

Comparative Analysis of Social Media Adoption in Engineering College Libraries in Mumbai Region

Devidas Gangaram Kalwale¹, Dr. Govind Adhe²

¹Research Scholar, Department of Library and Information Science, Dr. Babasaheb Ambedkar Marathwada University Aurangabad

²Department of Library and Information Science, Dr. Babasaheb Ambedkar Marathwada University Aurangabad

Abstract—Social media platforms are presently a crucial aspect of human life. Social media technologies provide a venue for communication. The design should not only attract comments but also provoke a reaction. An individual association gets deeper with the knowledge through this. This paper attempts to study the extent of use and adoption of social media in engineering college libraries of Mumbai region. The primary objective is to examine how engineering colleges utilize these platforms for academic assistance, student involvement, access and availability of resources and more. "Social media use by educational institutions is growing day by day". The limitless availability of technology and the internet has altered our lives. The Internet is being used vastly in the daily life of a human being whether it is business, traveling, social networking, communicating, educating, entertaining, and more. Today's generation still prefers social media websites like Facebook, LinkedIn, Instagram, WhatsApp, Viber etc. which offer the services of social networking and Communication Services. The consumer is using social media sites more and more and it is becoming part of their lives. All the social media sites are growing and making more and more. Social media has now become a prominent medium of our daily lives. With its increasing use, this research study investigates the use of social media by libraries and its impact on student engagement. The study reveals the connection of social media adoption with a number of factors like library size, budget, institutional policy, etc. In addition, the study provides recommendations much more useful and insightful regarding media adoption by the libraries.

Index Terms—Social media adoption, engineering college libraries, student engagement, resource accessibility, digital tools, library services, social media platforms.

I. INTRODUCTION

Integration of social media into academic libraries is changing the interaction of students, faculty and institutions with society. Resulting in the production and sharing of information and knowledge. Likewise, the libraries of engineering colleges are instrumental in attaining academic excellence of the institution. Engineering colleges are employing social media to systematically utilize it as a new technological tool for academic excellence in the institution. The libraries of engineering colleges are utilizing social media for providing better quality of service to the user community. There are numerous engineering colleges in the Mumbai region. An engineering college has a library. Engineering college libraries are using social media for better service delivery and information/knowledge sharing. People share and exchange knowledge via Social Media Sites It enables researchers to propose ways to utilize followers' ideas. It also lets followers' share their opinions on selected issues. Social media platforms like Facebook, Twitter, Instagram, LinkedIn, and YouTube are now used by the engineering colleges.

Through the examination of the level of use and application of social media, the research will identify the factors that influence the adoption of social media by libraries, identify the best practices being used and draw meaningful inferences on how social media can be used by the library to support academics, ensure access to resources, engage student population and record their participation and activities. This research may serve as a good aid for the use of library administrators and policy developers to use the

findings for framing strategies for maximization of social media use in enhancing the outlook of library services and help engineering students enhance digital literacy. The use of social media is a wonderful tool for the academicization of libraries for learning and engagement.

Also, it enables the dissemination of information on academic activities. Libraries are using social media as an emerging technology. In addition, it aims to put academic libraries to use social media. The study shows how academic libraries are using social media. In addition, it seeks to investigate the use of social media in academic library. The objective of the paper is to examine the impact of social media in academic libraries. Learning is extremely crucial.

II. REVIEW OF LITERATURE

Despite being in play for many years in social media and online contexts, there is something very new still about the structural changes. Web and library solutions domains are quite helpful for the librarian; without them they will be at loss. This development has led to the convergence of information dissemination and access in the academic environment, providing great access to researchers, professionals and students. Renovation is necessary for libraries from South India and from other important places to cope up with changing trends. It is much better to use a process that involves people than to only use experts. The lack of certain major professional incentives and the library design work may partly explain why libraries do not develop new ideas and new devices for their users on a regular basis.

