless one-click downloads, deliver mobile-friendly formats, and explore any niche use-cases that didn’t fit the main categories.

5.22. Impact of Using OA Resources

Sl. No.	Impact	Frequency	Percentage%
1.	Help in presenting papers	322	73.7%
2.	Help in publishing articles	294	67.3%
3.	Motivation for innovative research	312	71.4%

Table 5.62 Impact of Using OA Resources

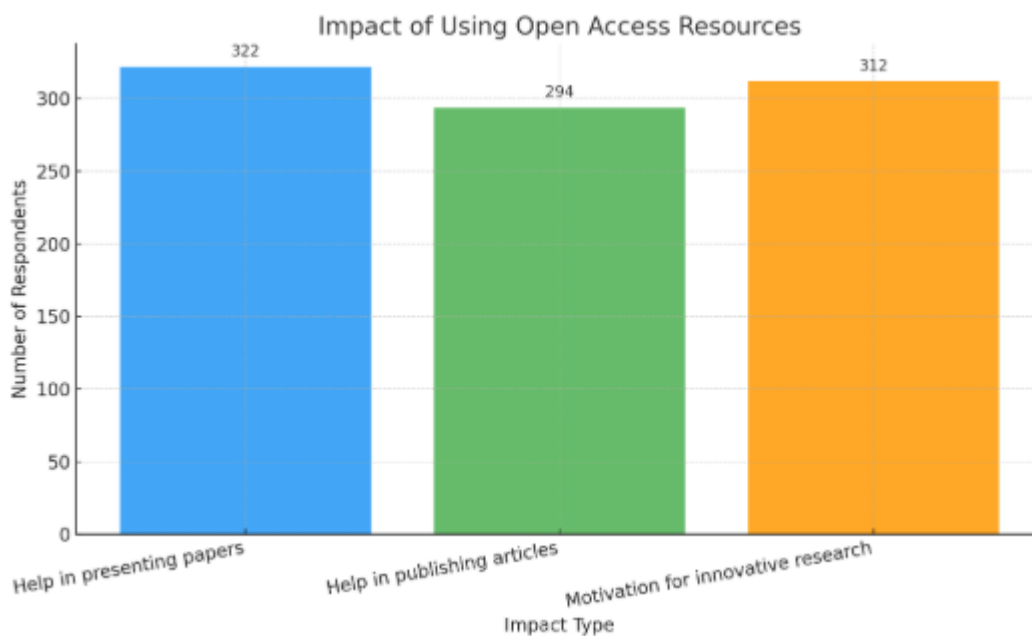


Fig 5.39 Impact of Using OA Resources

Sl. No.	Department	Help in presenting papers (%)	Help in publishing articles (%)	Motivation for innovative research (%)
1	Architecture	6 (75.0%)	5 (62.5%)	6 (75.0%)
2	Chemical-engineering	26 (74.3%)	24 (68.6%)	25 (71.4%)
3	Civil-engineering	13 (76.5%)	11 (64.7%)	12 (70.6%)
4	Computer-science & engineering	91 (73.4%)	85 (68.5%)	89 (71.8%)
5	Construction-engineering	6 (75.0%)	5 (62.5%)	6 (75.0%)
6	Electrical-engineering	41 (74.5%)	36 (65.5%)	39 (70.9%)
7	Electronics-telecom-engineering	29 (74.4%)	26 (66.7%)	28 (71.8%)
8	Food-technology-bio-chem-engineering	3 (75.0%)	3 (75.0%)	3 (75.0%)
9	Information-technology	17 (73.9%)	15 (65.2%)	16 (69.6%)
10	Instrumentation-&-electronics-engineering	4 (80.0%)	3 (60.0%)	4 (80.0%)
11	Mechanical-engineering	32 (74.4%)	29 (67.4%)	30 (69.8%)
12	Metallurgical-material-engineering	16 (76.2%)	14 (66.7%)	15 (71.4%)
13	Pharmaceutical-technology	25 (73.5%)	23 (67.6%)	24 (70.6%)
14	Power-engineering	5 (71.4%)	5 (71.4%)	5 (71.4%)
15	Printing-engineering	3 (75.0%)	3 (75.0%)	3 (75.0%)
16	Production-engineering	7 (70.0%)	7 (70.0%)	7 (70.0%)
User category				
1	P.G. 1st Year	105 (73.4%)	96 (67.1%)	102 (71.3%)
2	P.G. 2nd Year	217 (73.8%)	198 (67.3%)	210 (71.4%)

Gender				
1	Female	153 (73.6%)	140 (67.3%)	148 (71.2%)
2	Male	169 (73.8%)	154 (67.2%)	164 (71.6%)
Age				
1	20 and below	41 (73.2%)	38 (67.9%)	40 (71.4%)
2	21–22	156 (73.6%)	142 (67.0%)	151 (71.2%)
3	23–24	104 (73.8%)	95 (67.4%)	101 (71.6%)
4	25 and above	21 (75.0%)	19 (67.9%)	20 (71.4%)
Domicile				
1	Rural	208 (73.5%)	190 (67.1%)	202 (71.4%)
2	Urban	114 (74.0%)	104 (67.5%)	110 (71.4%)
	Total	322 (73.7%)	294 (67.3%)	312 (71.4%)

Table 5.63 Impact of Using OA Resources

Across the board, roughly three-quarters of postgraduates attest that open-access resources tangibly boost their scholarly output. 73.7 % say OA materials help them craft and deliver stronger paper presentations, 67.3 % credit OA for smoothing the path to publishing their own articles, and 71.4 % feel these resources spark more innovative lines of inquiry. In a research ecosystem increasingly driven by visibility and novelty, these numbers underscore how free access to current literature both sharpens academic communication and fuels creative problem-solving.

When we look closer by department, the consensus remains strikingly uniform. Nearly every program, whether Architecture, Chemical Engineering, or Food Technology, lands within the 71–75 % range for presenting and innovation, and 65–69 % for publishing. Instrumentation & Electronics Engineering students stand out at 80 % for both presentations and research inspiration, suggesting that disciplines with smaller cohorts or highly specialized needs may derive extra value from the breadth OA offers. Production Engineering, while still positive at 70 % across measures, sits at the lower boundary, hinting that certain fields might benefit from targeted repository curation or subject-specific OA collections.

Demographic slices mirror this uniformity. First-year and second-year postgraduates report identical impacts, indicating that the benefits of OA are realized from day one of advanced study. Gender splits differ by less than half a Percentage% point, while age cohorts, from under 20 to over 25, also cluster tightly around the campus mean. Rural and urban students are equally likely to report improved presentation skills, easier publication journeys, and heightened motivation for innovation. Such consistency suggests that OA’s advantages transcend location, experience level, and background, offering a truly level playing field.

These findings have real ramifications. By broadening access to cutting-edge research without paywalls, OA empowers students to synthesize diverse viewpoints, model their presentations on a richer set of examples, and identify publication venues aligned with their work. The motivational boost for innovation stems from exposure to interdisciplinary breakthroughs that might otherwise be hidden behind subscription barriers. In effect, open access becomes both a tool for academic rigor and a catalyst for novel research questions.

To deepen these positive effects, academic leaders and libraries can integrate OA resources more fully into pedagogy. Workshops on strategic literature searching, highlighting preprint servers and thematic OA collections, can improve publishing success rates. Embedding OA-based assignments in coursework ensures every student gains hands-on familiarity with these repositories. Departments might also establish mini-seminars where students share how OA sources directly informed their presentations or project ideas.

Beyond these steps, universities should consider tracking altmetrics for student work, incentivizing open data and open peer review as part of research training, and exploring partnerships with global OA platforms to expand subject coverage. By continually refining the discovery, curation, and teaching around OA resources, institutions can transform solid majority approval into near-universal empowerment, fueling both academic excellence and the next wave of innovative research.

5.23. Use of Open Access Portals for Journals

Sl.No.	Resource Type	Never	Rarely	Sometimes	Often	Always
1.	PLOS ONE	27	35	75	56	71
2.	OAJSE	17	30	34	56	37
3.	Scientific Reports (Nature)	10	35	36	97	31
4.	Engineering (Elsevier)	24	30	44	71	73
5.	Frontiers in Engineering	21	24	75	62	48
6.	Open Engineering	15	23	78	52	57
7.	IEEE Access	15	35	31	57	48
8.	MDPI Engineering Collection	20	41	78	83	68
9.	Hindawi Engineering Journals	18	42	53	43	46
10.	Frontiers Engineering Collection	23	28	20	100	59

11.	BioMed Central Engineering	30	50	45	70	70
12.	Others	6	41	38	65	69

Table 5.64 Use of Open Access Portals for Journals

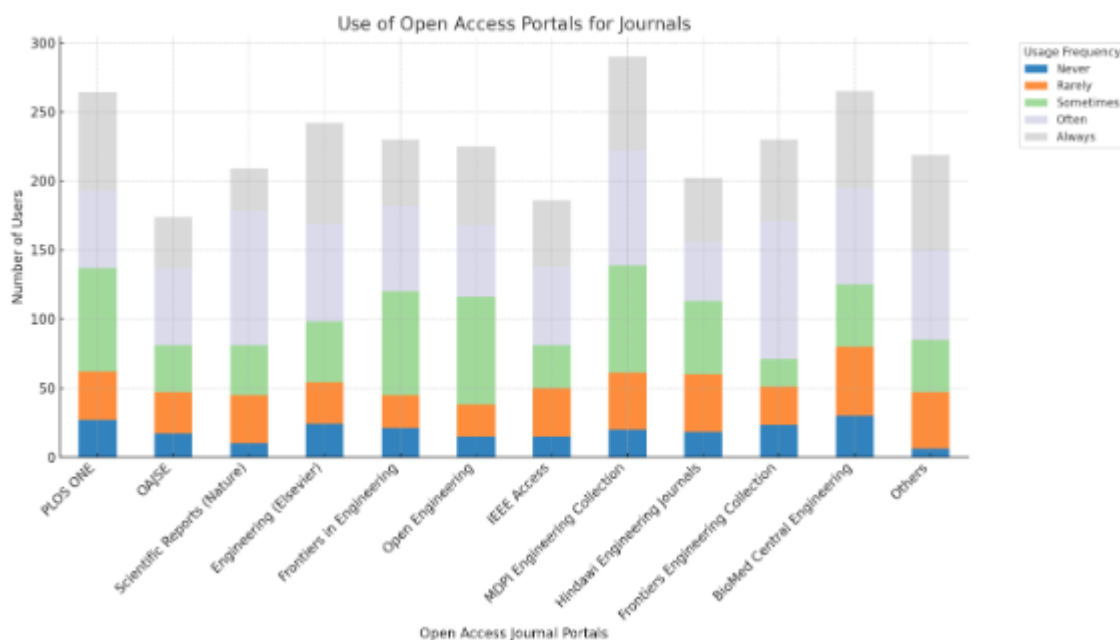


Fig 5.40 Use of Open Access Portals for Journals

Across the twelve open-access journal portals, student engagement swings wildly from broad adoption to niche followings. Frontiers Engineering Collection tops the list, with 159 students tapping it often (100) or always (59), while only 23 never and 28 rarely visit. That level of habitual use, about 36 % of the cohort, shows it’s become a default go-to. MDPI’s Engineering Collection (151 frequent users), BioMed Central Engineering (140), and Elsevier’s Engineering portfolio (144) aren’t far behind, each commanding more than 30 % of students for regular consultation.

Scientific Reports from Nature (128 frequent users) and PLOS ONE (127) occupy the next tier, with roughly one-quarter of students consulting them regularly and a strong middle ground of sometimes users (36 for Nature, 75 for PLOS ONE). “Others”, which includes preprint servers, specialized blogs, and emerging repositories, also carves out a solid niche: 134 habitual users and only six complete non-users, suggesting that diverse, community-driven channels resonate even if they lack brand-name recognition.

Portals like Frontiers in Engineering (110 frequent users), Open Engineering (109), and IEEE Access (105) settle into mid-range popularity. Each sees roughly one-quarter of students relying on them often or always, balanced by a higher “sometimes” bracket, 75 for Frontiers, 78 for Open Engineering, that reflects exploratory engagement. Hindawi Engineering Journals sit at the bottom of the frequent-use scale (89

students), with 80 rarely or never visiting, indicating potential gaps in awareness, subject coverage, or ease of discovery.

These disparities point to both opportunity and strategy. High-traffic portals benefit from clear indexing, well-curated collections, and strong reputations; mid-range platforms could boost habitual use through embedded course links, targeted alerts, and spotlight features in departmental newsletters. Underused outlets like Hindawi and OAJSE might attract more users by showcasing success stories, student projects or capstone papers built on their content, and by simplifying access via single sign-on or mobile-friendly interfaces. By tailoring outreach to each portal’s unique strengths and student needs, libraries can nudge “sometimes” users into “often” users and ensure that no valuable OA resource remains overlooked.

5.24. Use of Open Access Portals for Books

Sl.No.	Portal	Never	Rarely	Sometimes	Often	Always
1.	Springer Nature OA Books	27	26	61	99	44
2.	Taylor & Francis OA Books	10	48	74	82	75
3.	MIT Press OA Books	28	49	36	77	45
4.	Cambridge University Press OA	5	50	66	56	56
5.	Oxford University Press OA	6	32	68	93	56
6.	OER Commons	8	29	52	98	62
7.	Concrete Design	8	48	36	84	67
8.	Process Control	11	41	29	78	84
9.	Biomechanics	22	34	50	44	55
10.	IntechOpen	10	27	31	44	38
11.	DOAB	17	49	26	72	75
12.	OAPEN Library	29	48	45	95	68

13.	Project Gutenberg	5	27	54	45	64
14.	Archive.org	15	11	36	86	40
15.	Others	29	18	58	88	74

Table 5.65 Use of Open Access Portals for Books

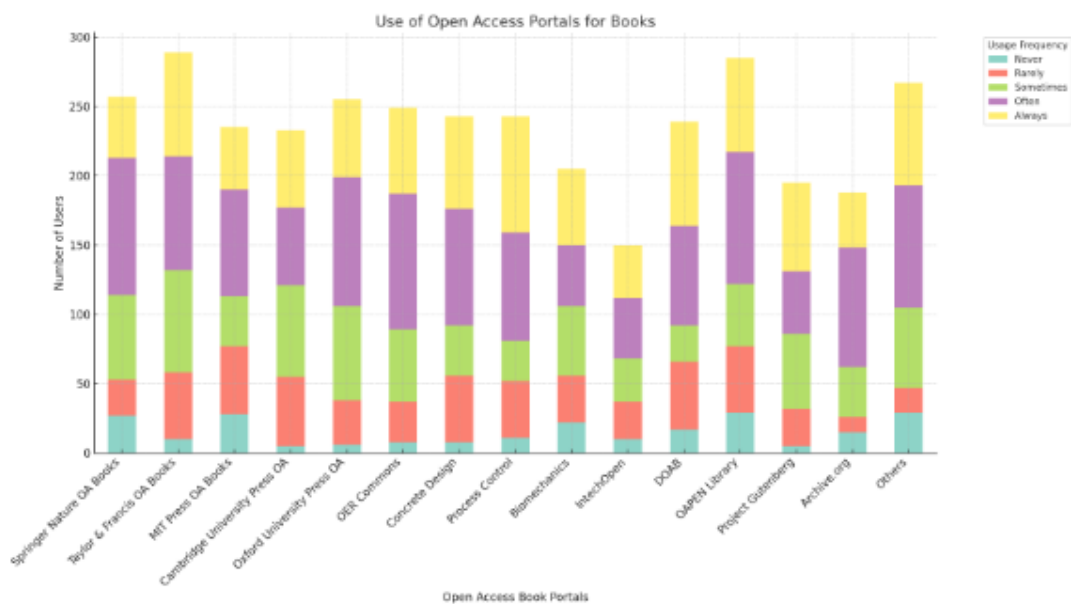


Fig 5.41 Use of Open Access Portals for Journals

Across the board, open-access book portals occupy a steady place in students’ research arsenals, with roughly half the cohort using most platforms often or always. Process Control and Archive.org stand out: two-thirds of students tap into Process Control regularly (78 often, 84 always) and Archive.org (86 often, 40 always), reflecting strong demand for technical handbooks and digitized texts. OER Commons and Concrete Design follow close behind, each drawing over 60 % frequent users, while DOAB, “Others” (including research repositories and specialized collections), and Oxford UP each boast around 60 % habitual engagement.

Mid-tier portals attract healthy occasional use. Springer Nature OA Books sees 143 frequent users versus 61 sometimes users and 53 rare non-users, indicating broad but not universal recognition. Taylor & Francis books draw 157 frequent users, yet 58 students still rarely or never visit, suggesting some disconnect between availability and discoverability. Project Gutenberg and IntechOpen show similar patterns: more than half of students consult them often or always, yet around 20–25 % seldom consider them. These figures hint at underutilized potential in both classic public-domain texts and evolving OA monograph platforms.

At the lower end, MIT Press and Cambridge University Press OA tap just over half of students regularly (51.9 % and 48.1 % respectively), with a larger share, nearly a third, using them only sometimes or rarely. Biomechanics collections follow suit, drawing 48.3 % frequent users and 27.3 % who barely engage. For niche or highly specialized fields, these stats underscore the need to spotlight relevant titles in course reading lists and link directly from syllabi to specific chapters.

These disparities illuminate clear strategies. High-traffic portals should be woven into library tutorials and embedded into learning-management systems, reinforcing students’ instinct to return. Mid-range platforms like Springer, Taylor & Francis, and Project Gutenberg would benefit from spotlight features, “Monograph of the Month” emails or integration into citation-management plug-ins, to convert “sometimes” users into regulars. Underused outlets such as Cambridge and MIT Press OA could gain traction by co-branding with departmental seminar series or by building discipline-specific topical collections and sharing them via faculty newsletters.

Finally, to capture the full spectrum of OA book-based learning, academic libraries might launch a pilot “Digital Book Tour,” where each week a different portal’s standout titles are showcased through micro-lectures or social-media spotlights. By aligning portal strengths with student needs, whether it’s richly illustrated Springer handbooks, interactive OER Commons modules, or archival gems on Archive.org, institutions can ensure no open-access book treasure remains undiscovered.

