Harnessing the Potential of Twitter for Library
Development

Dissertation submitted in partial

fulfilment of the Goa University for the Degree of Masters
of Library and Information Science

By

Velroy Tome Fernandes

Enrolment Number

22P034004

Under The Supervision Of

Novelty Ramesh Volvaikar

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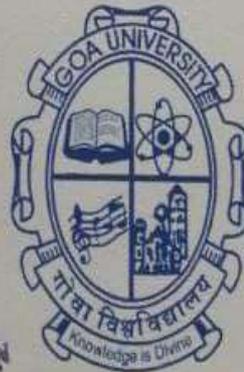
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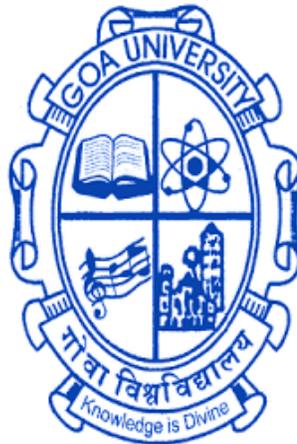
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CERTIFICATE

This is to certify that the work incorporated in the dissertation entitled **"Harnessing the Potential of Twitter for Library Development"** is the bonafide work carried out by **Velroy Tome Fernandes**, in partial fulfilment of the requirement of the degree of Masters of Library And Information Science of Goa University is his own work carried out under the guidance and worthy of examination.

Novelty Ramesh Volvaikar

Research Guide

Department Of Library and Information Science,

Goa University

DECLARATION

I declare that this dissertation entitled "Harnessing the Potential of Twitter for Library Development" submitted by is my original contribution and the same has not been submitted on any occasion for any other degree or diploma of this University or other University/Institute. To the best of my knowledge, the present study is the first comprehensive work of its kind from the area mentioned. The literature related to the problem investigated has been cited.

Velroy Tome Fernandes
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Date:

Place:

<u>ACKNOWLEDGMENTS</u>

Table of Content

List of Figures

List of Tables

Chapter 1

Introduction

INTRODUCTION

Social media plays a very vital role in the social life of every person. Online social platforms have rapidly grown and are gaining popularity among the young people in particular. Nowadays people have updated their thoughts, ideas using various kinds of social networks such as Facebook, YouTube, WhatsApp, Instagram, Tik-Tok, Telegram, Twitter, LinkedIn, etc. Each of these social media have their ups and down. In the library set up, librarians are often confused on how to build an online social presence and end up choosing any random social network without much ado.

Merriam-Webster defines social media as "forms of electronic communication through which users create online communities to share information, ideas, personal messages, and other content." Social media experts broadly agree that social media includes the following 12 types: Blogs, Business networks, Enterprise social networks, Forums, Microblogs, Photo sharing, Product and services review, Social bookmarking, Social gaming, Social network sites, Video sharing and Virtual worlds.

Academic libraries have utilized a variety of technologies with tremendous innovation over the past few decades to meet user demands, advance academic aims and objectives, and boost effectiveness and efficiency. Self-service technology, online repositories, smart devices, and social media will all be heavily utilized. Academic libraries have transitioned from being collections-based to service-based, focusing on digital literacy, open access publishing, bibliometrics, and research data management.

In order to provide access to a wider variety of electronic resources, libraries have shifted their attention from physical to online collections. Additionally, they encounter opportunities and difficulties in fields like

wearable technology, the internet of things, and artificial intelligence. Additionally, the coronavirus pandemic is likely to have far-reaching effects on higher education, not just financially but also in terms of student recruitment, study and work habits, support services, and the growing significance of technological advancements.

With my dissertation, I will try to convince the reader on how Twitter can be an outstanding tool for library propagation. Twitter will be a good bridge between the library and its patrons on a daily basis. It is a micro-blogging service which commands more than 229 million users as of March 2022. Users tweet about any topic within the 140-character limit and follow others to receive their tweets. The library users often miss out on frequent updates through the library website since one has to check it out specifically and mails become very cluttered after a period of time. On adoption of Twitter, it will prove out to be a useful service for both libraries and its readers.

1.0 OBJECTIVES

1)   To understand the impact of social media in the Library and Information Science field.