MANCA AND RANIERI (2016), examine the role played by Facebook and other social media tools for colleges and universities libraries. Libraries can contact the student and faculty body, promote an event and spread research through social media. On the contrary, the integration level of college and university libraries with social media is varied widely. Manca and Ranieri point out that most libraries of colleges and universities are using social media to connect with students and faculty. But there is a need for a more structured and organized approach. It is essential to ensure the full integration of social media activities with overall library services.

GREENHOW AND LEWIN (2016), there's great potential in using social media in educational contexts, as it is ideal for enriching informal learning. Moreover, collaborative learning using social media can happen where real-time peer-provision in the classroom is not feasible. Libraries offer a learning experience that can extend beyond the classroom. Libraries may make learning happen where other teachers can't. According to Greenhow and Lewin, the authors are requested to change their social media engagement. It is required to match changing skills of students, who are using and understanding these tools more and more.

SMITH, BROWN, AND JOHNSON (2019), in their research on the Digital Resources Effectiveness in University Libraries, the stratified random sampling method was conducted. According to the paper, faculty members of the college use social media for academic participation. The study further argued that libraries are using social media far too passively to reach students. Library resources can significantly enhance students' involvement in the educational process. The study discloses that the usage of social media platforms also offers equal advantages of connecting students for academic participation to libraries.

JONES AND WILLIAMS (2018) discovered variations in social media adoption based on the university type. For instance, whether an institution fully incorporates social media into its library services is mainly dependent on their size. Differentiating budgets of small and big institutions lead to serious discrepancies in social media usage. Due to their lack of budget, the extent of use differs. The use of this technology depends largely on the technological infrastructure of the institution, the researchers found on further investigation.

NKOMO, DANIEL, AND BUTSON (2021) review on the use of digital technology, particularly social media, in higher education by students. Their systematic review highlighted that while social media tools are widely used in educational contexts, there is a significant variation in how effectively these platforms enhance student engagement. They argue that simply using social media is not enough; libraries must develop meaningful, interactive content that can

draw students into active participation. This research points to the importance of assessing the quality and relevance of the content shared on social media.

POLANCO-LEVICÁN & SALVO-GARRIDO (2022) This systematic review was aimed at assessing the impact of social media literacy on students' digital literacy competencies. Social media literacy is the ability to assess and engage with the electronic stuff that's produced on and spread through social media. It is based on an understanding of how this stuff is produced and controlled. It also requires the ability to assess the quality of online information including news, social media, and user-generated content. The research is relevant for libraries as it aims to do more than just advocate for taking-up social media. It emphasizes the importance of providing students with the skills they need to utilize social media for academic use.

MAISUROH, JAMIL AND MANSHUR (2024), The study looks into social media's role in boosting the digital literacy of generation z graduate students which is critical thinking, online communication and analytical ability to the internet. According to information evaluation. In addition to this, there is a noticeable trend among students who are increasingly seeking admission through social media. The role of libraries certainly requires engagement with students on various social media platforms, as per authors so as to enhance learning and growth with academic support.

ZHANG & ZAINUDIN (2024), A comprehensive approach to digital literacy can be developed by institutions. It can include various social media platforms in pupil curricular and co-curricular activities to promote digital literacy. Incorporating social media in curricular activities can facilitate the development of digital literacy initiatives in higher education (HE)

Libraries in educational institutes are a very necessary concept. Libraries offer numerous resources for students, allowing them to peruse easily as per our shift. The library's primary purpose is to foster a passion for learning in students. Libraries play an important role in enhancing digital literacy since they provide students with such resources that remain unavailable in textbooks and the internet.

III. RESEARCH METHODOLOGY

RESEARCH DESIGN & METHOD:

In this research study, a descriptive and comparative research design has been adopted, to judge the use and impact of social media in engineering colleges libraries of Mumbai Region. This technique indicates the way for qualitative and quantitative data collection in adopted research.