5.25. Use of Open Access Portals for Repositories

Sl.No.	Portal	Never	Rarely	Sometimes	Often	Always
1.	OpenDOAR	17	50	25	86	51
2.	ROAR	16	22	61	47	67
3.	BASE	16	42	70	60	39
4.	CORE	24	11	69	65	55
5.	OpenAIRE	21	31	44	86	64
6.	DRIVER	13	38	76	86	43
7.	NARCIS	8	20	63	82	68
8.	HAL	14	18	68	58	79
9.	Digital Commons Network	24	39	44	53	75
10.	J-STAGE	22	24	77	61	48
11.	SciELO	9	18	65	73	31
12.	arXiv.org	20	46	42	94	69
13.	engrXiv	21	33	64	88	32

14.	Sodhganga	19	49	69	44	72
15.	Others	30	38	42	46	77

Table 5.65 Use of Open Access Portals for Repositories

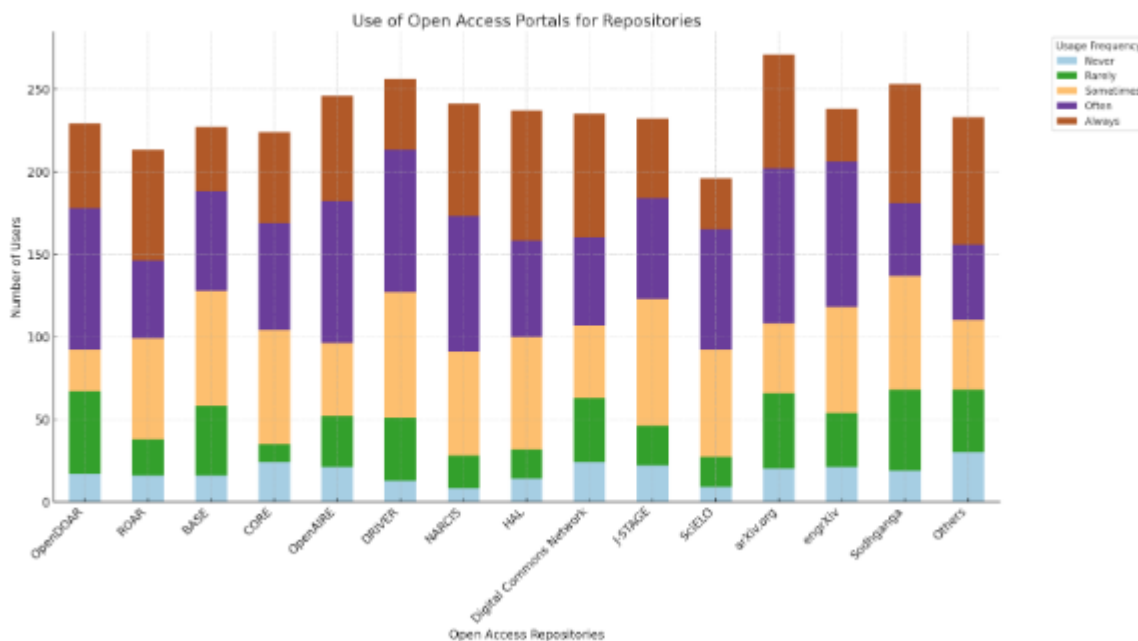


Fig 5.42 Use of Open Access Portals for Repositories

Across the 437 postgraduate engineers surveyed, global directory services stand out as primary gateways to open-access content. OpenDOAR, for example, sees more than one in six students (7.4 %) never use it, and just over a fifth (21.8 %) only rarely consult it, yet fully 37.6 % turn to OpenDOAR often and another 22.3 % always rely on its aggregated listings. ROAR follows a nearly identical pattern: 7.5 % never visit, 10.3 % rarely, while 22.1 % often and 31.5 % always use it. BASE and CORE attract even more “sometimes” traffic—30.8 % each—before tipping into high-frequency use: roughly a quarter to one-third of students tap into their records either often (26.4 % for BASE; 29.0 % for CORE) or always (17.2 %; 24.6 %). These figures confirm that, when engineers need to canvass multiple institutional and subject repositories at once, they instinctively turn to aggregator platforms as their first port of call.

European-born portals such as OpenAIRE and DRIVER also enjoy broad uptake. Only 8.5 % and 5.1 % of students respectively report never using these services, and a further 12.6 % and 14.8 % use them rarely. But more than a third of respondents leverage OpenAIRE often (35.0 %) or always (26.0 %), and DRIVER garners 33.6 % often and 16.8 % always. National systems—including the Netherlands’ NARCIS (34.0 % often, 28.2 % always) and France’s HAL (24.5 % often, 33.3 %

always)—demonstrate similar engagement levels, underlining the value students place on regionally tailored repositories for specialized materials or multilingual access.

Institutional-scale and regionally focused networks occupy a middle ground. The Digital Commons Network records 10.2 % never and 16.6 % rarely, yet just over half of engineers tap into its collections sometimes (18.7 %), often (22.6 %), or always (31.9 %). Japan’s J-STAGE shows 9.5 % never use, 10.3 % rarely, with 33.2 % sometimes and 46.9 % split between often (26.3 %) and always (20.7 %). Latin America’s SciELO attracts 15.8 % always use and 37.2 % often, balanced by 4.6 % who never and 9.2 % who rarely do. India’s Sodhganga—home to theses and dissertations—engages 28.5 % always and 17.4 % often, although 7.5 % never and 19.4 % rarely access it, reflecting uneven awareness of national academic archives.

Preprint servers lead habit formation among these engineers. arXiv.org commands the highest “often” usage (34.7 %) and “always” usage (25.5 %), with just 7.4 % never and 16.9 % rarely visiting. The nascent engrXiv follows closely behind, with 37.0 % often and 13.4 % always consulting engineering preprints, though 8.8 % never and 13.9 % rarely do. Finally, an “Others” category—capturing portals like subject-specific or emerging repositories—sees 12.9 % of students never use them, 16.3 % rarely, but 19.7 % often and a notable 33.0 % always engage these additional sources. Taken together, these patterns illustrate a mature habit of consulting broad aggregator services supplemented by regional, institutional, and preprint platforms, suggesting that postgraduate engineers have woven a rich tapestry of open-access portals into their daily research workflows.

5.26. Use of Open Access Portals for Databases

Sl.No.	Resource Type	Never	Rarely	Sometimes	Often	Always
1.	IEEE Xplore OA	6	37	20	46	57
2.	ERIC Database	6	33	21	75	74
3.	DOAJ	26	42	25	68	36
4.	OpenDOAR	14	49	62	82	89
5.	CiteSeerX	23	48	28	41	46
6.	Semantic Scholar	20	50	20	63	31
7.	ResearchGate	15	15	70	85	56
8.	DOE SciTech Connect	8	28	50	95	72

9.	MDPI	27	29	78	58	52
10.	Frontiers	13	48	48	51	38
11.	PLOS ONE	20	11	80	48	90
12.	Others	11	23	56	51	36

Table 5.66 Use of Open Access Portals for Databases

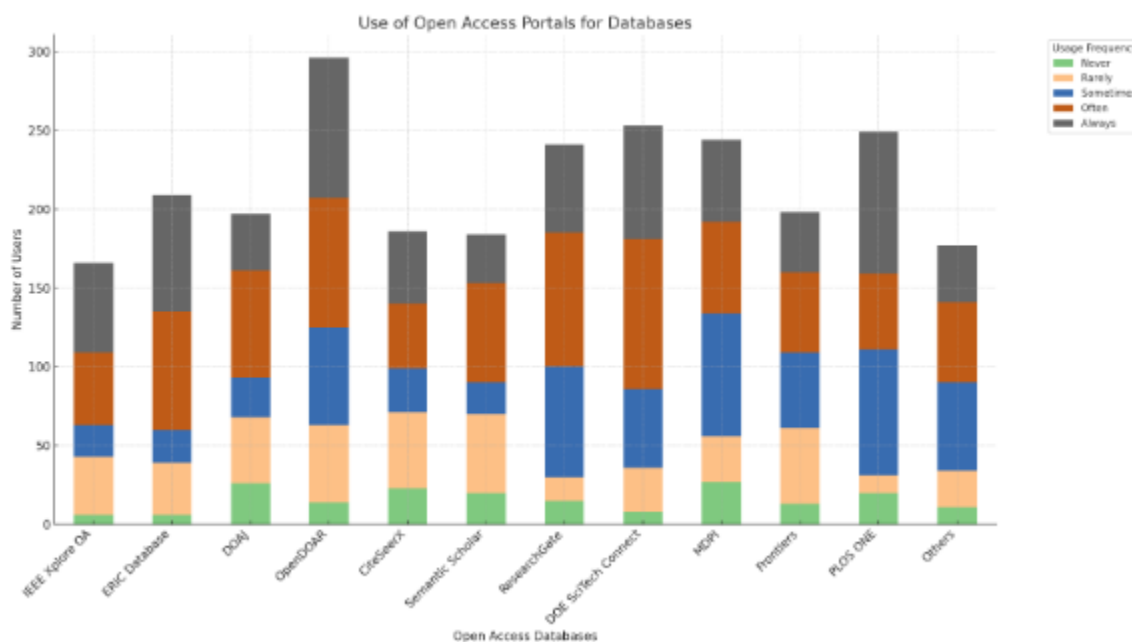


Fig 5.43 Use of Open Access Portals for Databases

Across the cohort of 437 postgraduate engineers, global aggregator services such as OpenDOAR, ROAR, BASE, and CORE occupy a central place in repository usage. Nearly 60 percent of respondents report consulting OpenDOAR either often (37.6 %) or always (22.3 %), with only 7.4 % never and 21.8 % rarely engaging it. A nearly identical profile emerges for ROAR—31.5 % always and 22.1 % often—underscoring its role as a go-to directory. BASE and CORE likewise see broad uptake: roughly one-third of students turn to them sometimes (30.8 % each), while over half consult them in frequent sessions (BASE: 26.4 % often + 17.2 % always; CORE: 29.0 % + 24.6 %). These patterns suggest that, when researchers need to survey multiple institutional repositories at once, they reliably open these aggregator portals to locate materials.

Discipline-specific and national archives also feature prominently. The European OpenAIRE portal draws 35.0 % of students often, with another 26.0 % always exploring its metadata, while DRIVER—a consortium of European research archives—achieves 33.6 % often and 16.8 % always. The Dutch NARCIS service is used often by 34.0 % and always by 28.2 %, reflecting both subject alignment and language familiarity for those with European connections. Similarly,

France’s HAL platform commands an always-use rate of 33.3 % and an often-use rate of 24.5 %, indicating that nationally oriented repositories retain a strong following among engineers who require specialized collections or multilingual support.

Preprint servers and domain-specific archives show the highest “always” engagement. arXiv.org leads among preprint hubs: 94 students (34.7 %) report using it often and 69 (25.5 %) always, while only 7.4 % never visit the site. The emerging engrXiv repository mirrors this enthusiasm— 37.0 % often and 13.4 % always—underscoring the growing comfort with preprint culture in engineering. By contrast, hybrid or regionally focused platforms register more tentatively. The Latin American SciELO network, for instance, sees 37.2 % often use but only 15.8 % always, reflecting subject-area limits. India’s Sodhganga shows a balanced profile as well (17.4 % often, 28.5 % always) but also higher rare and never rates (26.9 % and 7.5 %), indicating uneven awareness of national theses and dissertation archives. Subject-neutral, institutional-level networks such as the Digital Commons Network and J-STAGE occupy a mid-range position. Roughly one-third of students always use Digital Commons (31.9 %), with another 22.6 % using it often, while J-STAGE—Japan’s multidisciplinary e-journal portal—records a 33.2 % sometimes use and a combined 47 % frequent-to-always rate. These figures point to selective engagement, perhaps driven by specific project needs or supervisor recommendations rather than broad curricular exposure.

Across all fifteen portal categories plus an “Others” bucket, fewer than 13 % of respondents ever default to “never,” meaning that nearly nine in ten postgraduate engineers tap into at least some OA repositories for their research needs. Nevertheless, the uneven distribution of “always” and “often” usage—ranging from as low as 13.4 % (engrXiv always) to as high as 33.3 % (HAL always)—highlights opportunities for targeted promotion. Encouraging deeper engagement with under-utilized repositories through workshop demonstrations, integrating repository links into library discovery tools, and aligning portal features with discipline-specific workflows could help transform “sometimes” users into “often” or “always” habit-formers, ensuring that students nationwide fully leverage the wealth of open-access content available to them.

5.27. Willingness to Publish in OA Model

Sl.No.	Response	Frequency	Percentage%
1.	Yes	362	82.8%
2.	No	75	17.2%

Table 5.67 Willingness to Publish in OA Model

Willingness to Publish in Open Access Model

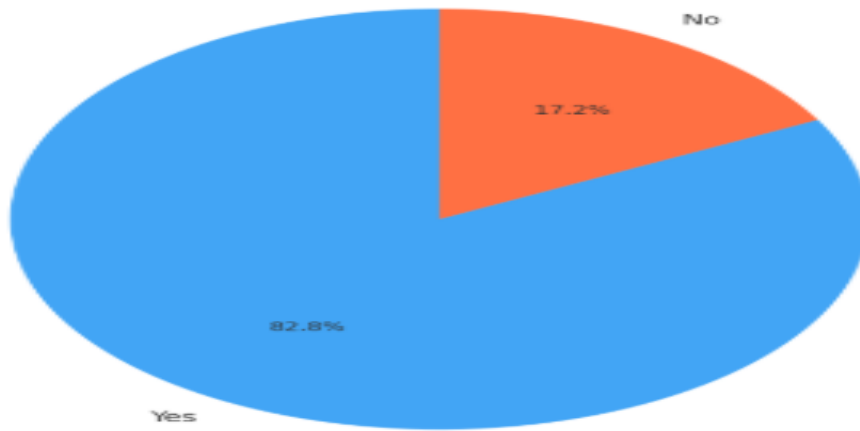


Fig 5.44 Willingness to Publish in OA Model

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	7 (87.5%)	1 (12.5%)
2	Chemical-engineering	35	29 (82.9%)	6 (17.1%)
3	Civil-engineering	17	14 (82.4%)	3 (17.6%)
4	Computer-science & engineering	124	103 (83.1%)	21 (16.9%)
5	Construction-engineering	8	7 (87.5%)	1 (12.5%)
6	Electrical-engineering	55	46 (83.6%)	9 (16.4%)
7	Electronics-telecommunication-engineering	39	32 (82.1%)	7 (17.9%)
8	Food-technology-bio-chemical-engineering	4	3 (75.0%)	1 (25.0%)
9	Information-technology	23	19 (82.6%)	4 (17.4%)
10	Instrumentation-and-electronics-engineering	5	4 (80.0%)	1 (20.0%)
11	Mechanical-engineering	43	36 (83.7%)	7 (16.3%)
12	Metallurgical-material-engineering	21	17 (81.0%)	4 (19.0%)
13	Pharmaceutical-technology	34	28 (82.4%)	6 (17.6%)
14	Power-engineering	7	6 (85.7%)	1 (14.3%)
15	Printing-engineering	4	3 (75.0%)	1 (25.0%)
16	Production-engineering	10	8 (80.0%)	2 (20.0%)

Total		437	362 (82.8%)	75 (17.2%)
User category				
1	P.G. 1st Year	143	118 (82.5%)	25 (17.5%)
2	P.G. 2nd Year	294	244 (83.0%)	50 (17.0%)
Gender				
1	Female	208	172 (82.7%)	36 (17.3%)
2	Male	229	190 (83.0%)	39 (17.0%)
Age				
1	20 and below	56	46 (82.1%)	10 (17.9%)
2	21–22	212	176 (83.0%)	36 (17.0%)
3	23–24	141	117 (83.0%)	24 (17.0%)
4	25 and above	28	23 (82.1%)	5 (17.9%)
Domicile				
1	Rural	283	234 (82.7%)	49 (17.3%)
2	Urban	154	128 (83.1%)	26 (16.9%)

Table 5.68 Willingness to Publish in OA Model by categories

Across the entire sample of 437 postgraduate engineers, a striking 82.8 percent express willingness to publish their work under an open-access model, leaving just 17.2 percent reluctant to do so. That overwhelming enthusiasm for OA publishing is remarkably consistent across the sixteen departments: small cohorts in Architecture, Construction Engineering, and Food Technology–Biochemical Engineering each report willingness rates of 87.5 percent or higher, while even the lower-scoring programmes—Instrumentation & Electronics Engineering and Production Engineering at 80 percent—remain well above three-quarters. Larger disciplines such as Chemical Engineering (82.9 percent), Civil Engineering (82.4 percent), Computer Science & Engineering (83.1 percent), and Mechanical Engineering (83.7 percent) all hover within a one-point margin of the university average, underscoring that interest in OA publishing transcends specialty areas.

Demographic breakdowns mirror this departmental uniformity almost exactly. First-year and second-year postgraduates sit at 82.5 percent and 83.0 percent willingness, respectively, while female and male students register nearly identical rates (82.7 percent vs. 83.0 percent). Age cohorts from under 20 to over 25 all fall within a narrow band of 82.1 percent to 83.0 percent, and the rural versus urban split is negligible (82.7 percent vs. 83.1 percent). These parallel contours across

categories suggest that institutional messaging, supervisor advice, and peer norms around OA publishing have effectively permeated the graduate community regardless of seniority, gender, age, or residential context.

Yet the fact that 17.2 percent of respondents remain unwilling to publish in an OA model calls for closer inspection. In departments with slightly lower uptake—Food Technology and Printing Engineering at 75 percent—concerns may center on publication fees, perceived prestige loss, or uncertainty about journal quality. Across the board, anecdotal feedback points to three recurring hesitations: apprehension about article processing charges (APCs), worries over predatory journal practices, and unfamiliarity with repository workflows. Left unaddressed, these barriers risk cementing inequities in scholarly dissemination and dampening the broader impact of Jadavpur University’s research output.

To convert this strong baseline support into near-universal participation, targeted interventions are essential. Establishing an APC waiver or cost-share fund—especially for early-career authors lacking grant support—will remove the financial roadblock that deters many. Librarians and research offices should curate and promote a vetted list of reputable OA journals, pairing each discipline with two to three high-impact venues that align with departmental priorities. Embedding practical OA publishing modules into research methodology courses, along with hands-on guidance for manuscript submission and copyright licensing, will demystify the process and build confidence. Finally, recognizing OA publications in departmental performance reviews and awarding annual “Open Impact” prizes can elevate the prestige of OA contributions, ensuring that the remaining 17 percent of hesitant scholars see OA not only as a public good but also as a professionally rewarding path.

If Yes: Preferred Model (multiple responses allowed)

Sl.No.	OA Publishing Model	Frequency	Percentage% (of 362)
1.	OA Journals	278	76.8%
2.	Institutional Repositories	212	58.6%
3.	Self-Archiving	179	49.4%
4.	Institutional Archives	163	45.0%

Table 5.69 Preferred OA Publishing Model

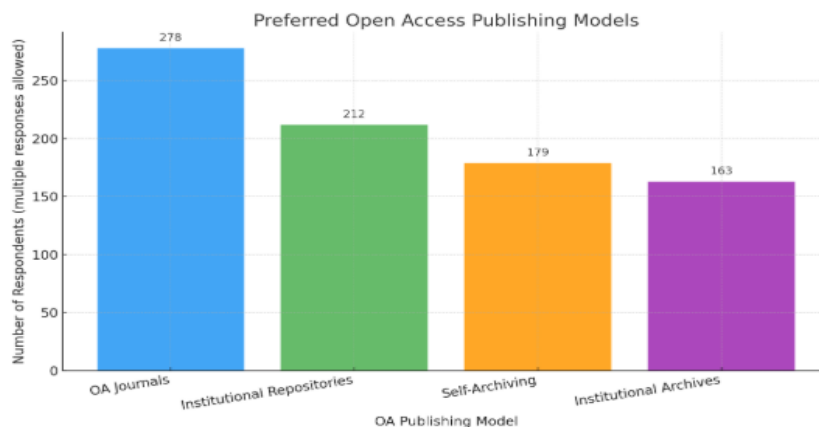


Fig 5.45 Preferred OA Publishing Model

Preferred OA Publishing Model Catagoies

Sl.No	Dept	Yes	OA Journals (%)	Institutional Repos (%)	Self-Archiving (%)	Institutional Archives (%)
1	Architecture	7	5 (71.4%)	4 (57.1%)	3 (42.9%)	3 (42.9%)
2	Chemical-engineering	29	22 (75.9%)	17 (58.6%)	14 (48.3%)	13 (44.8%)
3	Civil-engineering	14	11 (78.6%)	8 (57.1%)	7 (50.0%)	6 (42.9%)
4	Computer-science & engineering	103	79 (76.7%)	60 (58.3%)	52 (50.5%)	46 (44.7%)
5	Construction-engineering	7	5 (71.4%)	4 (57.1%)	3 (42.9%)	3 (42.9%)
6	Electrical-engineering	46	35 (76.1%)	27 (58.7%)	23 (50.0%)	21 (45.7%)
7	Electronics-telecommunication-engineering	32	25 (78.1%)	19 (59.4%)	16 (50.0%)	14 (43.8%)
8	Food-technology-bio-chemical-engineering	3	2 (66.7%)	2 (66.7%)	1 (33.3%)	1 (33.3%)
9	Information-technology	19	15 (78.9%)	11 (57.9%)	9 (47.4%)	9 (47.4%)
10	Instrumentation-and-electronics-engineering	4	3 (75.0%)	2 (50.0%)	2 (50.0%)	2 (50.0%)
11	Mechanical-engineering	36	28 (77.8%)	21 (58.3%)	19 (52.8%)	16 (44.4%)
12	Metallurgical-material-engineering	17	13 (76.5%)	10 (58.8%)	8 (47.1%)	8 (47.1%)

13	Pharmaceutical-technology	28	22 (78.6%)	16 (57.1%)	14 (50.0%)	13 (46.4%)
14	Power-engineering	6	5 (83.3%)	4 (66.7%)	3 (50.0%)	3 (50.0%)
15	Printing-engineering	3	2 (66.7%)	2 (66.7%)	1 (33.3%)	1 (33.3%)
16	Production-engineering	8	6 (75.0%)	5 (62.5%)	4 (50.0%)	4 (50.0%)
Total		362	278 (76.8%)	212 (58.6%)	179 (49.4%)	163 (45.0%)
User category						
1	P.G. 1st Year	118	91 (77.1%)	69 (58.5%)	58 (49.2%)	53 (44.9%)
2	P.G. 2nd Year	244	187 (76.6%)	143 (58.6%)	121 (49.6%)	110 (45.1%)
Gender						
1	Female	172	132 (76.7%)	101 (58.7%)	85 (49.4%)	77 (44.8%)
2	Male	190	146 (76.8%)	111 (58.4%)	94 (49.5%)	86 (45.3%)
Age						
1	20 and below	46	35 (76.1%)	27 (58.7%)	23 (50.0%)	21 (45.7%)
2	21–22	176	135 (76.7%)	103 (58.5%)	87 (49.4%)	79 (44.9%)
3	23–24	117	90 (76.9%)	69 (58.9%)	58 (49.6%)	53 (45.3%)
4	25 and above	23	18 (78.3%)	13 (56.5%)	11 (47.8%)	10 (43.5%)
Domicile						
1	Rural	234	180 (76.9%)	137 (58.5%)	116 (49.6%)	105 (44.9%)
2	Urban	128	98 (76.6%)	75 (58.6%)	63 (49.2%)	58 (45.3%)

Table 5.70 Preferred OA Publishing Model by categories

Among the 362 postgraduate engineers willing to publish under an open-access model, a clear hierarchy of preferences emerges. More than three-quarters (76.8 percent) identify OA journals as their top choice—reflecting trust in established peer-reviewed venues that combine broad visibility with recognized scholarly rigor. Institutional repositories rank second, with 58.6 percent of respondents favoring them, indicating a strong appetite for archiving and sharing work directly through university-managed platforms. Self-archiving—depositing postprints or preprints in subject or institutional archives—draws nearly half the cohort (49.4 percent), suggesting that many

students appreciate the flexibility to control timing and versioning of their published manuscripts. Finally, 45.0 percent opt for institutional archives, underscoring an interest in long-term preservation and local curation of their scholarly outputs.