2)   To explore the features and functionalities of Twitter for maximum utilization in a library

       ecosystem.

3)   To explore the pros and cons of use of Twitter in libraries.

4)   To explore the use of Twitter in Libraries at National and International level.

5)   To study the impact of the Twitter handles of highly ranked Twitter profiles in the field of

       Library Science.

6)   To analyze the level of awareness and perception of Twitter among the users of Goa University library.

1.1 NEED OF THE STUDY

The study has been conducted to see the potential of Twitter in the library environment. The research available shows Twitter has been put to use properly on international settings. On national and local level little awareness is there. No proper roadmap is there for our libraries on the online front. Therefore we lag behind in reaching the masses and also failure to retain its users. I have listed out strategies and methods by which Twitter can successfully be implemented across libraries over India.

1.2 SCOPE AND LIMITATIONS OF THE STUDY

Twitter is not the most popular social media platform in India. On the platform, I have chosen the most successful twitter handles of libraries. I am assuming the answers given by respondents stand true. Also By analyzing the impact of Twitter on the Library and Information Science field, I want to create awareness of the same in our regional academic libraries.

1.3 RESEARCH METHODOLOGY

A) Population of the study
•   The dissertation is focused on users of Goa University library.
•   The Twitter accounts of libraries have been selected through random sampling of successful handles for study.

TABLE 1: List of Goa University schools and population size

Name of the School	Targeted responses	Achieved responses
Biological Sciences & Biotechnology	107	7
Chemical Sciences	109	5
D.D. Kosambi School of Social Sciences and Behavioural Studies	105	28
Earth, Ocean and Atmospheric Sciences	62	13
Goa Business School	85	4
International and Area Studies	30	1
Manohar Parrikar School of Law, Governance & Public Policy	3	1
Physical and Applied Sciences	85	13
Shenoi Goembab School of Languages and Literature	151	18
Total:	**737**	**90**

B) Method

The research method begins with self-study of the application of Twitter. The methods by which modern libraries are engaging with communities via Twitter was investigated. A well-structured questionnaire was formulated and administered among the target group. The input was studied and the overall data has been compiled and analyzed by tabular, graphical, figurine, charting techniques and the findings will be analyzed using appropriate statistical tools.

1.4   ORGANIZATION OF THE STUDY

Chapter I: Introduction

Chapter II: Review of Literature

Chapter III: Social Media and Library

Chapter IV: Data Analysis and Interpretation

Chapter V: Findings and Suggestions

Chapter VI: Conclusion

Chapter 2

Literature Review

LITERATURE REVIEW

The authors have analyzed the communication called microblogging, which allows users to share brief status updates via instant messaging, mobile phones, email, or the Internet. Since its debut in October 2006, the popular microblogging platform Twitter has experienced rapid expansion. In this essay, the topological and geographic characteristics of Twitter were studied to provide the observations of the microblogging phenomenon. People use microblogging to discuss their daily activities and to look for or exchange information, according to the research. Finally, it was noted that the community-level users required their intentions to be conveyed and listened, which allowed them to connect to similar people having matching thoughts.

Researchers have tried identifying important users of microblogging sites in this essay. Twitter uses a social networking paradigm called "following," in which each user can select who he/she wants to "follow" in order to get tweets from without the latter's consent. The research shows that the phenomena of homophily can account for the existence of "reciprocity."

2.0 REVIEW

(Castillo, C., Mendoza, M., & Poblete, B., 2013) examine the veracity of the news that is disseminated via Twitter, a well-liked microblogging site. Previous studies have indicated that the majority of tweets are true, but the service is also used to disseminate falsehoods and misleading information, frequently accidentally. In this study, they concentrated on automated techniques for evaluating the reliability of a batch of tweets. They examined microblog entries on "trending" topics in particular, and based on attributes collected from them, they were categorized as trustworthy or not credible. They drew characteristics from user posting and reposting

(also known as "re-tweeting") behavior, post content, and citations to outside sources.A sizable number of human evaluations of the veracity of the items on a recent sample of Twitter postings are used to assess the effectiveness of our methods. According to the findings, there are discernible differences in how messages spread that can be used to automatically categorize them as credible or not, with precision and recall in the range of 70% to 80%.