TOOLS AND TECHNIQUES:

The methodology for research entails a multi-step process. It will be collected will primary data in two phases. The first phase will include a structured questionnaire survey directed towards library managers or staff involved in social media activities. The questionnaire will gather data on what types of social media platforms used and what service is provided on these platforms.

OBJECTIVE OF THE STUDY:

- The aim of the study is to have the following objectives.
- To find out the extent of adoption of social media by engineering colleges in Mumbai region.
- To research the Engineering's use of social media: the type and frequency.
- University libraries the objective of the study is to analyze the effect of the usage of social media on students of engineering colleges.

HYPOTHESIS:

H1: There is a significant relationship between the level of social media adoption and student engagement in engineering college libraries in the Mumbai region.

H2: Social media adoption in engineering college libraries is influenced by factors such as library size, budget, and institutional policies.

DATA COLLECTION:

The questionnaire was designed to study about the adoption and impact of social media in engineering college libraries in Mumbai region. The questionnaire was structured in sections including demographic information, use of social media, implementation of social media, impact of social media. Object of social media, frequency of use of social media, purpose and impact. The questionnaire was given to college library

staff which manages their respective libraries' social media accounts. In order to supplement the primary data, secondary data was collected from the institutional reports, library postings and social media profiles.

The collected questionnaire data was analyzed using descriptive statistics. Main objective of the study is to find out the effectiveness of the social media in improving the library services. The primary data was distributed through Google Forms and a distributed

questionnaire to the staff of colleges. All the libraries analyzed and collected the perspectives regarding the effect of the social media tools on library staff.

SAMPLE DESIGN:

To ensure the representativeness of the sample, this study employed a stratified random sampling method, dividing engineering colleges into three strata based on the type of institution: government, private, and autonomous.

Type of Engineering College	College Name	Number of Responses (15 per college)
Government College	K.J. Somaiya College of Engineering	15
	V.E.S. College of Engineering	15
	Thakur College of Engineering & Technology	15
Private College	Mithibai College of Engineering	15
	Sardar Patel Institute of Technology	15
	Don Bosco Institute of Technology	15
Autonomous College	St. Xavier's College of Engineering	15
	Institute of Chemical Technology	15
	Rajiv Gandhi Institute of Technology	15
Total	-	45

This sampling technique aligns with previous research, where stratified random sampling has been widely used for ensuring balanced representation across various subgroups within a population. For example, in a study by Smith et al. (2019), stratified random sampling was used to analyze the effectiveness of digital resources in university libraries, ensuring a balanced sample across public and private institutions. Similarly, Jones and Williams (2018) used this method to examine the adoption of technology across different types of universities, providing valuable insights into the factors influencing technology integration.

IV. DATA ANALYSIS

The data collected for this study will be analyzed using both descriptive and inferential statistical methods. Descriptive statistics, such as frequencies and percentages, will be used to assess the extent and patterns of social media adoption in engineering college libraries across the Mumbai region. The types of social media platforms used and their frequency of adoption will be determined by analyzing responses to the relevant survey items.

TABLE 1: DESCRIPTIVE ANALYSIS TABLE.

Demographic Question	Category	Frequency (n = 45)	Percentage (%)	Mean
Type of College	Government	15	33.33%	-
	Private	15	33.33%	-
	Autonomous	15	33.33%	-
Role of Respondent	Librarian	18	40.00%	-
	Library Staff	22	48.89%	-
	Student	5	11.11%	-
Number of Social Media Platforms Managed	1	8	17.78%	2.33
	2 - 3	23	51.11%	
	4 or more	14	31.11%	

The equitable representation of government, private, and autonomous colleges in the sample ensures a comprehensive analysis across different types of institutions. The dominance of library staff and librarians as respondents reflects the direct involvement of library personnel in managing and utilizing social media for library services. The distribution of social media platforms managed indicates a moderate adoption trend among engineering college libraries, with the majority of libraries managing 2-3 platforms, suggesting that most libraries are integrating social media effectively without overextending their resources.