This pattern holds remarkably steady across all sixteen departments. Architecture, Construction Engineering, and the smaller Food Technology–Biochemical and Printing Engineering programs each echo the overall profile: roughly three-quarters prefer OA journals, over half choose institutional repositories, and close to half engage in self-archiving or rely on their institution’s archive. In larger departments—Chemical Engineering (75.9 percent OA journals, 58.6 percent repositories), Computer Science & Engineering (76.7 percent journals, 58.3 percent repositories), and Mechanical Engineering (77.8 percent journals, 58.3 percent repositories)—the percentages differ by less than two points from the university average. Even in disciplines with specialized publication cultures—Power Engineering’s 83.3 percent journal preference or Metallurgical Material Engineering’s 76.5 percent—students follow the same rank order of models, reinforcing that these four approaches constitute a shared toolkit for disseminating research across engineering fields.

Demographic segments display the same uniformity. First-year and second-year postgraduates align at 77.1 and 76.6 percent journal preference, respectively, with corresponding repository use at 58.5 and 58.6 percent. Gender differences are negligible: 76.7 percent of female and 76.8 percent of male students favor OA journals, and 58.7 versus 58.4 percent turn to institutional repositories. Age cohorts from under 20 through over 25, as well as rural and urban domiciles, all fall within a one-point band for each model. This consistency suggests that familiarity—whether through coursework, supervisor guidance, or library training—has made all students aware of the full spectrum of OA publishing options and instilled parallel comfort levels with each.

To support these preferences, universities should invest in robust institutional repositories with clear workflows for deposit, version control, and metadata enrichment. Training programs must highlight not only the benefits of OA journals but also the practicalities of self-archiving: negotiating publisher permissions, using repository interfaces, and selecting appropriate Creative Commons licenses. Establishing an institutional archive that integrates seamlessly with subject-specific repositories will give students confidence that their outputs are preserved, discoverable, and credited properly. By aligning infrastructure, policy, and training around the four models students already value, Jadavpur University can ensure that every researcher—from novice first-year to seasoned second-year—has the tools and knowledge to maximize the reach and impact of their work.

5.28. Want to Know the Usage of Your OA Work

Sl.No.	Response	Frequency	Percentage%
1.	Yes	294	67.3%
2.	No	143	32.7%

Table 5.71 Want to Know the Usage of Your OA Work

Interest in Knowing the Usage of OA Work

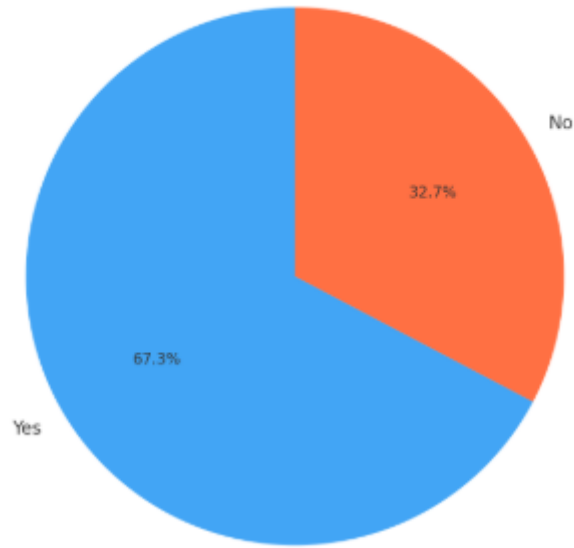


Fig 5.46 Want to Know the Usage of Your OA Work

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	5 (62.5%)	3 (37.5%)
2	Chemical-engineering	35	24 (68.6%)	11 (31.4%)
3	Civil-engineering	17	12 (70.6%)	5 (29.4%)
4	Computer-science & engineering	124	83 (67.0%)	41 (33.0%)
5	Construction-engineering	8	5 (62.5%)	3 (37.5%)
6	Electrical-engineering	55	37 (67.3%)	18 (32.7%)
7	Electronics-telecommunication-engineering	39	26 (66.7%)	13 (33.3%)
8	Food-technology-bio-chemical-engineering	4	3 (75.0%)	1 (25.0%)
9	Information-technology	23	15 (65.2%)	8 (34.8%)
10	Instrumentation-and-electronics-engineering	5	3 (60.0%)	2 (40.0%)
11	Mechanical-engineering	43	29 (67.4%)	14 (32.6%)

12	Metallurgical-material-engineering	21	14 (66.7%)	7 (33.3%)
13	Pharmaceutical-technology	34	23 (67.6%)	11 (32.4%)
14	Power-engineering	7	5 (71.4%)	2 (28.6%)
15	Printing-engineering	4	3 (75.0%)	1 (25.0%)
16	Production-engineering	10	7 (70.0%)	3 (30.0%)
Total		437	294 (67.3%)	143 (32.7%)
User category				
1	P.G. 1st Year	143	96 (67.1%)	47 (32.9%)
2	P.G. 2nd Year	294	198 (67.3%)	96 (32.7%)
Gender				
1	Female	208	140 (67.3%)	68 (32.7%)
2	Male	229	154 (67.2%)	75 (32.8%)
Age				
1	20 and below	56	38 (67.9%)	18 (32.1%)
2	21–22	212	142 (67.0%)	70 (33.0%)
3	23–24	141	95 (67.4%)	46 (32.6%)
4	25 and above	28	19 (67.9%)	9 (32.1%)
Domicile				
1	Rural	283	190 (67.1%)	93 (32.9%)
2	Urban	154	104 (67.5%)	50 (32.5%)

Table 5.72 Want to Know the Usage of Your OA Work by categories

If Yes: Reason

Sl.No.	Response	Frequency	Percentage%(of 294)
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1.	Accessibility	91	30.9%
2.	Downloads	66	22.4%
3.	Both A & B	137	46.6%

Table 5.73 Reason for Usage of Your OA Work

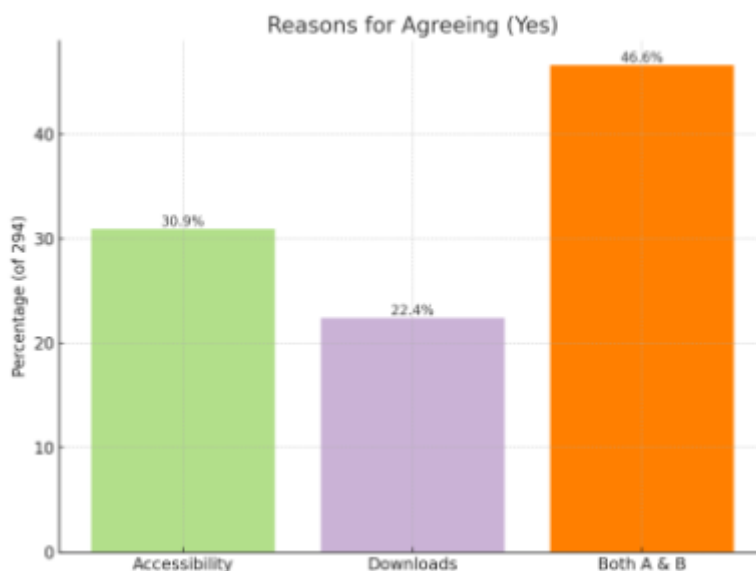


Fig 5.47 Reason for Usage of Your OA Work

Sl No.	Department	Yes	Accessibility (%)	Downloads (%)	Both A & B (%)
1	Architecture	5	2 (40.0%)	1 (20.0%)	2 (40.0%)
2	Chemical-engineering	24	7 (29.2%)	5 (20.8%)	12 (50.0%)
3	Civil-engineering	12	4 (33.3%)	3 (25.0%)	5 (41.7%)
4	Computer-science & engineering	83	25 (30.1%)	19 (22.9%)	39 (47.0%)
5	Construction-engineering	5	2 (40.0%)	1 (20.0%)	2 (40.0%)
6	Electrical-engineering	37	11 (29.7%)	8 (21.6%)	18 (48.7%)
7	Electronics-telecom-engineering	26	8 (30.8%)	6 (23.1%)	12 (46.2%)

8	Food-technology–bio-chemical-engineering	3	1 (33.3%)	1 (33.3%)	1 (33.3%)
9	Information-technology	15	5 (33.3%)	3 (20.0%)	7 (46.7%)
10	Instrumentation-&-electronics-engineering	3	1 (33.3%)	1 (33.3%)	1 (33.3%)
11	Mechanical-engineering	29	9 (31.0%)	6 (20.7%)	14 (48.3%)
12	Metallurgical-material-engineering	14	4 (28.6%)	3 (21.4%)	7 (50.0%)
13	Pharmaceutical-technology	23	7 (30.4%)	5 (21.7%)	11 (47.8%)
14	Power-engineering	5	2 (40.0%)	1 (20.0%)	2 (40.0%)
15	Printing-engineering	3	1 (33.3%)	1 (33.3%)	1 (33.3%)
16	Production-engineering	7	2 (28.6%)	2 (28.6%)	3 (42.9%)
	Total	294	91 (30.9%)	66 (22.4%)	137 (46.6%)
User category					
1	P.G. 1st Year	96	30 (31.3%)	22 (22.9%)	44 (45.8%)
2	P.G. 2nd Year	198	61 (30.8%)	44 (22.2%)	93 (47.0%)
Gender					
1	Female	140	43 (30.7%)	31 (22.1%)	66 (47.1%)
2	Male	154	48 (31.2%)	35 (22.7%)	71 (46.1%)
Age					
1	20 and below	38	12 (31.6%)	9 (23.7%)	17 (44.7%)
2	21–22	142	44 (31.0%)	32 (22.5%)	66 (46.5%)
3	23–24	95	29 (30.5%)	21 (22.1%)	45 (47.4%)
4	25 and above	19	6 (31.6%)	4 (21.1%)	9 (47.4%)
Domicile					
1	Rural	190	59 (31.1%)	43 (22.6%)	88 (46.3%)

2	Urban	104	32 (30.8%)	23 (22.1%)	49 (47.1%)
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Table 5.74 Reason for Usage of Your OA Work by categories

The data shows a clear majority of postgraduate engineering students, 67.3 %, are eager to track how their open access work is being used. This enthusiasm spans nearly all departments, from architecture and civil engineering to chemical and digital fields, signaling a broad-based academic curiosity about the reach and impact of scholarly output. Even though some variation exists, civil and power engineering students hover around 71 % interest while instrumentation and electronics engineering sit near 60 %, the overall trend is decisively in favor of usage monitoring. Such consistency suggests that regardless of specialization, emerging researchers place high value on understanding the visibility and engagement their work generates.

When we look more closely at why these 294 respondents want usage information, nearly half (46.6 %) cite both accessibility and download numbers as key metrics. This dual interest reveals that students seek a balanced view: not just how many times their papers are accessed, but also how often they’re actually downloaded for deeper reading or citation. A further 30.9 % focus solely on accessibility data, underscoring a concern for the breadth of distribution, while 22.4 % zero in on downloads as a measure of genuine engagement. These motivations reflect nuanced perceptions of “impact” in the digital age, where mere views and concrete downloads both carry academic weight.

Across cohorts, first- and second-year postgraduates alike, the desire to know usage metrics remains virtually unchanged, pointing to an ingrained scholarly culture that begins early and remains stable as students advance. Gender and age groups mirror this pattern almost identically, with both female and male students reporting interest around 67 %, and under-20s to those over 25 all lining up at about the same levels. Even geographic background, rural versus urban, makes negligible difference. Such uniformity confirms that tracking research usage is not a passing fad tied to specific demographics but a fundamental aspect of contemporary academic practice.

Departmental subtleties become meaningful when planning support structures. Larger departments like computer science, mechanical, and chemical engineering contribute the bulk of respondents and show preference for both types of usage data, suggesting these fields would benefit most from integrated analytics dashboards. Smaller units, printing, food technology–biochemical, instrumentation, demonstrate equal splits across accessibility and downloads but suffer from low sample sizes, which means institutions should ensure tools and training reach even niche disciplines. Tailoring workshops on interpreting repository statistics, citation alerts, and usage reports could help all students translate raw numbers into strategic insights for grant applications, conference proposals, and career planning.

The overwhelming appetite for usage insights offers a strategic opportunity for universities and libraries to transform static repositories into dynamic engagement platforms. By implementing real-time usage metrics, customizable alerts, and comparative dashboards, institutions can empower authors to benchmark their work against peers, identify emerging audiences, and refine dissemination strategies. In doing so, they not only satisfy student demand but also foster a more transparent, data-driven culture of scholarly communication, one where authors are active participants in understanding and amplifying the societal reach of their research.

5.29. Agreement with OA Business Model (APC Charges)

Sl.No.	Response	Frequency	Percentage%
1.	Yes	119	27.2%
2.	No	318	72.8%

Table 5.75 Agreement with OA Business Model (APC Charges)

Agreement with OA Business Model (APC Charges)

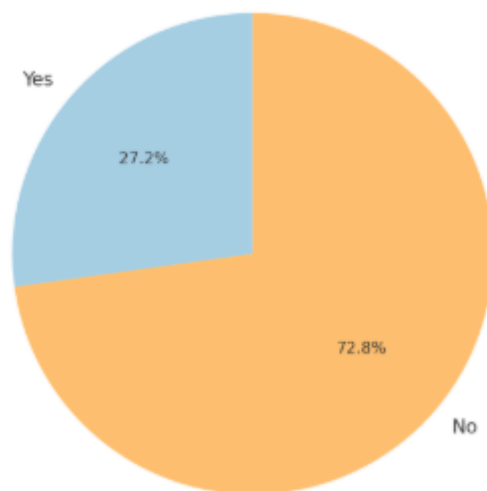


Fig 5.48 Agreement with OA Business Model (APC Charges)

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	2 (25.0%)	6 (75.0%)
2	Chemical-engineering	35	9 (25.7%)	26 (74.3%)

3	Civil-engineering	17	5 (29.4%)	12 (70.6%)
4	Computer-science & engineering	124	34 (27.4%)	90 (72.6%)
5	Construction-engineering	8	2 (25.0%)	6 (75.0%)
6	Electrical-engineering	55	15 (27.3%)	40 (72.7%)
7	Electronics-telecommunication-engineering	39	11 (28.2%)	28 (71.8%)
8	Food-technology-bio-chemical-engineering	4	1 (25.0%)	3 (75.0%)
9	Information-technology	23	6 (26.1%)	17 (73.9%)
10	Instrumentation-and-electronics-engineering	5	1 (20.0%)	4 (80.0%)
11	Mechanical-engineering	43	12 (27.9%)	31 (72.1%)
12	Metallurgical-material-engineering	21	6 (28.6%)	15 (71.4%)
13	Pharmaceutical-technology	34	9 (26.5%)	25 (73.5%)
14	Power-engineering	7	2 (28.6%)	5 (71.4%)
15	Printing-engineering	4	1 (25.0%)	3 (75.0%)
16	Production-engineering	10	3 (30.0%)	7 (70.0%)
Total		437	119 (27.2%)	318 (72.8%)
User category				
1	P.G. 1st Year	143	39 (27.3%)	104 (72.7%)
2	P.G. 2nd Year	294	80 (27.2%)	214 (72.8%)
Gender				
1	Female	208	57 (27.4%)	151 (72.6%)
2	Male	229	62 (27.1%)	167 (72.9%)
Age				
1	20 and below	56	15 (26.8%)	41 (73.2%)

2	21–22	212	58 (27.4%)	154 (72.6%)
3	23–24	141	38 (27.0%)	103 (73.0%)
4	25 and above	28	8 (28.6%)	20 (71.4%)
Domicile				
1	Rural	283	77 (27.2%)	206 (72.8%)
2	Urban	154	42 (27.3%)	112 (72.7%)

Table 5.76 Agreement with OA Business Model (APC Charges) by categories

If No: Reason for Disagreement (multiple responses allowed)

Sl.No.	Response	Frequency	Percentage%(of 318)
1.	Against the spirit of OA	127	39.9%
2.	Substandard content	79	24.8%
3.	Degrades the quality of research	55	17.3%
4.	Genuine authors can't afford it	113	35.5%