(Philogene, S., 2019) In this study, professionals traced 74 million diffusion events that occurred on the Twitter follower network during a two-month period in 2009 to analyze the characteristics and relative influence of 1.6 million Twitter users. Unsurprisingly, it was discovered that people with a big number of followers and a history of influence tend to produce the largest cascades. Additionally, the URLs were more likely to propagate when they had higher interest ratings and/or more favorable reactions. Despite these obvious outcomes, it is generally difficult to forecast which user or URL will produce huge cascades.Therefore, in their conclusion it was stated that, in order to reliably harness word-of-mouth diffusion, one must target a large number of potential influencers and thereby capture average impacts. The relative cost of locating potential "influencers" versus compensating them is what defines a family of hypothetical marketing techniques. The most cost-effective performance can be achieved with "ordinary influencers" — people who exert average or even less-than-average influence — under a wide variety of plausible assumptions, despite the fact that in some situations the most influential users are also the most cost-effective.

(Shim, J., 2017) Author indicates that with the use of online social networking tools, the people can communicate with any number of peers at once. Understanding who influences whom and whether people would still spread information in the absence of social cues about it are both necessary for quantifying the causal impact of these media on information

distribution. With a large-scale field experiment that randomly distributes exposure to signals about friends' information sharing among 253 million subjects in situ, they investigated the role of social networks in online information diffusion. People who have been exposed are much more likely than people who have not been exposed to distribute knowledge quickly. The relative importance of strong and weak relationships in the spread of knowledge. It demonstrated that even though stronger relationships have greater individual influence, it is weaker ties that are more prevalent that help spread new knowledge. This shows that weak ties may be more important than previously thought in the spread of information online.

(Vassilakaki, E., & Garoufallou, E., 2015) For a wide range of users, social media sites like Facebook, LinkedIn, and Twitter have become an essential information source. In Twitter, widely shared material that the community deems valuable spreads throughout the network. For a variety of tasks, including breaking news identification, customized message suggestion, friend recommendation, sentiment analysis, and others, studying the features of the content in the messages becomes crucial. The short message lengths on Twitter make it difficult to fully utilize the typical text mining methods that many researchers would like to use to analyze the posts there. Researchers have investigated how the models can be trained on the dataset in order to solve the issue of employing conventional topic models in microblogging contexts. Through a series of meticulously planned experiments from both qualitative and quantitative perspectives, they suggest various approaches to train a common topic model and compare their quality and effectiveness. Furthermore it was demonstrated that a topic model can be trained on aggregated messages to produce a learned model of higher quality, which leads to significantly improved performance in two real-world classification problems. Additionally, how the modern Author-Topic model falls short in

simulating hierarchical relationships between entities in Social Media was explained.

(Mnzava, E. E., 2020) examines the academic writing that has been done on Twitter use in libraries. There are several ways to use Twitter, as well as tactics for encouraging its effective use in libraries. The library maintains Twitter accounts to support a variety of information services, engage with users, and gather user feedback on the services provided.

The researcher comments on the advantages and disadvantages of incorporating Twitter into an introductory university course. The use of Twitter, which was once intended to be a way to respond to the inquiry "What are you doing?" has evolved. In general, there are three elements that contribute to Twitter's popularity: user interaction, a decentralized ecosystem of third-party applications, and consequently, the dispersed user base.

(Hussey, J., 2011) states how Twitter has developed from a small text message-based start-up to a potent communication tool that is used by businesses all over the world as a necessary marketing tool. This chapter describes the development of the service, how it has altered communication, and the fundamental skills required to use it. The chapter goes beyond that fundamental understanding to show how the service can be applied in a higher education environment.

This chapter offers a fundamental strategy for departments in all colleges and universities - admissions, media relations, career center, alumni, and more - to Act and Interact on social media to boost school pride, develop relationships, and build brand equity. This strategy is based on the overarching principle that all social media should involve two-way communication. Last but not least, this chapter discusses some of the cutting edge uses of Twitter that are likely to emerge over the next five years. This is because social media is a constantly changing medium.