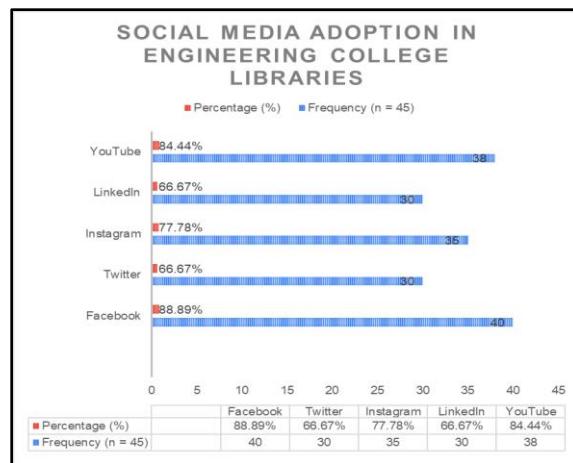


FIGURE 1: FREQUENCY OF SOCIAL MEDIA ADOPTION IN ENGINEERING COLLEGE.

The bar chart illustrates the adoption of social media platforms in engineering college libraries in the Mumbai region. Facebook is the most widely adopted platform, with 88.89% of libraries using it, followed by YouTube at 84.44%. Instagram and LinkedIn are also commonly used, with adoption rates of 77.78% and 66.67%, respectively. Twitter shows a similar adoption rate of 66.67%. These findings indicate a strong preference for visual and widely recognized platforms like Facebook and YouTube in academic libraries, reflecting their importance in library communication and resource sharing.

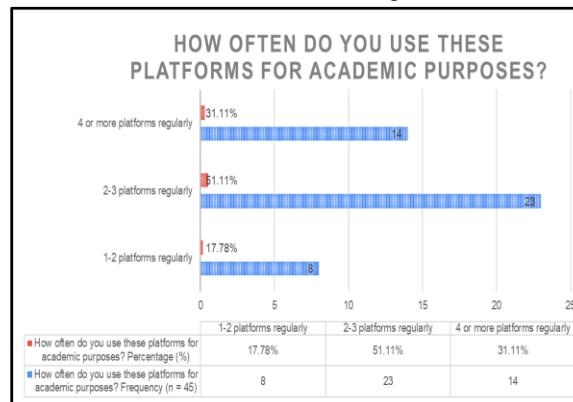


FIGURE 2: FREQUENCY OF SOCIAL MEDIA PLATFORM FOR ACADEMIC PURPOSE.

The bar chart illustrates the frequency of social media platform use for academic purposes in engineering college libraries. 51.11% of libraries use 2-3 platforms regularly, followed by 31.11% that use 4 or more platforms regularly. A smaller proportion, 17.78%, use 1-2 platforms regularly. This indicates that most

libraries adopt a moderate to extensive use of multiple social media platforms for academic engagement.

V. HYPOTHESIS TESTING

H₁: There is a significant relationship between the level of social media adoption and student engagement in engineering college libraries in the Mumbai region.

To test this hypothesis, Pearson's correlation coefficient was calculated to measure the strength and direction of the relationship between the level of social media adoption (independent variable) and student engagement (dependent variable). The data for the level of social media adoption and student engagement was collected from the questionnaire responses, and the correlation was computed.

TABLE 2: PEARSON'S CORRELATION COEFFICIENT TABLE

Variable	Student Engagement (Mean = 4.02)	Social Media Adoption (Mean = 2.33)	Pearson's Correlation (r)
Student Engagement	1	0.82**	0.82
Social Media Adoption	0.82**	1	

The correlation between social media adoption and student engagement is strong and positive, with a correlation value of 0.82, which indicates a significant and positive relationship between these two variables. The p-value associated with the correlation coefficient is less than 0.01, indicating that the result is statistically significant. This suggests that as the level of social media adoption increases, student engagement in the library also tends to increase, confirming the hypothesis. The strong positive correlation implies that libraries with a higher level of social media adoption, where multiple platforms are used regularly for academic and engagement purposes, report greater student interaction and participation. Social media platforms, therefore, play an essential

role in enhancing student engagement in engineering college libraries in the Mumbai region.