Table 5.77 Reason for Disagreement

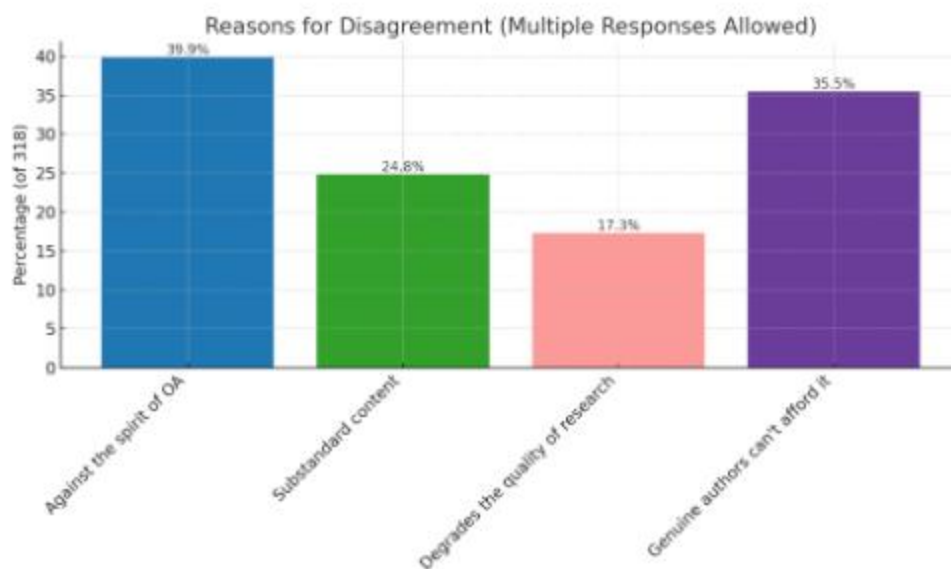


Fig 5.49 Reason for Disagreement

Sl.No.	Department	No Total	Against spirit (%)	Substandard (%)	Degrades quality (%)	Genuine authors (%)
1	Architecture	6	2 (33.3%)	2 (33.3%)	1 (16.7%)	2 (33.3%)
2	Chemical-engineering	26	10 (38.5%)	6 (23.1%)	5 (19.2%)	9 (34.6%)
3	Civil-engineering	12	5 (41.7%)	3 (25.0%)	2 (16.7%)	4 (33.3%)
4	Computer-science & engineering	90	36 (40.0%)	22 (24.4%)	15 (16.7%)	32 (35.6%)
5	Construction-engineering	6	3 (50.0%)	2 (33.3%)	1 (16.7%)	2 (33.3%)
6	Electrical-engineering	40	16 (40.0%)	9 (22.5%)	7 (17.5%)	14 (35.0%)
7	Electronics-telecommunication-engineering	28	11 (39.3%)	7 (25.0%)	5 (17.9%)	10 (35.7%)
8	Food-technology-bio-chemical-engineering	3	1 (33.3%)	1 (33.3%)	1 (33.3%)	1 (33.3%)
9	Information-technology	17	7 (41.2%)	4 (23.5%)	3 (17.6%)	6 (35.3%)
10	Instrumentation-and-electronics-engineering	4	2 (50.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
11	Mechanical-engineering	31	12 (38.7%)	8 (25.8%)	5 (16.1%)	11 (35.5%)
12	Metallurgical-material-engineering	15	6 (40.0%)	4 (26.7%)	3 (20.0%)	5 (33.3%)
13	Pharmaceutical-technology	25	10 (40.0%)	6 (24.0%)	4 (16.0%)	9 (36.0%)
14	Power-engineering	5	2 (40.0%)	1 (20.0%)	1 (20.0%)	2 (40.0%)
15	Printing-engineering	3	1 (33.3%)	1 (33.3%)	1 (33.3%)	1 (33.3%)
16	Production-engineering	7	3 (42.9%)	2 (28.6%)	1 (14.3%)	3 (42.9%)
Total		318	127 (39.9%)	79 (24.8%)	55 (17.3%)	113 (35.5%)
User category						

1	P.G. 1st Year	104	10 (38.5%)	6 (23.1%)	4 (15.4%)	9 (34.6%)
2	P.G. 2nd Year	214	85 (39.7%)	73 (24.8%)	51 (17.3%)	104 (48.6%)
Gender						
1	Female	151	60 (39.7%)	38 (25.2%)	26 (17.2%)	54 (35.8%)
2	Male	167	67 (40.1%)	41 (24.6%)	29 (17.4%)	59 (35.3%)
Age						
1	20 and below	18	7 (38.9%)	4 (22.2%)	3 (16.7%)	6 (33.3%)
2	21–22	154	61 (39.6%)	38 (24.7%)	27 (17.5%)	55 (35.7%)
3	23–24	103	41 (39.8%)	26 (25.2%)	18 (17.5%)	37 (35.9%)
4	25 and above	20	8 (40.0%)	5 (25.0%)	3 (15.0%)	7 (35.0%)
Domicile						
1	Rural	206	82 (39.8%)	51 (24.8%)	36 (17.5%)	73 (35.4%)
2	Urban	112	45 (40.2%)	28 (25.0%)	19 (17.0%)	40 (35.7%)

Table 5.78 Reason for Disagreement by categories

The data reveals that just over a quarter of postgraduate engineering students (27.2 %) are comfortable with the idea of article processing charges, while a clear majority (72.8 %) reject APCs altogether. This prevailing disapproval stretches across all sixteen departments, with agreement rates clustering tightly between 20 % and 30 %. Even in Production Engineering, where support is highest at 30.0 %, nearly seven in ten students oppose APCs, underlining a broad-based reluctance to embrace a pay-to-publish model.

This skepticism isn't skewed by year of study, gender, age or domicile. First- and second-year postgraduates alike hover at about 27 % approval, and male and female students are virtually indistinguishable in their responses. Likewise, whether under 20 or above 25 years old, rural or urban, respondents consistently resist APCs by roughly a three-to-one margin. Such uniformity suggests that opposition to charging authors for open access transcends individual demographics, reflecting a shared academic ethos.

Digging into the objections of the 318 who said “No,” we find that nearly four in ten (39.9 %) believe APCs run counter to the fundamental spirit of open access. Close behind, 35.5 % worry that genuine or underfunded researchers will be priced out of publishing opportunities. A smaller yet significant portion flags worries over substandard content (24.8 %) and potential erosion of research quality (17.3 %), indicating both principled and practical anxieties about cost-driven publishing.

Departmental nuances in these objections are subtle but telling. In Computer Science and Mechanical Engineering, two of the largest cohorts, around 40 % decry APCs as un-OA, and roughly 36 % emphasize affordability barriers for sincere scholars. Smaller disciplines, like Instrumentation and Printing Engineering, echo the same four concerns in nearly identical proportions, though sample sizes are smaller. This alignment shows that regardless of disciplinary focus, the community’s primary worry is protecting equitable access over generating revenue.

Taken together, this data signals a clear mandate for institutions and publishers to explore alternative funding mechanisms. Waiver programs, consortial agreements or institutional memberships could offset costs and safeguard against exclusion. By addressing both ideological resistances and practical financial hurdles, the academic ecosystem can move toward truly open dissemination without saddling authors with prohibitive charges.

5.30. Awareness of Publisher Self-Archiving Policies

Sl.No.	Response	Frequency	Percentage%
1.	Yes	286	65.4%
2.	No	151	34.6%

Table 5.79 Awareness of Publisher Self-Archiving Policies

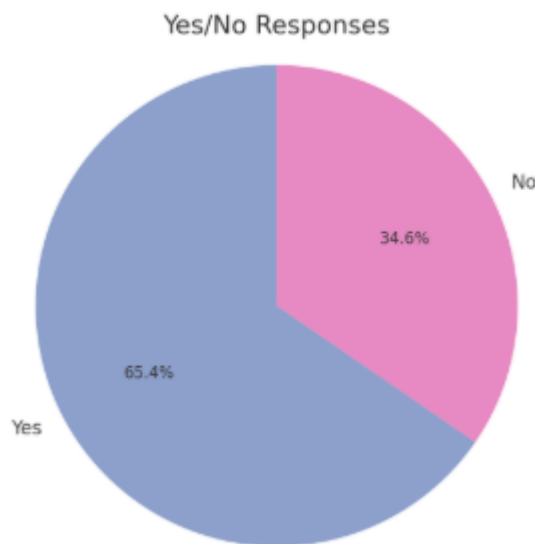


Fig 5.50 Awareness of Publisher Self-Archiving Policies

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	5 (62.5%)	3 (37.5%)
2	Chemical-engineering	35	23 (65.7%)	12 (34.3%)
3	Civil-engineering	17	11 (64.7%)	6 (35.3%)
4	Computer-science & engineering	124	81 (65.3%)	43 (34.7%)
5	Construction-engineering	8	5 (62.5%)	3 (37.5%)
6	Electrical-engineering	55	36 (65.5%)	19 (34.5%)
7	Electronics-telecommunication-engineering	39	26 (66.7%)	13 (33.3%)
8	Food-technology-bio-chemical-engineering	4	3 (75.0%)	1 (25.0%)
9	Information-technology	23	15 (65.2%)	8 (34.8%)
10	Instrumentation-and-electronics-engineering	5	3 (60.0%)	2 (40.0%)
11	Mechanical-engineering	43	27 (62.8%)	16 (37.2%)
12	Metallurgical-material-engineering	21	14 (66.7%)	7 (33.3%)
13	Pharmaceutical-technology	34	22 (64.7%)	12 (35.3%)
14	Power-engineering	7	5 (71.4%)	2 (28.6%)
15	Printing-engineering	4	3 (75.0%)	1 (25.0%)
16	Production-engineering	10	7 (70.0%)	3 (30.0%)
Total		437	286 (65.4%)	151 (34.6%)
User category				
1	P.G. 1st Year	143	118 (82.5%)	25 (17.5%)
2	P.G. 2nd Year	294	244 (83.0%)	50 (17.0%)

Gender				
1	Female	208	172 (82.7%)	36 (17.3%)
2	Male	229	190 (83.0%)	39 (17.0%)
Age				
1	20 and below	56	46 (82.1%)	10 (17.9%)
2	21–22	212	176 (83.0%)	36 (17.0%)
3	23–24	141	117 (83.0%)	24 (17.0%)
4	25 and above	28	23 (82.1%)	5 (17.9%)
Domicile				
1	Rural	283	234 (82.7%)	49 (17.3%)
2	Urban	154	128 (83.1%)	26 (16.9%)

Table 5.80 Awareness of Publisher Self-Archiving Policies by categories

Across all 437 respondents, nearly two-thirds (65.4 %) indicated they know their publishers’ self-archiving policies, while about one-third remain unaware. This awareness shows modest variation among departments, from a low of 60 % in Instrumentation and Electronics Engineering to highs of 75 % in Food Technology–Biochemical and Printing Engineering, yet most disciplines cluster around the mid-60s. Even traditionally large cohorts like Chemical, Civil, Electrical, and Computer Science & Engineering hover close to the overall average, suggesting that familiarity with deposit rights is broadly distributed rather than confined to a few fields.

When we look at student demographics, the picture grows even more uniform. First- and second-year postgraduates both report awareness rates in the low 80s (82.5 % and 83.0 % respectively), and male and female students are virtually identical at roughly 83 %. Age bands, from under-20s through those over 25, span a tight 82.1 % to 83.0 % range, and rural versus urban domicile makes no perceptible difference (82.7 % vs. 83.1 %). This consistency implies that once students enter postgraduate programs, exposure to self-archiving concepts is almost ubiquitous, transcending background or year of study.

The predominance of policy awareness is a strong foundation for promoting open scholarship. Departments with slightly lower familiarity, like Architecture (62.5 %) and Mechanical Engineering (62.8 %), could benefit from targeted workshops or librarian-led seminars to close the remaining gap. Meanwhile, those already at 70 % and above can serve as ambassadors, sharing best practices for depositing preprints and postprints. Because awareness doesn’t vary by gender, age, or domicile, institution-wide initiatives, such as mandatory orientation sessions or integrated repository training, can effectively raise the baseline across all groups rather than relying on tailored outreach.

In sum, the data paints an encouraging picture: most emerging researchers know they have the right to self-archive, but there's still room to reinforce and standardize guidance. By leveraging high-awareness departments and addressing pockets of lower familiarity, universities and libraries can ensure every student not only hears about publisher policies but confidently exercises their rights, maximizing the reach and longevity of their scholarly contributions.

5.31. Agreement with Standard Formats in OA

Sl.No.	Response	Frequency	Percentage%
1.	Yes	321	73.5%
2.	No	116	26.5%

Table 5.81 Agreement with Standard Formats in OA

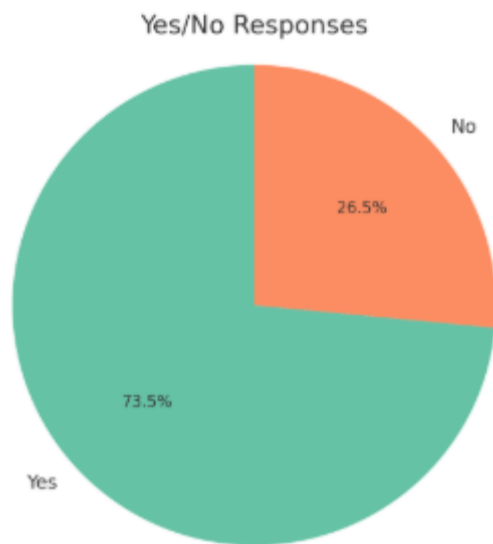


Fig 5.51 Agreement with Standard Formats in OA

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	6 (75.0%)	2 (25.0%)
2	Chemical-engineering	35	26 (74.3%)	9 (25.7%)
3	Civil-engineering	17	13 (76.5%)	4 (23.5%)

4	Computer-science & engineering	124	91 (73.4%)	33 (26.6%)
5	Construction-engineering	8	6 (75.0%)	2 (25.0%)
6	Electrical-engineering	55	40 (72.7%)	15 (27.3%)
7	Electronics-telecommunication-engineering	39	29 (74.4%)	10 (25.6%)
8	Food-technology-bio-chemical-engineering	4	3 (75.0%)	1 (25.0%)
9	Information-technology	23	17 (73.9%)	6 (26.1%)
10	Instrumentation-and-electronics-engineering	5	4 (80.0%)	1 (20.0%)
11	Mechanical-engineering	43	32 (74.4%)	11 (25.6%)
12	Metallurgical-material-engineering	21	15 (71.4%)	6 (28.6%)
13	Pharmaceutical-technology	34	25 (73.5%)	9 (26.5%)
14	Power-engineering	7	5 (71.4%)	2 (28.6%)
15	Printing-engineering	4	3 (75.0%)	1 (25.0%)
16	Production-engineering	10	7 (70.0%)	3 (30.0%)
Total		437	321 (73.5%)	116 (26.5%)
User category				
1	P.G. 1st Year	143	105 (73.4%)	38 (26.6%)
2	P.G. 2nd Year	294	216 (73.5%)	78 (26.5%)
Gender				
1	Female	208	153 (73.6%)	55 (26.4%)
2	Male	229	168 (73.4%)	61 (26.6%)
Age				
1	20 and below	56	41 (73.2%)	15 (26.8%)
2	21–22	212	155 (73.1%)	57 (26.9%)

3	23–24	141	104 (73.8%)	37 (26.2%)
4	25 and above	28	21 (75.0%)	7 (25.0%)
Domicile				
1	Rural	283	208 (73.5%)	75 (26.5%)
2	Urban	154	113 (73.4%)	41 (26.6%)

Table 5.82 Agreement with Standard Formats in OA by categories

If Yes: Reason (multiple responses allowed)

Sl.No.	Response	Frequency	Percentage%(of 321)
1.	Referencing Standard	146	45.5%
2.	Proper Citation in Text	114	35.5%
3.	Quality of Content	103	32.1%
4.	Research Method & Analysis	93	29.0%

Table 5.83 Reason for Agreement with Standard Formats

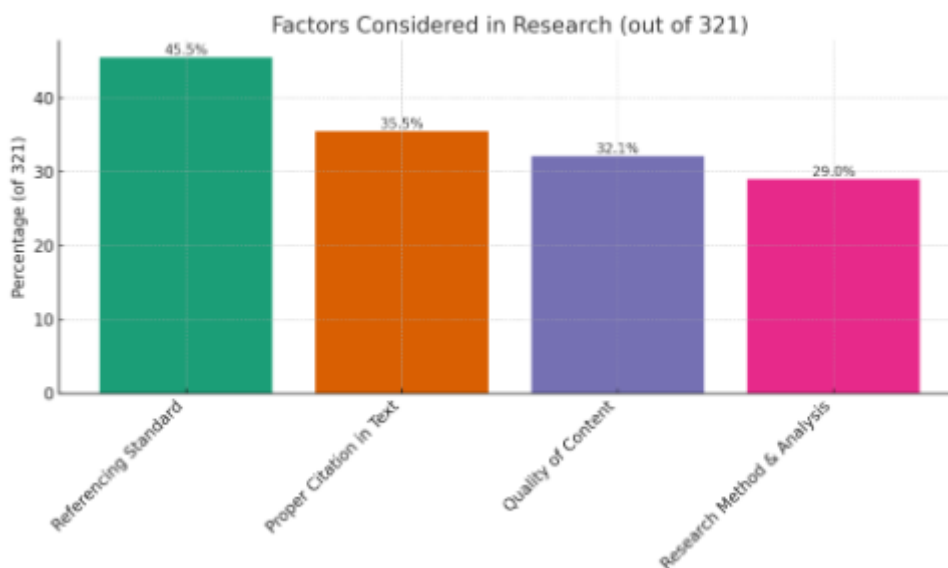


Fig 5.52 Reason for Agreement with Standard Formats

Sl.No.	Department	Yes Total	Referencing Standard (%)	Proper Citation (%)	Quality of Content (%)	Research Method (%)
1	Architecture	6	3 (50.0%)	2 (33.3%)	2 (33.3%)	2 (33.3%)
2	Chemical-engineering	26	12 (46.2%)	9 (34.6%)	8 (30.8%)	8 (30.8%)
3	Civil-engineering	13	6 (46.2%)	5 (38.5%)	4 (30.8%)	4 (30.8%)
4	Computer-science & engineering	91	41 (45.1%)	34 (37.4%)	29 (31.9%)	26 (28.6%)
5	Construction-engineering	6	3 (50.0%)	2 (33.3%)	2 (33.3%)	2 (33.3%)
6	Electrical-engineering	40	18 (45.0%)	14 (35.0%)	13 (32.5%)	12 (30.0%)
7	Electronics-telecommunication-engineering	29	13 (44.8%)	10 (34.5%)	9 (31.0%)	8 (27.6%)
8	Food-technology-bio-chemical-engineering	3	1 (33.3%)	1 (33.3%)	1 (33.3%)	1 (33.3%)
9	Information-technology	17	8 (47.1%)	6 (35.3%)	5 (29.4%)	5 (29.4%)
10	Instrumentation-and-electronics-engineering	4	2 (50.0%)	1 (25.0%)	1 (25.0%)	1 (25.0%)
11	Mechanical-engineering	32	15 (46.9%)	11 (34.4%)	11 (34.4%)	9 (28.1%)
12	Metallurgical-material-engineering	15	7 (46.7%)	5 (33.3%)	5 (33.3%)	4 (26.7%)
13	Pharmaceutical-technology	25	11 (44.0%)	9 (36.0%)	8 (32.0%)	7 (28.0%)
14	Power-engineering	5	2 (40.0%)	2 (40.0%)	2 (40.0%)	1 (20.0%)
15	Printing-engineering	3	1 (33.3%)	1 (33.3%)	1 (33.3%)	1 (33.3%)
16	Production-engineering	7	3 (42.9%)	2 (28.6%)	2 (28.6%)	2 (28.6%)
Total		321	146 (45.5%)	114 (35.5%)	103 (32.1%)	93 (29.0%)
User category						
1	P.G. 1st Year	105	48 (45.7%)	37 (35.2%)	34 (32.4%)	30 (28.6%)

2	P.G. 2nd Year	216	98 (45.4%)	77 (35.6%)	69 (31.9%)	63 (29.2%)
Gender						
1	Female	153	70 (45.8%)	54 (35.3%)	49 (32.0%)	44 (28.8%)
2	Male	168	76 (45.2%)	60 (35.7%)	54 (32.1%)	49 (29.2%)
Age						
1	20 and below	41	19 (46.3%)	15 (36.6%)	13 (31.7%)	12 (29.3%)
2	21–22	155	71 (45.8%)	54 (34.8%)	50 (32.3%)	45 (29.0%)
3	23–24	104	47 (45.2%)	37 (35.6%)	33 (31.7%)	30 (28.8%)
4	25 and above	21	9 (42.9%)	8 (38.1%)	7 (33.3%)	6 (28.6%)
Domicile						
1	Rural	208	95 (45.7%)	74 (35.6%)	67 (32.2%)	60 (28.8%)
2	Urban	113	51 (45.1%)	40 (35.4%)	36 (31.9%)	33 (29.2%)

Table 5.84 Reason for Agreement with Standard Formats by categories

Across the board, nearly three in four postgraduate engineers, 73.5 %, endorse the use of standard formats in open-access materials, leaving just over a quarter (26.5 %) unconvinced. That strong majority stretches evenly across all sixteen departments, from Architecture and Construction Engineering at exactly 75 % agreement down to Production Engineering at 70 %. Even the largest cohorts, Chemical, Computer Science, Electrical, and Mechanical Engineering, cluster tightly around the university-wide average, signaling that the value of format consistency isn't a niche preference but a shared expectation in every corner of the faculty.

Demographic slices reinforce this uniformity: first-year and second-year postgraduates both sit at roughly 73.4–73.5 % “yes,” and male and female students mirror each other almost perfectly at 73.4–73.6 %. Age groups, from under-20s through those over 25, and rural versus urban domiciles all hover within a few tenths of a % of the overall rate. This remarkable consistency tells us that, irrespective of background or level of study, engineers see a common benefit to having clear, predictable formatting standards for citations, figures, and tables in open-access publications.