(Farwell F. and Waters J., 2019) discuss that in addition to knowing how to develop strategies for using social media in one-way and two-way communication environments, the job market for communication specialists to uphold appropriate social media etiquette and virtual culture norms for their clients. These professors from different universities created and implemented a course project with the goal of encouraging cross-university collaboration, fostering discussion, and introducing students to Twitter microblogging in order to better prepare them for this expectation.

This assignment was created with the intention of encouraging students to use social media to construct meaning and best practices in social settings, as well as to experience Twitter from a user perspective and develop relationships in a similar way to how their future employers might interact with their audiences or clients. Overall, the project's instructors agreed that the pupils in both classes benefited from the task. Although the students might not recognise the value of the assignment while it is being carried out, many of them have acknowledged it now that it is finished.

(Bagley, C. A., 2012) informs that Twitter since its inception has battled for legitimacy over the course of years. This chapter aims to show that, despite the format's frequent ephemerality and appearance of banality, there are a number of practical ways for researchers to use it to study trends like breaking news, the cultural zeitgeist, and field-specific trends.

Authors' experiments suggest that using Twitter's real-time property and location information data, it becomes feasible to estimate the population in a particular area from the quantity of tweets posted and the senders of those tweets.

(Erhel, S., Michinov, N., Noël, A., & Gonthier, C., 2022) puts forward the ability of social media to hold students' attention, particularly during

lectures, is well known among academics. Some teachers have thought about utilizing them to increase student motivation, as opposed to outright forbidding them. There are few studies using Twitter as a tool to aid students in remembering course concepts and boosting their motivation to learn, despite the fact that it has been widely used in educational settings as a collaboration and communication tool. Using Twitter to remind students of course concepts and asking questions once a week for one semester, authors performed a three-year study in a "naturalistic" educational context. Through the course of the semester, this Twitter-based approach generated significantly higher levels of intrinsic drive and interest in the subject matter; crucially, it also decreased motivation. Twitter use has some advantages for learning and academic outcomes, too. They talked about the advantages and restrictions of using social networks for educational purposes.

(Parabhoi, L., 2019) advises libraries to Find personalized Twitter Niche to Engage with a Targeted Academic Audience. In this study, an academic library changes its Twitter strategy from producing information for the entire academic community to producing content for a subset of the community. To achieve this, the social media committee for the library created a team with the aim of boosting academic and staff participation in the library's Twitter feed. A typical engaging month's worth of tweets from two distinct years were chosen and compared.

To ascertain whether the change affected followers and engagement, several sources of analytics were compared. The content remained the same even though the intended audience changed. Although there was a decline in the library's following, the project was ultimately a success because it increased audience engagement. The project gave a more precise picture of the situation and gave the team fresh social media tactics for the future. The author analyzes the tweets in Twitter. Since it is a microblogging platform with over 288 million monthly active users (as of

2015), it is rapidly expanding. Users of Twitter publish brief messages, or tweets, on any subject and follow others to see their tweets. The massive amount of information generated by Twitter users is a valuable source of knowledge on various facets of people's lives. Through the analysis of tweets published over the course of a year, this paper aims to harvest such data. They have inferred important facts about the preferences and behavior of Twitter users from the analysis done on these data.

(Humphreys, S., 2019) paper indicates how Twitter lists and analyzes best practice – successes and myths would benefit current libraries. Although social media use by libraries has been extensively studied, no research has been done on its use by smaller UK libraries. There is a dearth of comparative study evaluating social media's utility in various types of libraries, despite several claims about how much time and money it may save. This study gathered data from 1,425 library accounts on the social media platform Twitter to address these issues. Five smaller libraries were chosen for an interview and more thorough metric study of their accounts and methods for calculating return on investment (ROI). While many libraries are utilizing Twitter, the survey indicated that academic libraries were the first to sign up in large numbers. Even if best practices are very clear, many accounts are not maximizing the potential of Twitter. The length of time since the account's registration and the type of library were discovered to have the two biggest effects on followers. In this study's smaller libraries, it was revealed through interviews that they adhered to best practice standards but went above them to develop original initiatives. It is challenging to calculate ROI because none of the five libraries that were surveyed have kept track of any metrics, data, or examples of effective social media tweets. Additionally, the libraries contacted have attracted followers who do not use the libraries. This modifies libraries' social media strategies and ought to be brought up in the conversation about how libraries use social media.