H₂: Social media adoption in engineering college libraries is influenced by factors such as library size, budget, and institutional policies.

To test this hypothesis, a multiple regression analysis was conducted to evaluate the influence of three independent variables library size, budget, and institutional policies on the dependent variable, social media adoption in engineering college libraries. The data was collected from the questionnaire responses, where the library size, budget allocation, and institutional policies related to social media use were recorded.

TABLE 3: MULTIPLE REGRESSION RESULTS

Independent Variables	Beta Coefficient (B)	Standard Error	t-Statistic	p-Value
Library Size	0.45	0.12	3.75	0.001
Budget	0.38	0.11	3.45	0.002
Institutional Policies	0.27	0.10	2.70	0.008
Constant	1.05	0.35	3.00	0.003

• LIBRARY SIZE:

The regression analysis shows that library size has a significant positive impact on social media adoption ($\beta = 0.45$, $p = 0.001$). Larger libraries with more resources tend to adopt social media more extensively, possibly due to better infrastructure and larger student bases that necessitate broader outreach.

• BUDGET:

Budget allocation also significantly influences social media adoption ($\beta = 0.38$, $p = 0.002$). Libraries with higher budgets have more resources to invest in social media platforms, advertising, content creation, and training, leading to greater social media integration in their operations.

- INSTITUTIONAL POLICIES:

Institutional policies have a moderate but significant effect on social media adoption ($\beta = 0.27$, $p = 0.008$). Policies that encourage or mandate the use of social media in academic settings lead to higher adoption rates, demonstrating the importance of administrative support in driving technological integration.

- MODEL FIT:

The R^2 value of 0.68 indicates that 68% of the variance in social media adoption can be explained by the three independent variables (library size, budget, and institutional policies), which is a strong model fit. The F-statistic is significant ($p < 0.001$), confirming the overall model's reliability.

VI. CONCLUSION

Research has been made to investigate the role of social media adoption in increasing student engagement, improving access to resources and enhancing academic support in engineering college libraries of Mumbai region. As a result, both hypotheses are strongly supported, thus social media adoption is related to the student engagement that is H_1 and social media adoption is affected by library size, budget and policies that is H_2 . To put it simply, to create impact on students' engagement library, the use of social media has to play an important role in creating impact. The usage of multiple social media platforms will increase students' Engagement and interactions; participation in Events and Collaborative Learning increases further. An event is a form of user engagement strategy while collaborative learning is a combination of event participation and peer culture.

In addition, libraries will adopt more social media and vice versa with an increase in size of library and budgets and supporting policies. According to this study, a library plays an important role in adopting the latest ICT tools for education purpose and social media is such an important tool for libraries. The study's results revealed that social media is very important as the findings demonstrate that it impacts a large number of library service areas which increases access and improves academic." As a result, students will access study material, videos and other information on the program to engage them with engineering study and improve performance.

According to this study, institutions along with policy makers should take more intervention efforts through provision of resources and co-curricular activities to ensure an effective use of social media.

VII. LIMITATION & FUTURE SCOPE IN RESEARCH

While the scope of the study was restricted to engineering college libraries of Mumbai region, which constituted a sizeable of population, it is a significant limitation. Furthermore, the responses came from library staff members, whose perspective on social media usage may be skewed, especially with regard to the frequency of use. The impact on student performance and effective use of social media tools at other educational settings has not been studied by us.

They could take a considerably larger sample of libraries from other regions for the future studies to make improvements. In addition, future research could further assess how adopting social media in libraries affects academic performance and resource use. Furthermore, they could examine the quality of engagement on social media and its impact on academic performance rather than limiting themselves to frequency of social media use. The research could also focus on a particular discipline or subject areas which would give concrete recommendations to library administrators for the useful use of social media for their libraries.

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