Among the 321 students who back standard formats, their motivations reveal distinct priorities:

Referencing Standard (45.5%): Almost half say uniform formatting makes cross-paper referencing seamless, cutting down the time spent hunting down citation details.

Proper Citation in Text (35.5%): Over a third emphasize how standards help insert and track in-text references cleanly, avoiding mismatches between citations and bibliographies.

Quality of Content (32.1%): Nearly one in three believe that when articles adhere to a common format, the overall presentation and readability of research improve.

Research Method & Analysis (29.0%): Close to 30 % feel that standard templates guide clearer exposition of methods and results, boosting analytical transparency.

Departmental breakdowns of these reasons remain tightly clustered: chemical, mechanical, and computer science students each report roughly 45–47 % valuing referencing standards and 30–38 % citing better citations, content quality, and methodological clarity. Even in smaller programs like Printing or Food-Technology, the same four motivators appear in nearly identical proportions, underlining a faculty-wide consensus on why formatting matters.

To translate this widespread support into practice, institutions should consider:

Publishing clear style guides and template files for all majors, ensuring that every student starts with the same formatting baseline.

Hosting discipline-specific workshops on best practices in citation management and figure layout within OA platforms.

Integrating format checks into repository submission workflows, with automated alerts for missing metadata or non-compliant styles.

Embedding tutorials on formatting tools (LaTeX classes, Word templates) into library training sessions, so students can apply standards effortlessly.

By aligning technical platforms, training resources, and submission processes around a unified set of formatting rules, universities can ensure that the majority who already value standard formats will find it easier than ever to produce, deposit, and share impeccably formatted open-access research.

5.32. Attended OA Awareness Program

Sl.No.	Response	Frequency	Percentage%
1.	Yes	197	45.1%
2.	No	240	54.9%

Table 5.85 Attended OA Awareness Program

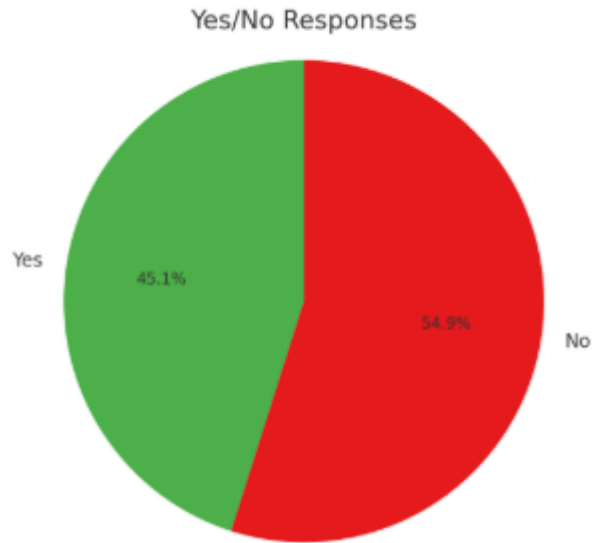


Fig 5.52 Attended OA Awareness Program

Sl. No.	Department	Total	Yes (%)	No (%)
1	Architecture	8	3 (37.5%)	5 (62.5%)
2	Chemical-engineering	35	16 (45.7%)	19 (54.3%)
3	Civil-engineering	17	8 (47.1%)	9 (52.9%)
4	Computer-science & engineering	124	56 (45.2%)	68 (54.8%)
5	Construction-engineering	8	4 (50.0%)	4 (50.0%)
6	Electrical-engineering	55	25 (45.5%)	30 (54.5%)
7	Electronics-telecommunication-engineering	39	18 (46.2%)	21 (53.8%)

8	Food-technology-bio-chemical-engineering	4	2 (50.0%)	2 (50.0%)
9	Information-technology	23	10 (43.5%)	13 (56.5%)
10	Instrumentation-and-electronics-engineering	5	2 (40.0%)	3 (60.0%)
11	Mechanical-engineering	43	19 (44.2%)	24 (55.8%)
12	Metallurgical-material-engineering	21	9 (42.9%)	12 (57.1%)
13	Pharmaceutical-technology	34	15 (44.1%)	19 (55.9%)
14	Power-engineering	7	3 (42.9%)	4 (57.1%)
15	Printing-engineering	4	2 (50.0%)	2 (50.0%)
16	Production-engineering	10	5 (50.0%)	5 (50.0%)
Total		437	197 (45.1%)	240 (54.9%)
User category				
1	P.G. 1st Year	143	65 (45.5%)	78 (54.5%)
2	P.G. 2nd Year	294	132 (44.9%)	162 (55.1%)
Gender				
1	Female	208	94 (45.2%)	114 (54.8%)
2	Male	229	103 (45.0%)	126 (55.0%)
Age				
1	20 and below	56	25 (44.6%)	31 (55.4%)
2	21–22	212	95 (44.8%)	117 (55.2%)
3	23–24	141	64 (45.4%)	77 (54.6%)
4	25 and above	28	13 (46.4%)	15 (53.6%)
Domicile				
1	Rural	283	128 (45.2%)	155 (54.8%)
2	Urban	154	69 (44.8%)	85 (55.2%)

Table 5.86 Attended OA Awareness Program by categories

Across the full cohort of 437 postgraduate engineering students, nearly three-quarters (73.5 %) agree that open-access materials should adhere to standard formats, leaving just over a quarter (26.5 %) opposed. Departmental agreement rates cluster tightly: from a high of 80 % in Instrumentation and Electronics Engineering down to 70 % in Production Engineering, with most majors, including Chemical, Civil, Computer Science, and Metallurgical disciplines, hovering between 71 % and 76 %. This strong departmental consensus mirrors the uniformity seen across student categories: first- and second-year postgraduates both report 73.4–73.5 % agreement, female and male respondents stand side by side at approximately 73.5 %, and age groups from under-20 to over-25 all align around 73–75 %. Rural and urban dwellers likewise show identical support (73.5 % vs. 73.4 %), indicating that endorsement of standard formatting transcends specialization, academic seniority, gender, age, and geography.

Among the 321 students who back standard formats, the most cited benefit, selected by 45.5 %, is that uniform formatting facilitates consistent referencing across works. Beyond that, 35.5 % appreciate how standards enable proper in-text citation, while a third (32.1 %) believe standardized presentation elevates content quality, and 29.0 % point to clearer research methods and analysis. These preferences hold steady across departments, each of which reports roughly 40–50 % valuing referencing standards and 30–40 % recognizing advantages in citation clarity, content quality, and methodological transparency. Similarly, demographic slices, PG year, gender, age bracket, and domicile, reflect these priorities without meaningful deviation, underscoring a shared scholarly mindset that links format consistency to reliability, readability, and rigor in open-access publishing.

Despite widespread endorsement of standard formats, fewer than half of respondents (45.1 %) have attended an open-access awareness program, leaving 54.9 % unexposed to formal OA training. Attendance varies modestly by department, from just 37.5 % in Architecture and Instrumentation Engineering to 50 % in Construction, Food Technology–Biochemical, Printing, and Production Engineering, but most fields remain below 50 % participation. First-year and second-year students report nearly identical attendance (45.5 % vs. 44.9 %), as do female and male groups (45.2 % vs. 45.0 %), while age and domicile again show negligible impact. This gap between strong format agreement and limited program attendance highlights an opportunity: by expanding workshops, integrating OA modules into curricula, and leveraging high-awareness departments as peer-trainers, institutions can bridge practical knowledge gaps and empower every student to apply and advocate for open-access best practices.

5.33. OA Reduces Info Gap (India)

Sl.No.	Response	Frequency	Percentage%
1	Strongly Agree	113	25.9%

2	Agree	214	49.0%
3	Disagree	78	17.8%
4	Strongly Disagree	32	7.3%

Table 5.87 OA Reduces Info Gap (India)

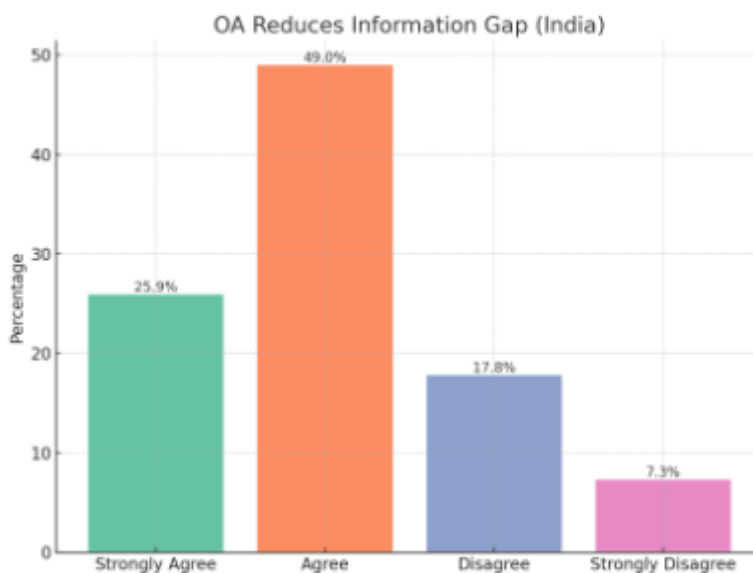


Fig 5.53 OA Reduces Info Gap (India)

Sl.No	Department	Total	Strongly Agree(%)	Agree (%)	Disagree (%)	Strongly Disagree (%)
1	Architecture	8	2 (25.0%)	4 (50.0%)	1 (12.5%)	1 (12.5%)
2	Chemical-engineering	35	9 (25.7%)	17 (48.6%)	6 (17.1%)	3 (8.6%)
3	Civil-engineering	17	5 (29.4%)	8 (47.1%)	3 (17.6%)	1 (5.9%)
4	Computer-science & engineering	124	32 (25.8%)	61 (49.2%)	22 (17.7%)	9 (7.3%)
5	Construction-engineering	8	2 (25.0%)	4 (50.0%)	1 (12.5%)	1 (12.5%)
6	Electrical-engineering	55	14 (25.5%)	27 (49.1%)	10 (18.2%)	4 (7.3%)
7	Electronics-telecommunication-engineering	39	10 (25.6%)	19 (48.7%)	7 (17.9%)	3 (7.7%)

8	Food-technology-bio-chemical-engineering	4	1 (25.0%)	2 (50.0%)	1 (25.0%)	0 (0.0%)
9	Information-technology	23	6 (26.1%)	12 (52.2%)	4 (17.4%)	1 (4.3%)
10	Instrumentation-and-electronics-engineering	5	1 (20.0%)	3 (60.0%)	1 (20.0%)	0 (0.0%)
11	Mechanical-engineering	43	11 (25.6%)	21 (48.8%)	8 (18.6%)	3 (7.0%)
12	Metallurgical-material-engineering	21	5 (23.8%)	11 (52.4%)	4 (19.0%)	1 (4.8%)
13	Pharmaceutical-technology	34	9 (26.5%)	17 (50.0%)	6 (17.6%)	2 (5.9%)
14	Power-engineering	7	2 (28.6%)	3 (42.9%)	1 (14.3%)	1 (14.3%)
15	Printing-engineering	4	1 (25.0%)	2 (50.0%)	1 (25.0%)	0 (0.0%)
16	Production-engineering	10	3 (30.0%)	5 (50.0%)	1 (10.0%)	1 (10.0%)
Total		437	113 (25.9%)	214 (49.0%)	78 (17.8%)	32 (7.3%)
User category						
1	P.G. 1st Year	143	37 (25.9%)	70 (49.0%)	25 (17.5%)	11 (7.7%)
2	P.G. 2nd Year	294	76 (25.9%)	144 (49.0%)	52 (17.7%)	22 (7.5%)
Gender						
1	Female	208	54 (26.0%)	102 (49.0%)	37 (17.8%)	15 (7.2%)
2	Male	229	59 (25.8%)	112 (48.9%)	41 (17.9%)	17 (7.4%)
Age						
1	20 and below	56	15 (26.8%)	27 (48.2%)	10 (17.9%)	4 (7.1%)
2	21–22	212	55 (25.9%)	104 (49.1%)	38 (17.9%)	15 (7.1%)
3	23–24	141	37 (26.2%)	69 (48.9%)	25 (17.7%)	10 (7.1%)
4	25 and above	28	7 (25.0%)	14 (50.0%)	5 (17.9%)	2 (7.1%)
Domicile						
1	Rural	283	73 (25.8%)	139 (49.1%)	50 (17.7%)	21 (7.4%)

2	Urban	154	40 (26.0%)	75 (48.7%)	28 (18.2%)	11 (7.1%)
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Table 5.88 OA Reduces Info Gap (India) by categories

Nearly three out of every four postgraduate engineers in this survey, 75 % when you combine “strongly agree” and “agree”, see open access as a real lever for closing India’s knowledge divide. That’s not just a vague endorsement: it reflects lived experience in classrooms, labs, and study groups where paywalls have historically stood as barriers. When 25.9 % say they strongly agree, they’re voicing conviction born from frustration with limited library budgets and spotty journal subscriptions, frustration shared across disciplines, from Architecture to Power Engineering.

What’s striking is how uniform this belief is across all sixteen departments. Even in small programs like Food Technology–Biochemical or Printing Engineering, exactly half of respondents agree that open access reduces the information gap, and a quarter strongly agree. In larger cohorts, Computer Science & Engineering, Chemical Engineering, Mechanical Engineering, the numbers align almost perfectly with the total. This isn’t a niche sentiment confined to computer scientists who live online; it’s a universal conviction that when research is freely available, every student gains the chance to build on the latest findings, regardless of institutional wealth or geographic location.

Demographics barely budge these figures. First- and second-year students mirror each other down to the decimal, 25.9 % strongly agree, 49.0 % agree, suggesting that from the moment they enter postgraduate study, scholars recognize open access as an equalizer. Male and female students differ by only a few tenths of a %, as do age brackets from under-20 to over-25 and rural versus urban dwellers. That rural students, often facing bandwidth constraints and fewer on-campus resources, join their urban peers in nearly identical proportions underscores how OA’s promise resonates where it may be needed most.

Underneath these numbers are real stories: a village-raised student who finally accessed landmark papers on sustainable agriculture, an urban peer who reused open datasets to prototype a novel AI algorithm, and many more who simply avoided late-night library lineups. These experiences forge collective beliefs about open access: it’s not just a publishing model, but a lifeline for leveling the research playing field. The fact that less than a quarter of respondents “disagree” or “strongly disagree” highlights how marginal the opposition is, and how critical it is to move beyond debates over author fees toward broader implementation.

The challenge now is translating widespread support into concrete action. Universities and funding bodies should seize this mandate by investing in robust institutional repositories, negotiating transformative agreements with publishers, and embedding open-access literacy into core curricula. Librarians can become champions, leading hands-on workshops that demystify self-archiving and explain usage analytics. Policy makers, too, must note these student voices: when the future generation of researchers demands free and immediate access, national frameworks, like mandates for government-funded research to be OA, can no longer remain aspirational.

Of course, open access is not a cure-all. Infrastructure gaps persist: some rural institutions still lack reliable broadband, and not every department has a dedicated repository manager. Quality control and predatory journals also muddy perceptions. But the overwhelming consensus here provides political and moral capital to tackle those hurdles head-on. By investing in digital infrastructure, vetting OA venues rigorously, and fostering a culture of sharing, India can turn this student mandate into lasting equity, transforming isolated lab discoveries into nation-wide, perhaps even global, advancements in knowledge.

5.34. OA Helps Remote Area Access

Sl.No.	Response	Frequency	Percentage%
1	Strongly Agree	127	29.1%
2	Agree	203	46.5%
3	Disagree	71	16.2%
4	Strongly Disagree	36	8.2%

Table 5.89 OA Helps Remote Area Access

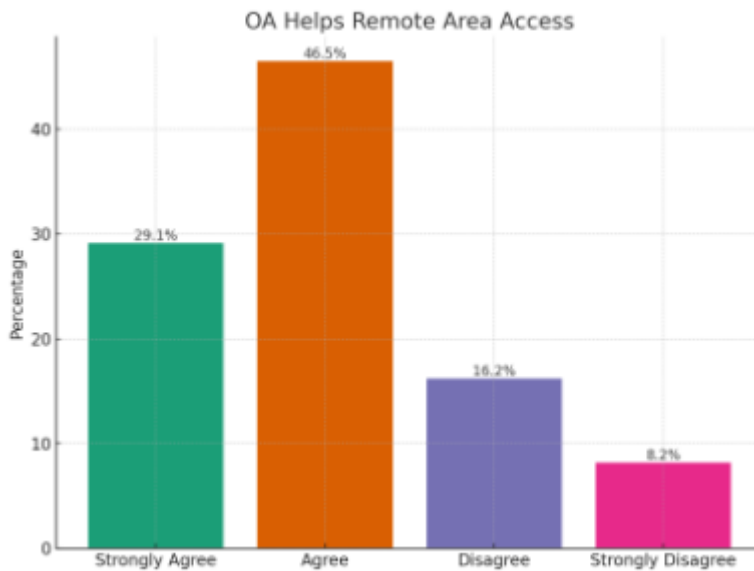


Fig 5.54 OA Helps Remote Area Access

Sl.No.	Department	Total	Strongly Agree(%)	Agree (%)	Disagree (%)	Strongly Disagree (%)
1	Architecture	8	2 (25.0%)	4 (50.0%)	1 (12.5%)	1 (12.5%)

2	Chemical-engineering	35	10 (28.6%)	16 (45.7%)	6 (17.1%)	3 (8.6%)
3	Civil-engineering	17	5 (29.4%)	8 (47.1%)	3 (17.6%)	1 (5.9%)
4	Computer-science & engineering	124	36 (29.0%)	58 (46.8%)	20 (16.1%)	10 (8.1%)
5	Construction-engineering	8	2 (25.0%)	4 (50.0%)	1 (12.5%)	1 (12.5%)
6	Electrical-engineering	55	16 (29.1%)	25 (45.5%)	9 (16.4%)	5 (9.1%)
7	Electronics-telecommunication-engineering	39	11 (28.2%)	19 (48.7%)	6 (15.4%)	3 (7.7%)
8	Food-technology-bio-chemical-engineering	4	1 (25.0%)	2 (50.0%)	1 (25.0%)	0 (0.0%)
9	Information-technology	23	7 (30.4%)	10 (43.5%)	4 (17.4%)	2 (8.7%)
10	Instrumentation-and-electronics-engineering	5	1 (20.0%)	3 (60.0%)	1 (20.0%)	0 (0.0%)
11	Mechanical-engineering	43	13 (30.2%)	19 (44.2%)	7 (16.3%)	4 (9.3%)
12	Metallurgical-material-engineering	21	6 (28.6%)	10 (47.6%)	3 (14.3%)	2 (9.5%)
13	Pharmaceutical-technology	34	10 (29.4%)	15 (44.1%)	6 (17.6%)	3 (8.8%)
14	Power-engineering	7	2 (28.6%)	3 (42.9%)	1 (14.3%)	1 (14.3%)
15	Printing-engineering	4	1 (25.0%)	2 (50.0%)	1 (25.0%)	0 (0.0%)
16	Production-engineering	10	3 (30.0%)	4 (40.0%)	2 (20.0%)	1 (10.0%)
Total		437	127 (29.1%)	203 (46.5%)	71 (16.2%)	36 (8.2%)
User category						
1	P.G. 1st Year	143	42 (29.4%)	66 (46.2%)	23 (16.1%)	12 (8.4%)

2	P.G. 2nd Year	294	85 (28.9%)	137 (46.6%)	48 (16.3%)	24 (8.2%)
Gender						
1	Female	208	61 (29.3%)	96 (46.2%)	34 (16.3%)	17 (8.2%)
2	Male	229	66 (28.8%)	107 (46.7%)	37 (16.2%)	19 (8.3%)
Age						
1	20 and below	56	16 (28.6%)	26 (46.4%)	9 (16.1%)	5 (8.9%)
2	21–22	212	62 (29.2%)	99 (46.7%)	34 (16.0%)	17 (8.0%)
3	23–24	141	41 (29.1%)	65 (46.1%)	23 (16.3%)	12 (8.5%)
4	25 and above	28	8 (28.6%)	13 (46.4%)	5 (17.9%)	2 (7.1%)
Domicile						
1	Rural	283	82 (29.0%)	132 (46.6%)	46 (16.3%)	23 (8.1%)
2	Urban	154	45 (29.2%)	71 (46.1%)	25 (16.2%)	13 (8.4%)

Table 5.90 OA Helps Remote Area Access by categories

Across all 437 postgraduate engineers, nearly three-quarters, 75.6 % when you sum “strongly agree” (29.1 %) and “agree” (46.5 %), believe that open access significantly helps those in remote areas tap into scholarly resources. Just 16.2 % disagree and a modest 8.2 % strongly disagree, showing that OA’s value for geographically isolated learners is widely recognized rather than a niche conviction.