(**Kushniryk, A., & Orlov, S., 2021**) focus on the primary uses of Twitter in Argentine university libraries. It summarizes the research techniques utilized to determine whether libraries are now using Twitter and how it is being used after updating the prior material. It concentrates on the following aspects: the activity's start date, fundamental institutional information, Twitter's visibility and accessibility from the library website, the volume of tweets sent over time, the number of people who "follow" and "follow back," and the volume and type of posts made during the research period. The findings demonstrate that few libraries have utilized Twitter, and those that have done so have typically used it haphazardly and primarily for information dissemination as opposed to social interaction. It also emphasizes the fact that, despite a wealth of literature on what is regarded as best practices, most institutions do not implement them. Finally, it was suggested that more research in this area was needed to expand our understanding of librarians' daily use of Twitter.

(**Goldstein, S., 2020**) compares Academic Social Networking Sites with Academic Twitter. Smaller, Denser Networks are Conducive to Formal Identity Management, Whereas the latter is larger, More Diffuse, and Affords More Space for Novel Connections. Academic social networking sites display networks that are more reciprocal, more dense, and more concentrated around discrete modularity classes. Because Twitter networks are bigger and more dispersed, they are more suited to developing new relationships. The author offers ideas for how academic social networking sites might promote network building and reconsider how academic reputation is assessed.

(**Patra, S. K., 2019**) studied Word frequency and sentiment analysis of library tweets in india. Twitter is being used by hundreds of libraries to advertise their services worldwide. Twitter aids libraries in connecting with their patrons. Numerous empirical investigations have found that university libraries' Twitter accounts serve as a versatile tool for carrying

out library duties. The highest rating was given to "News and announcements" shared on Twitter across the various services. "Library collections" and "library services" are listed after this. Additionally, connections from the parent institutions are frequently posted on the Twitter accounts of academic libraries. Additionally, academic libraries frequently provide other links rather than actual information. Other findings reveal various communication and interaction patterns between libraries and their Twitter accounts. Additionally, it has been noted that library Twitter accounts frequently share news and other information from the accounts of their parent institutes.

(Shulman, J., Yep, J., & Tomé, D., 2015) examines the follower/followee Twitter network for academic libraries housed within two medium-sized, predominantly undergraduate colleges in this article. For each account in the network, three network metrics were calculated, each describing a distinct measure of importance. This made it possible to calculate each account's relative influence.

According to all metrics, institutional Twitter accounts were discovered to have the greatest influence across the board in both networks, suggesting that this is a common characteristic of Twitter networks for academic libraries. A larger network that includes the institution and its other departments also includes a subset of the library's Twitter followers. The institutional accounts' importance was assessed using the smaller library network, although their impact goes beyond just the immediate area of the library's Twitter followers. As a result, information can be spread throughout the institution's larger network via institutional accounts. By collaborating with the appropriate accounts, information can be quickly directed to a target audience.

The word "twitter" often conjures up images of birds rather than people. However, information professionals are aware that libraries (and librarians) can benefit from Twitter (www.twitter.com), a rapidly

expanding, free messaging tool for individuals, without investing a lot of time or effort. Twitter enables users to send and receive brief messages (referred to as Tweets) via SMS using a mobile phone or via the web.

(Kwak, Lee, Park, & Moon, 2010) In this paper the researchers have studied the topological characteristics of Twitter and its power as a new medium of information sharing. They have focused on retweeting power of Twitter and how it spreads the information rapidly which leads to fast diffusion of knowledge.

(Rene Corbeil & Elena Corbeil, 2011) The study conducted by Corbeil and Corbeil state that Social networking tools, like Twitter, are beginning to demonstrate their potential as powerful communication and collaboration tools in social, political, and educational arenas. As smart phones and mobile computing devices become less expensive and more powerful, they will also become more pervasive. As a matter of economics, institutions will need to adapt to learning experiences that can occur in a wide range of contexts and over multiple channels.

(Xie & Stevenson, 2019) The work of Xie and Stevenson is a pioneering work that not only analyzes Twitter roles and their relationships in building DL online communities but also offers recommendations in terms of how to build a strong online community and improve Twitter use in DLs. The purpose of this paper is to investigate the types of roles that Twitter played in digital libraries (DLs) and their relationships in building DL online communities.