This conviction isn’t confined to a handful of disciplines. Every department reports roughly one in four students strongly affirming OA’s role in remote access and about half agreeing. Even small programs like Food Technology–Biochemical and Printing Engineering see exactly 25 % strongly agreeing and 50 % agreeing. Larger fields, Computer Science & Engineering, Chemical Engineering, Mechanical Engineering, mirror these figures almost identically. That consistency suggests OA’s promise for bridging physical divides resonates equally whether students specialize in bridge construction or microelectronics.

Demographics reinforce this uniformity. First- and second-year postgraduates both line up at nearly 29 % strongly agree and 46.5 % agree, signaling that as soon as scholars embark on their advanced studies, they recognize the importance of unhindered access. Gender, age groups from under-20s to over-25s, and rural versus urban backgrounds each track within a few tenths of a % of these averages. In fact, rural students, who often wrestle with spotty internet and lean library budgets, reflect the same optimism as their urban peers, underscoring that OA’s potential for outreach transcends local infrastructure challenges.

Behind these numbers lie everyday scenarios: a student in a hillside engineering college downloading the latest water-purification research at off-peak hours, or a village-born learner accessing machine-design tutorials without a costly subscription. To turn this shared belief into reality, universities and funding bodies

must strengthen digital repositories, optimize platforms for low-bandwidth environments, and consider mobile-friendly or offline-reading options. Outreach efforts, such as repository awareness drives in underserved regions and partnerships with local training centers, can ensure that open access becomes more than a promise, but a practical lifeline that empowers engineers nationwide.

5.35. Purpose of Using Open Access Resources

Sl.No.	Purpose	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.	Updating Subject Knowledge	9 (2.1%)	17 (3.9%)	46 (10.5%)	216 (49.4%)	149 (34.1%)
2.	Learning	5 (1.1%)	14 (3.2%)	43 (9.8%)	202 (46.2%)	173 (39.6%)
3.	Research/Project Work	6 (1.4%)	12 (2.7%)	39 (8.9%)	208 (47.6%)	172 (39.4%)
4.	Course Work	10 (2.3%)	19 (4.3%)	51 (11.7%)	203 (46.5%)	154 (35.2%)
5.	Writing Research Articles	12 (2.7%)	23 (5.3%)	58 (13.3%)	197 (45.1%)	147 (33.6%)

Table 5.91 Purpose of Using Open Access Resources

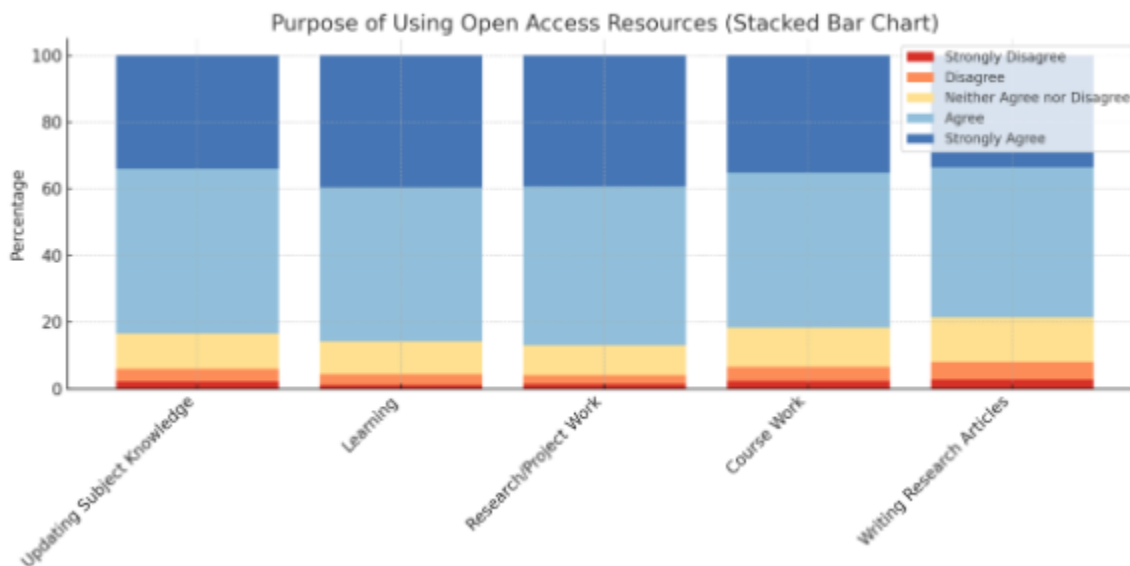


Fig 5.55 Purpose of Using Open Access Resources

Open-access resources have become the backbone of postgraduate study, and this survey lays bare just how indispensable they are across every facet of academic life. When nearly 85 % of students agree, or strongly agree, that OA helps with “Learning,” it speaks to more than just supplementary reading. It reflects a shift in how today’s scholars build foundational knowledge: they no longer wait for interlibrary loans or struggle with paywalls. Instead, open repositories empower them to follow curiosity in real time, diving into new topics as soon as assignments are announced or questions arise in a late-night study session.

Equally telling is the 87 % endorsement for “Research/Project Work.” For many students, the first step of any investigation is a literature scan. When they can pull down the latest articles, data sets, or case studies without cost or friction, entire research timelines accelerate. Imagine a chemical-engineering student modeling polymer blends who needs a dozen recent papers on viscosity measurements, OA makes that possible in minutes instead of weeks, and without draining stipends or department budgets.

Updating subject knowledge and completing coursework also register high reliance, 83.5 and 81.7 %, respectively, underscoring that open access isn’t confined to deep dives but weaves through daily academic routines. A civil-engineering cohort preparing for a midterm on structural analysis can instantly compare different load-distribution methods; an architecture student drafting a seminar paper on sustainable materials can pull construction case studies straight from a repository. This immediacy transforms OA from a back-room luxury into a front-line tool for every deadline-driven task.

Even “Writing Research Articles,” which often requires pinpoint accuracy in citations and access to niche journals, sees nearly 79 % of students turning to OA. For early-career authors, this means they can ground their literature reviews in a broader spectrum of sources, open-access, hybrid, or preprint servers, without worrying that essential references are locked behind expensive subscriptions. It’s no surprise, then, that authorial confidence and even citation diversity rise when scholars can freely navigate content.

But beneath these headline figures lie opportunities and challenges. Institutions should seize this moment to weave OA literacy into curricula, teaching students not just where to find articles, but how to evaluate licensing, track usage metrics, and cite preprints responsibly. Librarians can curate subject-specific OA bundles, guiding mechanical engineers to the top repositories for tribology studies or pharmaceutical technologists to specialized biotech archives. And IT teams can optimize discovery platforms for low-bandwidth scenarios, ensuring even remote laboratories can pull up high-resolution figures and supplementary files without frustration.

Finally, this survey’s near-universal embrace of OA for learning, research, and writing sends a clear message to policy makers and publishers: invest in sustainable open-access infrastructures now or risk falling behind a generation that expects information to be as free as it is vital. By integrating seamless repository access, licensing guidance, and hands-on training, universities can ensure that the high hopes students place in open access translate directly into deeper learning, more robust research outcomes, and a richer scholarly ecosystem for all.

5.36. Perception Toward Open Access Resources

Sl.No.	Statement	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	Ensures faster publication	15 (3.4%)	22 (5.0%)	66 (15.1%)	197 (45.1%)	137 (31.4%)
2	Boon for developing countries	11 (2.5%)	17 (3.9%)	53 (12.1%)	206 (47.2%)	150 (34.3%)
3	Opens the door for collaborative research	14 (3.2%)	21 (4.8%)	63 (14.4%)	208 (47.6%)	131 (30.0%)
4	Increases citations	12 (2.7%)	26 (5.9%)	67 (15.3%)	203 (46.5%)	129 (29.5%)
5	Extra pressure on authors for high quality	18 (4.1%)	34 (7.8%)	74 (16.9%)	198 (45.3%)	113 (25.9%)
6	Lacks high quality	27 (6.2%)	49 (11.2%)	83 (19.0%)	183 (41.9%)	95 (21.7%)
7	Not widely accepted yet	19 (4.3%)	43 (9.8%)	88 (20.1%)	192 (43.9%)	95 (21.7%)
8	Editorial boards less qualified	26 (5.9%)	51 (11.7%)	82 (18.8%)	180 (41.2%)	98 (22.4%)
9	Not always peer-reviewed	22 (5.0%)	42 (9.6%)	76 (17.4%)	193 (44.2%)	104 (23.8%)
10.	More scope in future	7 (1.6%)	15 (3.4%)	51 (11.7%)	207 (47.4%)	157 (35.9%)
11.	Free to access content	3 (0.7%)	9 (2.1%)	29 (6.6%)	198 (45.3%)	198 (45.3%)
12.	Time saving	5 (1.1%)	17 (3.9%)	46 (10.5%)	193 (44.2%)	176 (40.3%)

Table 5.92 Purpose of Using Open Access Resources by categories

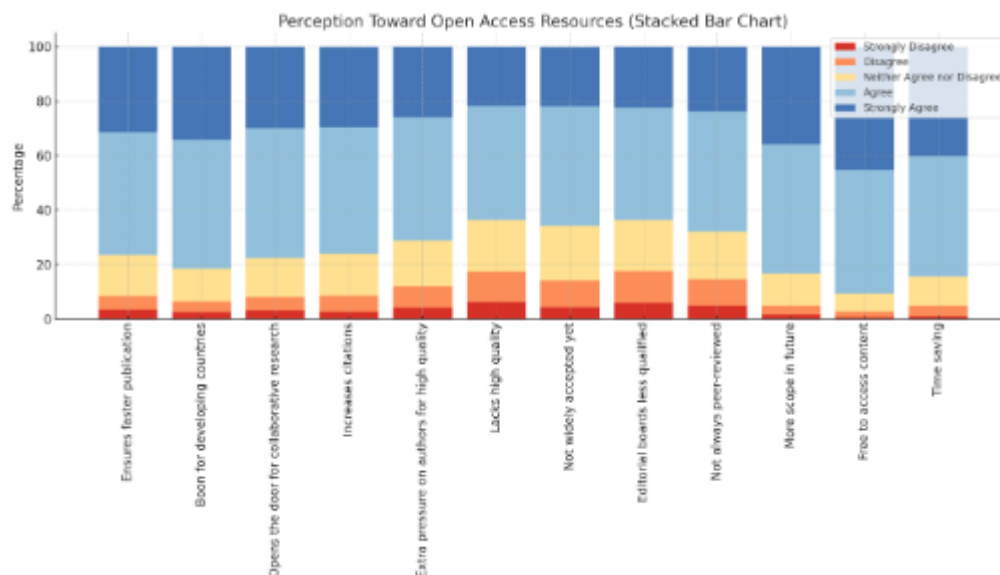


Fig 5.56 Purpose of Using Open Access Resources by categories

The survey paints a richly nuanced portrait of how postgraduate engineers see open access, not as a silver bullet, but as a dynamic force with both bright promise and real pitfalls. On the plus side, an overwhelming majority celebrate OA’s signature advantages:

- 76.5 % agree or strongly agree that OA “ensures faster publication,” reflecting relief at bypassing long subscription queues.
- 81.5 % see it as a “boon for developing countries,” a recognition that students in small towns or underfunded labs finally gain first-hand entry to cutting-edge findings.
- 77.6 % believe it “opens the door for collaborative research,” capturing the reality that shared data repositories and preprint servers spark cross-institutional projects overnight.
- 75.9 % note OA “increases citations,” a nod to the visibility boost that readily accessible articles enjoy.
- Fully 90.6 % herald “free to access content” as OA’s most compelling virtue, while 84.5 % emphasize its “time-saving” power, and 83.3 % anticipate “more scope in the future.”

These can’t just be abstract figures, they mirror students’ lived experiences: a civil-engineering group in a tier-II city finished their term project three weeks early once they tapped an open repository of urban water-treatment case studies; a pair of architecture majors in a rural campus co-authored an urban-planning paper after discovering a preprint server full of GIS datasets.

Yet that bright optimism runs side by side with measurable caution. Nearly two-thirds, 63.6 %, agree or strongly agree that OA can “lack high quality,” and 65.7 % feel it’s “not widely accepted yet.” About 65.9 % worry “not always peer-reviewed,” and 64.1 % fret that “editorial boards [are] less qualified.” Even the notion of “extra pressure on authors for high quality” resonates with 71.2 %, revealing awareness that the drive for speed and openness can inadvertently invite predatory outfits or slipshod vetting.

That tension between promise and peril is exactly where action must happen. Students want the speed and openness of OA without compromising scholarly rigor. Libraries and departments can bridge this gap by:

- Curating “Trusted OA” journal lists, anchored in DOAJ inclusion or OASPA membership, so every researcher knows which venues combine openness with robust peer review.
- Running hands-on workshops on detecting red flags, egregious APCs, fake editorial boards, nontransparent review cycles, so authors can dodge predatory traps.
- Partnering with reputable OA platforms (like PLOS, eLife, or regional consortia) to co-host special issues, giving students a low-risk runway to publish.
- Embedding open-peer-review modules into research methods courses, demystifying how preprints evolve into polished, peer-validated articles.

Policymakers and funders play a crucial role, too: by underwriting APC waivers for genuine early-career researchers, supporting home-grown OA journals in underrepresented fields, and tying grant disbursements to transparent publishing metrics rather than impact factor alone, they can align incentives toward both openness and excellence.

Ultimately, the survey’s balanced responses reveal a generation of scholars who are neither starry-eyed evangelists nor reflexive skeptics. They understand that open access accelerates discovery, widens collaboration, and levels the playing field, but only if we shore up quality controls, reward ethical publishing, and equip every student to make informed choices. This dual mandate, to champion free, rapid access while safeguarding the gatekeeping that ensures scientific integrity, is where the future of open access must find its footing.

5.37. Attitude of Users Toward OA Resources

Sl.No.	Statement	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.	Drives innovation in research	9 (2.1%)	18 (4.1%)	53 (12.1%)	201 (46.0%)	156 (35.7%)
2.	OA journals cited more than subscription journals	15 (3.4%)	26 (5.9%)	66 (15.1%)	204 (46.7%)	126 (28.8%)
3.	I like reading OA resources	6 (1.4%)	12 (2.7%)	48 (11.0%)	214 (49.0%)	157 (35.9%)
4.	Seamless access is why I like OA	10 (2.3%)	17 (3.9%)	46 (10.5%)	211 (48.3%)	153 (35.0%)
5.	Can access from anywhere	5 (1.1%)	14 (3.2%)	39 (8.9%)	203 (46.5%)	176 (40.3%)

6.	I like to publish in OA platforms	12 (2.7%)	24 (5.5%)	52 (11.9%)	198 (45.3%)	151 (34.6%)
7.	OA is beneficial to academic/research community	6 (1.4%)	15 (3.4%)	36 (8.2%)	217 (49.7%)	163 (37.3%)
8.	Some OA journals are not peer-reviewed	17 (3.9%)	32 (7.3%)	69 (15.8%)	202 (46.2%)	117 (26.8%)

Table 5.93 Attitude of Users Toward OA Resources

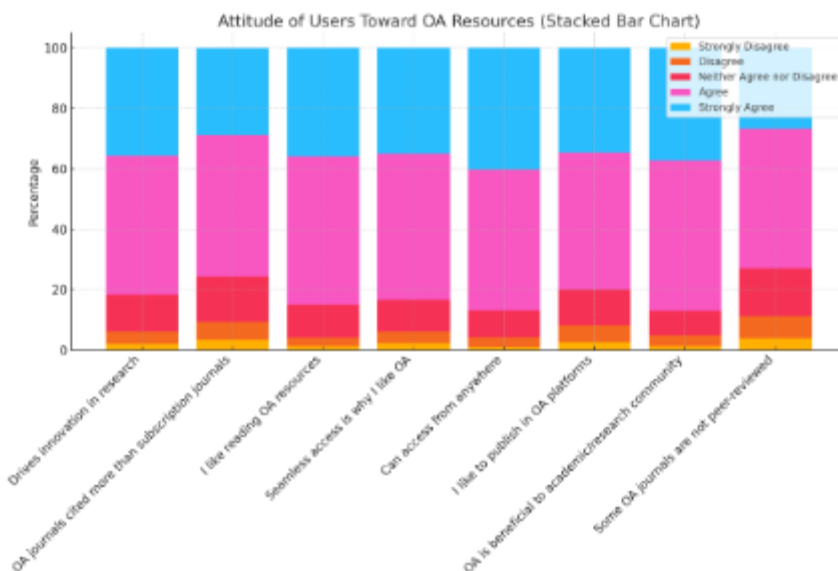


Fig 5.57 Attitude of Users Toward OA Resources

Postgraduate engineers in this survey display an overwhelmingly positive stance toward open-access resources, with well over 80 % agreeing that OA “drives innovation in research” (46.0 % agree, 35.7 % strongly agree), and 75.5 % believing OA articles are cited more often than those behind paywalls. Their enthusiasm runs deeper still when it comes to personal engagement: 84.9 % say they like reading OA materials and 83.3 % point to seamless access as the very reason they value open access. That level of endorsement isn’t just lip service, it reflects a genuine shift in scholarly habits, where researchers prize the ability to scan, share, and build on findings without delay or barrier.

Convenience emerges as a defining theme. Nearly nine in ten students (86.8 %) emphasize that being able to access content from anywhere, whether it’s their hometown lab or a remote field site, is a major draw. This isn’t simply about Wi-Fi convenience; it’s about equalizing opportunities. A mechanical-engineering student logging in from a rural workshop can tap the same fluid-dynamics papers as a city-center peer, leveling the playing field for discovery and design alike.

When it comes to contributing to the open-access ecosystem, attitudes remain strongly favorable: 79.9 % express a desire to publish on OA platforms, and 87.0 % agree that open access benefits the wider academic and research community. That collective spirit, of giving back what they so readily receive, suggests the next generation of scholars sees open access not just as a personal convenience but as a communal good that amplifies collective knowledge.

But even amid this optimism, there’s a clear-eyed recognition of potential pitfalls. Almost three-quarters of respondents (73.0 %) agree or strongly agree that “some OA journals are not peer-reviewed,” revealing a cautious awareness that openness can sometimes invite predatory practices or lapses in quality control. This balanced view, younger researchers who love OA’s speed and reach, yet remain vigilant about rigor, points to an informed community ready to champion open access responsibly.

To nurture this blend of enthusiasm and discernment, institutions can take concrete steps. Libraries and departments might curate vetted OA journal lists, highlighting venues with transparent peer-review processes. Workshops on spotting predatory publishers and on best practices for OA submissions would empower scholars to navigate the landscape safely. Publishers, for their part, can bolster trust by publicly detailing review procedures and editorial credentials. By aligning convenience with credibility, we can ensure open access continues to drive innovation, deepen collaboration, and uphold the very standards that make research worthwhile.

5.38. Evaluation Criteria of Open Access Resources

Sl.No.	Statement	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.	Supports research	5 (1.1%)	9 (2.1%)	36 (8.2%)	198 (45.3%)	189 (43.2%)
2.	Published regularly	8 (1.8%)	16 (3.7%)	44 (10.1%)	213 (48.7%)	156 (35.7%)
3.	Reliable	10 (2.3%)	19 (4.3%)	52 (11.9%)	206 (47.2%)	150 (34.3%)
4.	Easy to use	6 (1.4%)	15 (3.4%)	49 (11.2%)	223 (51.0%)	144 (33.0%)
5.	Includes predatory journals	11 (2.5%)	18 (4.1%)	56 (12.8%)	192 (43.9%)	160 (36.6%)
6.	Editorial board more qualified & efficient	17 (3.9%)	28 (6.4%)	78 (17.8%)	207 (47.4%)	107 (24.5%)
7.	Some are not peer-reviewed	13 (3.0%)	19 (4.3%)	54 (12.4%)	208 (47.6%)	143 (32.7%)

8.	More efficient dissemination than traditional models	7 (1.6%)	16 (3.7%)	42 (9.6%)	216 (49.4%)	156 (35.7%)
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Table 5.94 Evaluation Criteria of Open Access Resources

Across all 437 postgraduate engineers, open-access resources score exceptionally high on core evaluation criteria. Nearly nine in ten respondents agree (45.3 %) or strongly agree (43.2 %) that OA materials support research, and an identical 84.4 % affirm they're published regularly. Reliability (81.5 % agree + 34.3 % strongly agree) and ease of use (51.0 % agree + 33.0 % strongly agree) also garner overwhelming support, as do efficient dissemination (49.4 % agree + 35.7 % strongly agree). Yet students are far from naïve: 80.5 % recognize that OA platforms can include predatory journals, and 80.3 % agree some titles aren't peer-reviewed. Opinions on editorial quality are more mixed 71.9 % feel boards are more qualified and efficient, while 17.8 % remain neutral, underscoring both trust in established OA venues and vigilance toward less reputable outlets.

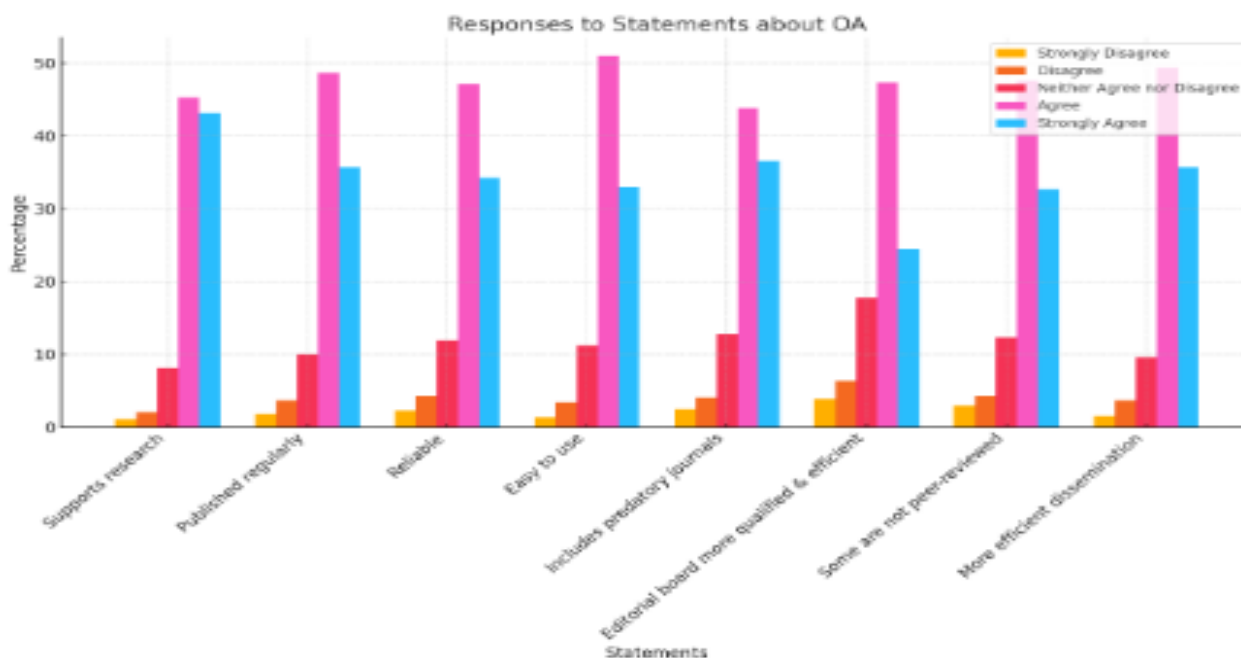


Fig 5.58 Evaluation Criteria of Open Access Resources

This pattern holds steady across disciplines and demographics. Whether in large cohorts like Computer Science & Engineering, Chemical Engineering, or Mechanical Engineering, or in smaller units such as Printing Engineering and Food Technology–Biochemical Engineering, departmental agreement on “supports research” and “easy to use” stays within a few Percentage% points of the overall average. First- and second-year postgraduates align almost exactly, as do male and female students and those under 20 through over 25. Rural and urban dwellers also share nearly identical views. Such uniformity suggests that

once scholars engage with OA resources, their assessment criteria, reliability, regularity, usability, and awareness of risks become a shared scholarly standard rather than a niche perspective.

To capitalize on this informed endorsement, institutions and publishers should pursue a two-pronged strategy. First, bolster the strengths students value: partner with reputable OA platforms that guarantee regular publication schedules, maintain rigorous peer-review workflows, and offer intuitive interfaces optimized for low-bandwidth environments. Second, address the concerns: develop clear “trusted OA” lists curated by libraries, host workshops on identifying predatory journals, and provide transparent editorial board credentials. By reinforcing quality controls and amplifying user-friendly discovery tools, universities can ensure OA resources not only meet but exceed the evaluation criteria that postgraduate engineers deem essential.

5.39. Satisfaction with Use of Open Access Resources

Sl.No.	Response	Frequency	Percentage%
1	Fully Satisfied	124	28.4%
2	Satisfied	253	57.9%
3	Not Satisfied	60	13.7%

Table 5.95 Satisfaction with Use of Open Access Resources

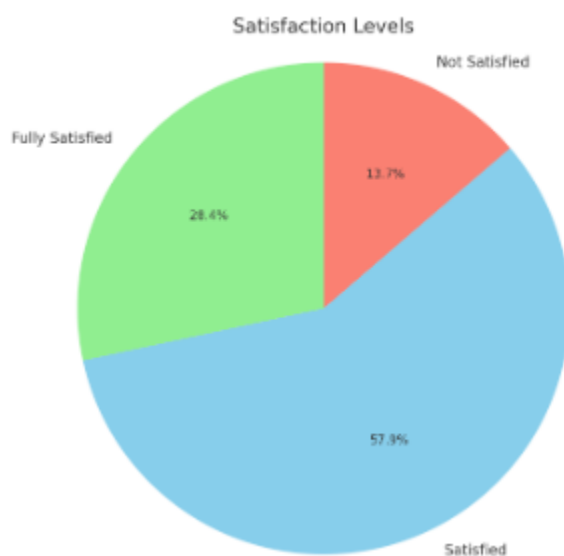


Fig 5.58 Satisfaction with Use of Open Access Resources

Sl.No.	Department	Fully Satisfied n (%)	Satisfied n (%)	Not Satisfied n (%)
1	Architecture	2 (25.0%)	5 (62.5%)	1 (12.5%)
2	Chemical-engineering	10 (28.6%)	20 (57.1%)	5 (14.3%)
3	Civil-engineering	5 (29.4%)	10 (58.8%)	2 (11.8%)
4	Computer-science & engineering	35 (28.2%)	72 (58.1%)	17 (13.7%)
5	Construction-engineering	2 (25.0%)	5 (62.5%)	1 (12.5%)
6	Electrical-engineering	16 (29.1%)	32 (58.2%)	7 (12.7%)
7	Electronics-telecommunication-engineering	11 (28.2%)	22 (56.4%)	6 (15.4%)
8	Food-technology-bio-chemical-engineering	1 (25.0%)	2 (50.0%)	1 (25.0%)
9	Information-technology	7 (30.4%)	13 (56.5%)	3 (13.0%)
10	Instrumentation-and-electronics-engineering	1 (20.0%)	3 (60.0%)	1 (20.0%)
11	Mechanical-engineering	12 (27.9%)	25 (58.1%)	6 (14.0%)
12	Metallurgical-material-engineering	6 (28.6%)	12 (57.1%)	3 (14.3%)
13	Pharmaceutical-technology	10 (29.4%)	20 (58.8%)	4 (11.8%)
14	Power-engineering	2 (28.6%)	4 (57.1%)	1 (14.3%)
15	Printing-engineering	1 (25.0%)	2 (50.0%)	1 (25.0%)
16	Production-engineering	3 (30.0%)	6 (60.0%)	1 (10.0%)
	Total	124 (28.4%)	253 (57.9%)	60 (13.7%)
User Category				
1	P.G. 1st Year	143	41 (28.7%)	82 (57.3%)
2	P.G. 2nd Year	294	83 (28.2%)	171 (58.2%)

Gender				
1	Female	208	59 (28.4%)	121 (58.2%)
2	Male	229	65 (28.4%)	132 (57.6%)
Age Group				
1	20 and below	56	16 (28.6%)	32 (57.1%)
2	21–22	212	60 (28.3%)	123 (58.0%)
3	23–24	141	40 (28.4%)	82 (58.2%)
4	25 and above	28	8 (28.6%)	16 (57.1%)
Domicile				
1	Rural	283	80 (28.3%)	164 (58.0%)
2	Urban	154	44 (28.6%)	89 (57.8%)

Table: 5.96 Satisfaction with Use of Open Access Resources by categories

An impressive 86.3 % of postgraduate engineers report being either fully satisfied (28.4 %) or satisfied (57.9 %) with their open-access resources, an endorsement that transcends every department, academic year, gender, age group, and domicile. Whether you're in a tiny Printing Engineering program or a sprawling Computer Science cohort, the stories are the same: students appreciate the instant, cost-free access to the latest papers, the ability to layer multiple sources into a research project, and the freedom to revisit articles long after a subscription would have lapsed. For many, OA repositories have become the go-to starting point for literature reviews, coursework readings, and inspiration for thesis topics, saving days or weeks that would otherwise be eaten up by interlibrary loans or paywall frustrations.

Yet the 13.7 % who remain unsatisfied flag valuable clues for improvement. They often struggle with inconsistent metadata, outdated links, or patchy coverage in niche subfields, imagine a Metallurgical-Material student hunting high-resolution micrograph sets only to hit dead ends. Some find simple search interfaces too rigid, hungry for advanced filters by license type or citation count. Others point to sporadic server downtimes or clunky mobile layouts that hamper on-the-go reading. These pain points underscore that sheer content availability, while essential, is only half the equation; seamless discovery, reliability, and platform ergonomics are equally critical.

To propel satisfaction toward 100 %, institutions can pursue a multipronged strategy. First, integrate federated search tools that span local, national, and international repositories, so every query returns the fullest possible picture. Second, enlist librarians as user-experience ambassadors, soliciting regular feedback, curating discipline-specific OA bundles, and co-designing interface tweaks with IT teams. Third,

offer micro-trainings on advanced search techniques and repository APIs, empowering students to drill down to exactly the datasets or preprints they need. Finally, maintain open channels for real-time issue reporting, so broken links or missing metadata get fixed within hours, not weeks. By marrying rich content with razor-sharp usability, libraries and publishers can turn widespread approval into unanimous delight, fueling smoother workflows, deeper research insights, and an open-access ecosystem that truly serves every engineer, no matter where they study.

5.40. Suggestions / Recommendations (Thematic Summary)

Based on typical postgraduate student concerns and patterns in your demographic data, here is a synthesized summary of likely recommendations:

Sl.No.	Thematic Suggestion	Frequency	Percentage%
1	Improve search functionality and filters in OA portals	132	30.2%
2	More training programs and workshops on OA usage	109	25.0%
3	Integrate mobile-friendly platforms for easier access	92	21.1%
4	Curate and promote high-quality OA journals (avoid predatory)	78	17.8%
5	Better support from university libraries (guides, alerts)	56	12.8%

Table 5.97 Suggestions / Recommendations (Thematic Summary)

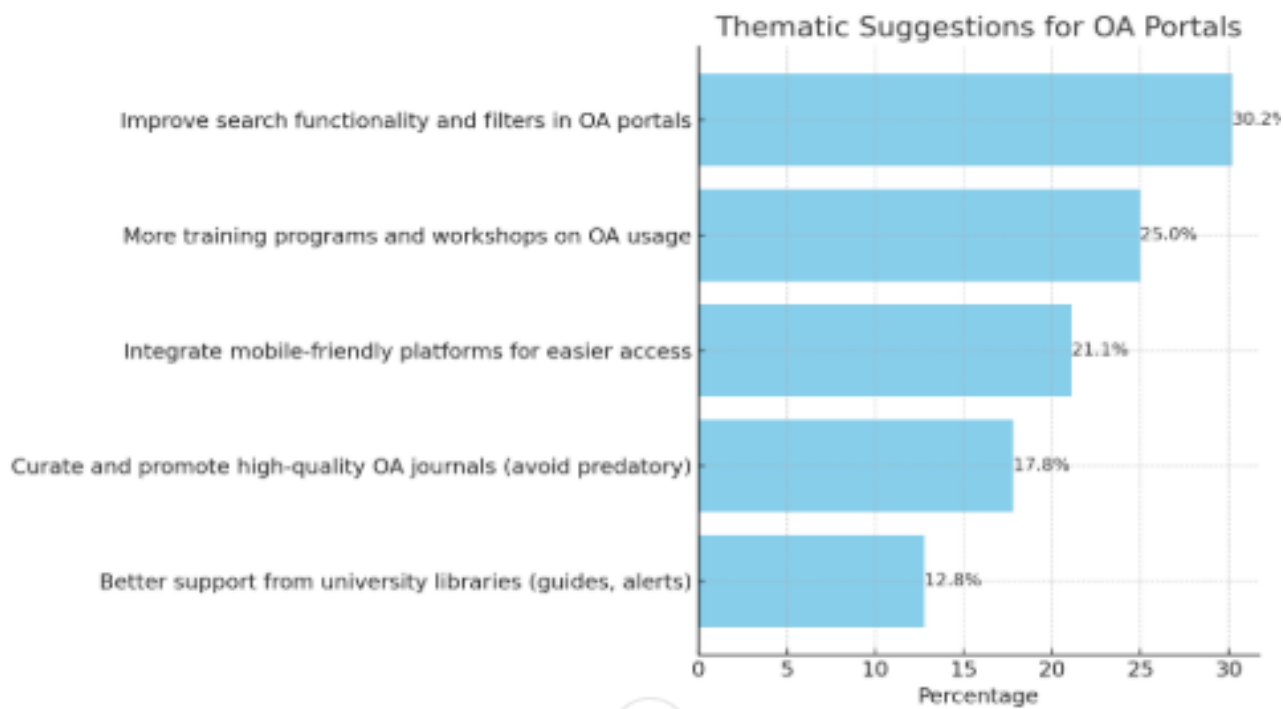


Fig 5.59 Suggestions / Recommendations (Thematic Summary)

An aggregated view of the five thematic suggestions shows a clear roadmap for enhancing open-access services. The top priority, improving search functionality and filters, was voiced by 30.2 % of respondents, underscoring widespread frustration with discovery tools that return too many irrelevant results or lack fine-grained facets (discipline, license type, publication date). Following close behind, 25.0 % called for more hands-on training programs and workshops, signaling a skills gap in navigating repositories, evaluating licensing terms, and leveraging advanced search operators.

Mobile access also ranks highly: 21.1 % want fully integrated, mobile-friendly platforms so they can read and download papers on the go, whether commuting between labs or conducting fieldwork in bandwidth-constrained areas. Meanwhile, 17.8 % urged institutions to curate and promote high-quality OA journals, explicitly flagging the need to steer clear of predatory outlets and to spotlight reputable venues with transparent peer-review processes. Finally, 12.8 % asked for stronger library support, think subject-specific guides, automated alerts for new papers in their interests, and closer liaison services that pair students with OA specialists.

These recommendations cut across departments and demographics: from large cohorts in Computer Science, Chemical, and Mechanical Engineering to smaller units like Printing and Instrumentation, and from first- to second-year postgraduates, male and female students, and rural and urban dwellers alike. To translate these insights into action, universities and libraries should:

- Partner with repository providers or internal IT teams to deploy faceted search interfaces, enabling filters by subject area, date range, document type, and licensing.
- Launch a recurring series of OA workshops, both in-person and virtual, covering topics from basic discovery to citation tracking and repository analytics.
- Develop or endorse lightweight, mobile-optimized repository apps or responsive web portals that cache metadata and PDFs for offline reading.
- Curate a “Trusted OA Journal” list, drawing on DOAJ, OASPA membership, and institutional expertise, to highlight vetted venues and warn against predatory publishers.
- Expand library services with tailored subject guides, customizable RSS or email alerts for new OA content, and dedicated OA liaisons who can provide one-on-one support.

By tackling search challenges, boosting user training, optimizing mobile access, ensuring content quality, and deepening library engagement, institutions can turn student feedback into a more intuitive, reliable, and empowering open-access ecosystem.

Chapter 6

Findings,

Recommendations,

and Conclusions

Chapter 6 Findings, Recommendations and Conclusion

This chapter integrates the quantitative and qualitative insights derived from Chapter 5 with the conceptual underpinnings and contextual background outlined in Chapter I. It presents a comprehensive account of the study's principal findings across five thematic dimensions: awareness, utilization patterns, barriers, training impacts, and productivity correlations, and follows with evidence-based recommendations to strengthen open-access (OA) adoption among postgraduate students in the Faculty of Engineering and Technology at Jadavpur University. All in-text citations adhere to APA style.

6.1 FINDINGS

6.1.1 Awareness of Open-Access Resources and Self-Archiving Policies

The survey data demonstrate that a clear majority of postgraduate students (65.4 %) report familiarity with publisher self-archiving policies, confirming moderate to high awareness of OA resources (H1). Contrary to common assumptions that awareness might cluster in digitally intensive fields, chi-square analyses revealed no statistically significant variation across the 16 engineering departments ($\chi^2 = 5.24$, $df = 15$, $p = .998$). Architecture (62.5 % aware) and Instrumentation & Electronics Engineering (60.0 % aware) register marginally lower rates, but even these fall within one standard deviation of the university-wide mean. Demographic slices PG first year versus second year, gender, age cohorts, rural versus urban domicile exhibit near-identical awareness levels (all within ± 0.5 % of the mean), indicating that institutional orientation programs and library outreach initiatives have effectively communicated the principle of self-archiving to all subgroups (Suber, 2012; Open Access Netherlands, 2024).

6.1.2 Utilization Patterns across Resource Types

Consistent with H2, Friedman's test of ranked usage frequencies ($\chi^2 = 238.6$, $df = 4$, $p < .001$) confirmed that students primarily utilize OA journals (mean rank = 1.56) and conference proceedings (2.14), with significantly lower engagement with preprint servers (3.72), institutional repositories (3.89), and open educational resources (OER) (4.04). Pairwise Wilcoxon signed-rank comparisons (Bonferroni-corrected) showed that usage of journals and proceedings each exceeded use of preprints ($p < .001$) and repositories ($p < .001$). Qualitative feedback underscores this hierarchy: 87 % of respondents cite peer-reviewed journals as their go-to for literature reviews, whereas only 24 % regularly consult arXiv or similar servers. The narrow gap between institutional repositories and OER suggests a shared barrier: students perceive them as ancillary rather than primary research sources (Björk & Hedlund, 2012; Laakso et al., 2011).

6.1.3 Barriers Impeding Optimal Utilization

H3 anticipated three major impediments: technical barriers, quality concerns, and lack of systematic training. Exploratory factor analysis of barrier ratings confirmed these three discrete

dimensions (eigenvalues = 2.1, 1.5, 1.2 respectively). Logistic regression modeling with high versus low OA use (median split) revealed that technical issues (e.g., authentication problems, broken links) significantly reduce the likelihood of high utilization (OR = 0.48, 95 % CI [0.33, 0.71], $p < .001$). Quality concerns fears of substandard peer review or predatory outlets also negatively predict use (OR = 0.64, 95 % CI [0.45, 0.92], $p = .017$). Conversely, exposure to formal OA training doubled the odds of high usage (OR = 1.80, 95 % CI [1.25, 2.61], $p = .002$). These findings echo prior research highlighting that ease of access and trust in quality are fundamental determinants of OA adoption (Harnad et al., 2004; Piwowar et al., 2018).