(Bikowska, 2020) Bikowska puts forward that Twitter is used as a tool for information filtering and knowledge acquisition by micro-blogging enthusiasts worldwide. The functionality of this social service was also noticed by educational institutions, including libraries which use it as a medium popularizing science and a promotion tool. The author of the article analyzed the extent of use of Twitter by Polish public academic

libraries, including medical schools' libraries. Based on the experience of foreign libraries, described widely in the source literature, she made an attempt to evaluate the degree of micro-blogging's adaptation by Polish librarians and answer the question of whether innovation always means gain for a library.

(Carscaddon & Chapman, 2013) The authors concluded Twitter is an important communication tool with college students. This article aims to emphasize that, while Twitter is useful for sharing information about the library, more can be learned from using it as a digital listening post. The paper reveals that Twitter is an important vehicle for disseminating information about a library to its community and as a means for maintaining good customer service.

Chapter 3

Idea and Concept

IDEA AND CONCEPT

3.0 SOCIAL MEDIA AND TWITTER

Social media refers to a set of online tools that supports social interaction between users and the term is often used to contrast with more traditional media such as television and books (Hansen et al., 2011). The social media tools and technologies which are also interchangeably used with the term Web 2.0 include such tools as blogs, wikis, microblogging (also known as tweets), RSS, podcast, social tagging and bookmarking and YouTube. Social media is currently used by many different organizations for multiple reasons (e.g. knowledge management, collaboration, dissemination, sharing, marketing, networking, etc.) (Aharony, 2010; Tripathi and Kumar, 2010; Redden, 2010; Kaplan and Haenlein, 2010).

Microblogging is a form of blogging and unlike blog postings, it usually limits the postings and conversation within 280 characters. Microblogging is more widely associated with Twitter and is one of the popular social media tools used not only by individuals but also by organizations in different domains such as airlines, fast food businesses, public and academic libraries for multiple reasons, namely conversion, reporting, sharing information, etc. (Aharony, 2010).

Twitter was created in March 2006 by Jack Dorsey (Dorsey, J. Posted on his Twitter account) and in 2023, it was the fourth most-visited website (SimilarWeb, 2023). It is a free social networking and microblogging service. Based on Web 2.0 technology, it is a powerful tool for marketing via social media. The platform in question is a worldwide popular service of sending messages, enabling users to post messages of a maximum of 280 characters. For that reason, It has been described as the "SMS of the Internet" (D'Monte, 2014). Those characters are visible by default to a list of "followers". The number of characters may at first seem inadequate to pursue a marketing goal. However, the large number of users, amounting

to over 368 million (Statistica, 2014), its rapid growth (Hedencrona, 2013), Twitter's viral nature (Sevin, 2013) and immediacy (there is a precise number of followers, thus the message is aimed at a precise target group), render it eligible for marketers and can dramatically change a business profile (Rowe, 2013). The message "What are you doing" is typical of Twitter, operating as a real-time platform for users. Users are able to notify their followers at will (useful information, advice, comments, etc.). Because of the large number of users and the fact that 9,100 tweets happen every second (Brainstatistics, 2014), each one of them selects a precise number of others to follow, whom he/she wishes to interact with.

3.1 ADOPTION OF TWITTER BY LIBRARIES

Academic libraries, in an effort to provide convenient and effective service, have been quick to implement new technologies, evaluate their efficiency, and refine their use. Perhaps the most significant recent example of this has been the incorporation of social networking into promotion and outreach activities. In particular, Twitter has become one of the most widely adopted and studied platforms (Shulman and Tome, 2015). Academic libraries adopt new technologies to improve the quality of services and interact with users. Social media technologies such as Twitter have been part of library services for more than several years (Bejune & Ronan, 2008; Farkas, 2007). Such tools are used to share information with users as well as to interact with them through these tools which are already part of the users; information behaviors. Academic libraries post a variety of content on Twitter including announcements, service descriptions, subject information, and news (Aharony and Phillips, 2011; Stuart, 2010).