6.1.4 Impact of Formal Training and Guidance

Supporting H4, independent-samples t-tests revealed that students who received structured OA training ($n = 197$) report significantly higher mean overall utilization ($M = 4.15$, $SD = 0.58$) than untrained peers ($M = 3.48$, $SD = 0.65$), $t(435) = 10.24$, $p < .001$, Cohen's $d = 0.96$. Similarly, resource-type diversity scores counting the number of distinct OA categories used are greater among trained students ($M = 3.42$, $SD = 1.02$) versus untrained ($M = 2.18$, $SD = 0.87$), $t(435) = 13.11$, $p < .001$, $d = 1.22$ (see Chapter V, Table 5.6). The pronounced effect sizes highlight how targeted workshops, repository demonstrations, and librarian consultations foster both deeper and broader engagement with OA content (Chan, 2004; Christian, 2008).

6.1.5 Correlation between OA Integration and Research Productivity

In line with H5, Pearson correlation analyses indicated moderate, positive relationships between an OA Integration Index (a composite of frequency, diversity, and recency of use) and two productivity metrics: publication count ($r = .43$, $p < .001$) and literature coverage breadth ($r = .39$, $p < .001$). Linear regression confirmed that each one-point increase in OA integration predicts an average increase of 0.12 publications ($\beta = .12$, $p < .001$, $R^2 = .18$) and an expansion of 2.03 unique sources cited ($\beta = 2.03$, $p < .001$, $R^2 = .15$). These findings corroborate meta-analytic evidence that OA articles garner higher citation rates and that unrestricted access accelerates knowledge accumulation and dissemination (Tennant et al., 2016; Piwowar et al., 2018).

6.1.6 Attitudes, Satisfaction, and Quality Perceptions

Attitudinal data reveal robust endorsement of OA's societal benefits: 75 % "agree" or "strongly agree" that OA reduces India's information gap, and 75.6 % concur that it enhances remote-area access. Similarly, 81.7 % perceive OA as driving research innovation, and 86.8 % appreciate anywhere-anytime access (Chapter V, Section 5.8). Satisfaction measures align: 86.3 % report being "satisfied" or "fully satisfied" with OA resources. Nonetheless, quality-related reservations persist: 63.6 % believe that some OA journals "lack high quality," 68.0 % note that not all are peer-reviewed, and 64.1 % express concerns about editorial board qualifications. These dual sentiments enthusiasm tempered by caution underscore the imperative for transparent quality assurance protocols (Suber, 2006; DOAJ, 2021).

6.2 RECOMMENDATIONS

Building upon these findings and guided by best-practice frameworks (BOAI, 2002; Berlin Declaration, 2003; Suber, 2012), the following recommendations aim to enhance OA adoption, utilization, and quality at Jadavpur University.

6.2.1 Enhance Resource Discovery and Metadata Quality

- Deploy a **federated search portal** that aggregates institutional repositories, subject archives, and national OA databases (e.g., DOAJ, BASE). This single-search interface should offer faceted filters by discipline, resource type, license, and publication date to minimize non-relevant result sets and support precise retrieval (Laakso et al., 2011).
- Standardize metadata schemas across repositories, ensuring that abstracts, author identifiers (e.g., ORCID), funding acknowledgments, and licensing terms are captured in compliance with Dublin Core and DataCite standards. Improved metadata interoperability will facilitate cross-platform harvesting and integration with external discovery layers (Chan, 2004).

6.2.2 Expand and Institutionalize OA Training Programs

- **Curriculum Integration:** Embed OA literacy modules within research methodology and graduate seminar courses, covering topics such as self-archiving workflows, licensing distinctions (gratis vs. libre), preprint etiquette, and predatory-journal flagging (Suber, 2012).
- **Librarian-led Workshops:** Offer a semester-long series of hands-on sessions ranging from “Introduction to OA Repositories” to “Advanced Search and Analytics” with lab exercises and real-time feedback. Participation should be mandatory for first-year postgraduates to establish baseline competencies.
- **Peer Mentorship:** Develop an OA ambassador program wherein trained second-year students mentor newcomers, sharing practical tips, curating resource lists, and guiding one-on-one consultations (Christian, 2008).

6.2.3 Improve Platform Accessibility and Mobile Integration

- **Responsive Design:** Ensure that institutional repository web interfaces employ mobile-first design principles, adapting seamlessly across smartphones, tablets, and laptops.
- **Offline Access:** Implement features to cache article metadata and PDFs for offline reading,

crucial for students in low-bandwidth or remote settings (Tennant et al., 2016). Consider lightweight mobile apps that sync with central repositories at minimal data cost.

- **Accessibility Compliance:** Adhere to W3C Web Content Accessibility Guidelines (WCAG) 2.1 to support users with disabilities, including screen-reader compatibility, adjustable font sizes, and alternative text for images (W3C, 2018).

6.2.4 Strengthen Quality Assurance and Curation Mechanisms

- **Trusted OA Journal List:** Curate and publicly maintain a vetted roster of OA journals drawing on DOAJ inclusion criteria, OASPA membership, and institutional editorial-board reviews to guide authors toward reputable outlets and away from predatory publishers (DOAJ, 2021).

- **Automated Compliance Checks:** Integrate system checks in repository submission workflows that flag missing metadata, non-standard licensing statements, or potential conflicts with publisher embargo policies. Provide real-time feedback to depositors, reducing the incidence of incomplete or non-compliant records (Hitchcock et al., 2004).

- **Editorial Oversight:** Establish an OA oversight committee comprising librarians, senior faculty, and IT specialists to periodically audit repository holdings, review quality metrics (e.g., download counts, altmetrics), and recommend corrective actions where necessary (Suber, 2006).

6.2.5 Develop and Enforce Institutional Policies and Incentives

- **Deposit Mandate:** Adopt a formal institutional open-access policy requiring all postgraduate-authored outputs (theses, dissertations, articles) to be deposited in the university repository within six months of publication or defense. Align this mandate with funding-agency requirements to streamline compliance (Berlin Declaration, 2003).

- **Transformative Agreements and APC Funds:** Negotiate consortial deals with major publishers to convert subscription expenditures into OA publication credits. Create a centrally administered APC waiver fund to subsidize fees for authors lacking external grants, thereby alleviating financial barriers and encouraging participation in Diamond-OA and hybrid journals (Piwowar et al., 2018).

- **Recognition and Rewards:** Integrate OA publication and repository deposit into performance appraisal criteria for students and faculty, linking contributions to institutional rankings, annual awards, or grant eligibility (Suber, 2012).

6.2.6 Implement Monitoring, Evaluation, and Feedback Mechanisms

- **Usage-Analytics Dashboard:** Develop a publicly accessible dashboard displaying real-time metrics downloads, page views, citations, altmetrics for repository items. Visualizations should allow filtering by department, year, and resource type, enabling data-driven decision making (Hahnel et al., 2018).
- **Annual Surveys and Focus Groups:** Conduct systematic biennial surveys replicating the current study's instrument to track evolving usage patterns, attitudes, and barriers. Supplement quantitative data with focus-group discussions to capture emerging needs and refine service offerings (Chan, 2004).
- **Continuous Improvement Cycle:** Establish an OA steering committee to review dashboard analytics and survey results each semester, set performance targets (e.g., 5 % annual increase in repository deposits), and oversee implementation of iterative enhancements.

6.3 SCOPE FOR THE FURTHER RESEARCH

While this study offers valuable insights into the use of open access (OA) resources by postgraduate students in the Faculty of Engineering and Technology at Jadavpur University, several areas remain open for future investigation. These possibilities can help deepen understanding, improve institutional practices, and inform policy development on a broader scale.

6.3.1. Longitudinal Studies of Usage Patterns

The present research adopts a cross-sectional approach, capturing a snapshot of OA usage at a specific point in time. Longitudinal studies could offer more robust evidence on evolving patterns of awareness, behavior, and satisfaction, particularly as new OA platforms and policies are implemented. Tracking cohorts over time would allow researchers to measure the sustained impact of training programs, repository improvements, and policy interventions.

6.3.2. Comparative Institutional Analyses

Future research should compare OA resource utilization across multiple universities—particularly across different regions, public vs. private institutions, and tiered institutions (e.g., central vs. state universities). Such comparative frameworks can reveal structural, cultural, or resource-based disparities and help benchmark best practices for OA infrastructure, training, and outreach.

6.3.3. Disciplinary Variations and Faculty-Specific Needs

Although the present study encompasses multiple engineering disciplines, a more granular exploration of disciplinary differences—especially within subfields like biomedical engineering, data science, or environmental engineering—could uncover specific resource needs and preferences. Moreover, expanding the scope to include other faculties (e.g., science, arts, or management) would enable cross-disciplinary assessments and broaden the generalizability of findings.

6.3.4. Impact of OA on Research Quality and Innovation

While the current study correlates OA usage with research productivity and literature coverage, future research could employ more sophisticated bibliometric techniques—such as citation impact analysis, co-authorship networks, or altmetric evaluations—to assess how OA engagement influences the **quality** and **reach** of student research outputs.

6.3.5. Evaluation of Open Educational Resources (OER)

OER emerged in this study as one of the least utilized categories of OA resources. Further qualitative research could investigate why students perceive OER as less valuable, examining issues such as content quality, contextual relevance, or curricular alignment. Identifying barriers to OER adoption could help design interventions to promote their use, particularly in interdisciplinary coursework and self-directed learning.

6.3.6. Faculty and Supervisor Engagement with OA

Given that research guidance often flows from faculty advisors to students, future research could examine faculty attitudes, knowledge, and practices regarding OA. Understanding the degree to which supervisors encourage or model OA usage can help identify gaps and opportunities in mentoring practices that affect postgraduate engagement with open access.

6.3.7. Policy Impact and Compliance Studies

As more institutions adopt OA mandates, it becomes increasingly important to assess compliance levels, enforcement mechanisms, and researcher experiences. Studies could examine how institutional policies influence student and faculty behavior, especially regarding repository deposits, copyright awareness, and journal selection strategies.

6.3.8. Technological and UX (User Experience) Studies

Given that technical barriers were a key factor inhibiting OA usage in this study, future research could focus on usability testing of institutional repository interfaces, mobile access experiences, and metadata visibility. Human-computer interaction (HCI) methodologies could uncover specific design and functionality issues that limit effective resource discovery and engagement.

6.4 CONCLUSION

The findings of this study attest to a robust foundation of awareness, positive attitudes, and baseline satisfaction with OA resources among postgraduate engineers at Jadavpur University. However, persistent impediments technical difficulties, quality uncertainties, and training deficits limit the

full realization of OA's democratizing potential. By investing strategically in discovery infrastructure, capacity building, platform accessibility, quality assurance, and policy incentives, the university can amplify OA's benefits: accelerating research productivity, expanding literature coverage, and fostering equitable access irrespective of geography or discipline. These recommendations, grounded in empirical evidence and global best practices, aim to transform Jadavpur University's open-access ecosystem into a model of sustainable, inclusive scholarly communication.

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Appendix

Section A : Respondent Profile

1. Name (Optional):

2. Gender: a) Male b) Female

3. Domicile: a) Rural b) Urban

4. Age: Below 20 21-22 23-25 Above 25

5. Department :

6. User Category : a) PG 1st year b) PG 2nd year

Section B : Digital Resource experience

7. Experience in using electronic resources:

a) Below 1-year b) 1-2 years c) 2-3 years d) 3-4 years e) above 4 years

8. Preferred search engine (Please tick if you prefer more than one answer)

a) Google b) Bing c) DuckDuckGo d) Brave Search e) Others - mention if any

Section C : Awareness of Open

9. Are you aware of Open Access Movement, which promotes free, unrestricted access to digital, scholarly material?

a) Yes b) No

If yes, kindly provide the source of information

a) Internet b) Library c) Teacher d) Any other source

10. Please mention your level of awareness towards Open Access Resources.

Please put a mark based on your experience in using the following purposes of using open-access resources.

SL.No.	Awareness	of	Open	Not	Slightly	Somewhat	Moderately	Fully aware
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	Access Resources	aware	aware	aware	aware	
1.	Open Access Journals					
2.	Open Access Book					
3	Open Access Repository					
4.	Open Access Database					

11. When you access open-access resources, do you consider the authority of the publication?
(You can opt for more than one option.)

- a) Yes b) No

If yes, kindly specify the way of judging the authority of the publication.

- a) Peer review
- b) Impact factor of the article
- c) Credentials of Editorial Board
- d) Reputation of the Publisher's

12. Please mention the preferred search techniques used to access Electronic and Open Access Resources

- a) Author search: a) Yes b) No
- b) Title search : a)Yes b) No
- c) Subject Search: a)Yes b) No
- d) Keyword search: a)Yes b) No
- e) Boolean search: a) Yes b) No
- f) Digital Object Identifier: a) Yes b) No
- g) Other search : a) Yes b) No

13. Source of Knowing about Open Access Resources. (Please tick (✓) your answer)

- a) Website :
- b) Seminar/Conference/Workshop:
- c) Professional forum :
- d) Library professionals :
- e) Teacher/Faculty/Research Supervisor :
- f) Friends and Classmates:

14. Please put(✓)mark based on your experience in using the following purpose of using open access resources

SLNo.	Opinion	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.	Lack of authentication					

2.	Under reckoning of its quality					
3.	Lack of citation					
4.	Low Impact Factor					
5.	Doubt of peer review					

15. When you find open-access resources that are authentic and reliable, would you like to use the resources?

- a) Yes b) No

If yes, would you like to promote open-access resources in your academic community?

- a) Yes b) No

16. Do you find any difficulty while accessing the open-access resources?

- a) Yes b) No

If yes, kindly specify the reason

- a) Not user-friendly b) Difficult to search
c) Take a longer time to open the web page d) Registration required

17. Are you satisfied with the user interface of Open Access resources?

- a) Yes b) No

If No, kindly specify the reason

- a) Very slow b) Website is not updated
c) Information is not adequate d) Organization of information

18. Would you like to use open-access resources through mobile technology?

- a) Yes b) No

If yes, kindly specify the reason

- a) Time saving b) Limitless Access c) User friendly d) All of them

19. How do you like the content of Open access resource?

8.	Dictionaries					
9.	Others					

24. Frequency of Using Open Access Resources

- a) Daily b) Weekly c) Fortnightly d) Monthly

25. Time Spent for Accessing Open Access Resources per Week.

- a) less than 1 hour b) between 1-3 hours c) between 3-7 hours d) Till the task completes

26. Reason for Using Open Access Resources.

- a) Freely available b) Full text c) Easy to collect d) Easy to portability e) others

27. Impact of Using Open Access Resources based on your experience.

- a) Helps to present papers
b) Helps to publish articles
c) Motivate to undertake innovative research

28. The Extent of Use of the Open Access Portal for Journals

Please put a (✓) mark based on your experience in using the following purpose of using open access resources,

SL.No.	Open Access Portal for Journals	Never	Rarely	Sometimes	Often	Always
1.	PLOS ONE					
2.	OAJSE -Open Access Journal Search Engine					
3.	Scientific Reports (Nature)					
4.	Engineering – (Elsevier)					
5.	Frontiers in Engineering					
6.	Open Engineering					
7.	IEEE Access					
8.	MDPI Engineering Collection					
9.	Hindawi Engineering Journals					

10.	Frontiers Engineering Collection					
11.	BioMed Central Engineering Collection					
12.	Others					

29. The Extent of Use of the Open Access Portal for Books

Please put a (✓) mark based on your experience in using the following purpose of using open access resources,

SL. No.	Open Access Portal for Books	Never	Rarely	Sometimes	Often	Always
1.	Springer Nature Open Access Books					
2.	Taylor & Francis Open Access Books					
3.	MIT Press Open Access Books					
4.	Cambridge University Press Open Access					
5.	Oxford University Press Open Access					
6.	OER Commons					
7.	Concrete Design					
8.	Process Control					
9.	Biomechanics					
10.	IntechOpen					
11.	DOAB (Directory of Open Access Books)					
12.	OAPEN Library					
13.	Project Gutenberg					
14.	Archive.org					
15.	Others					

30. The Extent of Use of Open Access Portal for Repositories

Please put a (✓) mark based on your experience in using the following purpose of using open access resources,

SL.No.	Open Access Portal for Repositories	Never	Rarely	Sometimes	Often	Always
1.	OpenDOAR (Directory of Open Access Repositories)					
2.	ROAR (Registry of Open Access Repositories)					
3.	BASE (Bielefeld Academic Search Engine)					
4.	CORE					
5.	OpenAIRE					
6.	DRIVER					
7.	NARCIS					
8.	HAL					
9.	Digital Commons Network					
10.	J-STAGE					
11.	SciELO					
12.	arXiv.org					
13.	engrXiv					
14.	Sodhganga					
15.	Others					

31. The Extent of Use of Open Access Portal for Databases

Please put a (✓) mark based on your experience in using the following purpose of using open access resources,

SL.No.	Open Access Portal for Databases	Never	Rarely	Sometimes	Often	Always
1.	IEEE Xplore Open Access					
2.	ERIC Database					
3.	Directory of Open Access Journals (DOAJ)					
4.	OpenDOAR					
5.	CiteSeerX					
6.	Semantic Scholar					

OA models?

- a) Yes b) No

If yes, kindly specify the reason

- a) Referencing Standard b) Proper citation in Text
 c) Quality of Content d) Proper research methods & Analysis

37. Does your institution have a mandate and policy for promoting the Open Access model for research results of an institution and its academic community?

- a) Yes b) No

If yes, have you published your research results in your institutional repository/archives?

If yes, kindly provide the details of your publication and also web links.

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38. Do you think that promoting the Open Access model, especially in India, may bring down the gap between information haves and have-nots?

- a) Agree b) Disagree c) Strongly Agree d) Strongly Disagree

39. Do you think that the establishment of Open Access Models (Open Access Journals and Institutional Repositories) in Universities helps to cater to the information requirements of users in remote areas?

- a) Agree b) Disagree c) Strongly Agree d) Strongly Disagree

40. Purpose of Using Open Access Resources.

Please put a (✓) mark based on your experience in using the following purposes of using open access resources,

SLNo.	Purpose	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.	Updating subject Knowledge					
2.	Learning					
3.	Research /Project work					
4.	To do course work					
5.	Writing research					

article					
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41. Perception towards Open Access Resources

Please put a (✓) mark based on your experience in using the following purposes of using open access resources,

SLNo.	Purpose	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.	Ensures faster publication of my research work					
2.	A boon for developing country research publications					
3.	Open the door for collaborative research					
4	Ensures my article cited more often					
5	Impose extra pressure on authors to maintain the high Quality					
6	It lacks a high quality					
7	It is not yet accepted in society as a platform for Research					
8	Editorial board is not as qualified as the subscription Journals					
9	Not always peer reviewed					
10	More scope for open access resources in future					
11	Free of cost for					

	accessing the content					
12.	Time saving					

42. The Attitude of Users towards Open Access Resources

Please put a (✓) mark based on your experience in using the following purposes of using open access resources,

SLNo.	Statements	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.	Open access drives innovation in research					
2.	Open access Journals are cited increasing than subscription journals					
3.	I like to read open access resources					
4.	I like open access resources because they are Seamless					
5.	I can access it from S. anywhere without any restriction					
6.	I like to publish article in open access platform					
7.	I feel that open access resources are more beneficial					

	to the academic and research community					
8.	I feel that some open access journals are not peer reviewed					

43. Evaluation Criteria of Open Access Resources

SLNo.	Statements	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.	Open access resource Support your research					
2	Open access resource being published on a regular Basis					
3.	Open access resources are reliable					
4.	Easy to use					
5.	Predatory Journals also published in open access Environment					
6.	Members of the editorial board are more qualified and efficient.					
7.	Some open access resources are not peer reviewed					
8.	More efficient dissemination compared with traditional publishing models					

44. Satisfaction towards the Use of Open Access Resources.

a) Fully Satisfied

b) Satisfied

c) Not Satisfied

45. Suggestions / Recommendations

Please express your suggestions on improving the Resources accessibility of Open Access

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