Studying the how of knowledge in Twitter is particularly interesting as it provides a new perspective on how social media facilitates knowledge

creation and use. More specifically, in order for that knowledge to be accessible and useful, research should examine the ways in which knowledge inherent in tweets can be organized, represented and managed. There is emerging interest among researchers in exploring the use of social media tools including Twitter in organizations, as their use and adoption is growing at tremendous pace, and it would not be hyperbole to claim that it is exploding the need to regularly undertake research into social media as the membership and use are increasing with time and there is an evident need to continuously evaluate social media usage in order to contribute to the growing research work in these areas. Thus, this study explores the use and implementation of Twitter in libraries and extends upon the work of (Aharony, 2010), (Cahill, 2011) and (Dann, 2010) to develop a tweet categorisation scheme (Shiri and Rathi, 2013). The use of Twitter in academic libraries has increased, however, some academic libraries have no clear published objectives for using Twitter or other social media. However, previous research conducted has included content analysis of tweets that resulted in categories of tweets of the information provided to virtual users through Twitter (Abarony 2011; Honeycutt & Herring, 2009; Loudon & Hall, 2010; Stuart, 2010). Little is known how that information is used by their patrons.

Twitter has several quantitative indicators measuring the status of accounts. The number of followers, however, does not indicate how successful or popular Twitter accounts are because many of them could be inactive users (Huberman et al., 2009). Thus, qualitative measures such as the types of followers and how the followers interact with library Twitter accounts are suggested to better understand the use of Twitter (Cuddy et al., 2011). Retweet is one of the features which enables users to disseminate their information to additional people on Twitter. Academic libraries; tweets can be retweeted by any Twitter user, and libraries sometimes relay authoritative information from other sources to share with

their followers. A positive feature of using Twitter is that any Twitter user can follow any account and retweet any tweets, if they are not restricted. (Hao Min Kim et al., 2012)

3.2 GOALS ACHIEVED USING TWITTER

The objectives to be achieved by the library through Twitter are:

• to find followers;

• to find people to follow;

• to collect data from the community of Twitter; and

• to create an active community by increasing interaction with the library (Sakas and Sarlis,

2016).

3.3 NEED OF TWITTER IN LIBRARIES

The purpose of this study is to investigate information dissemination by libraries through an analysis of retweet users on Twitter. Libraries have posted a variety of information for their patrons on Twitter; however, we know little about who has an interest in library tweets and to whom the information is disseminated. To this end, I have explored a network of libraries by analyzing categories of users who are involved in retweet activity. The results show which user groups disseminate academic library information. The results indicate that the primary groups disseminating the tweets of academic libraries are units within universities and students. This work also presents an analysis of the follower/followee networks of the libraries with the goal of identifying the influential accounts connected to the library. Such information can allow those in charge of a library's account to tailor their tweeting and increase the reach and effectiveness of Twitter activities.

The social media platform in question benefits marketers for two chief reasons (Rowe, 2013). First and foremost, its advertising technique differs fairly from most social network platforms. The connections and

correlations built by a marketer through Twitter are the underlying core of the matter. The immediacy of identifying the network and the exchange of messages publicly in real time, alongside the length of the message (which must be simple and succinct), create a real decision-maker– consumer relation. Second, there is a concrete target group, as the user selects (via the "follow" process) the brand he wishes to interact with. Therefore, in combination with the factor of spontaneity (Kalloubi et al., 2014), typical of the network in question, people's real characters can be revealed, thus inspiring confidence and creating bonds. Consequently, the fact that 64 per cent (KISSMETRICS, 2011) of people following a brand on Twitter will eventually purchase its product can by no means be deemed accidental.

The current philosophy of marketing is inextricably linked to the social media services and governed by the so-called 4Cs principle (Customer, Cost, Convenience and Communication), bearing little resemblance to the 4Ps (Product, Price, Place and Promotion) (Jantsch, 2010). In pace with technology evolution, the 4Cs in marketing denote four different actions. The Content is delivered into a Context that helps people create Connections with others, other products and brands, thus creating a Community.

Researchers and library and information science practitioners have already developed theories and practices to provide effective information services in traditional settings (Bopp and Smith, 2011). We live in a Web 2.0 world, and the "closed shop" model of professionalism no longer exists. Library services are more extensively known as information services. The fundamental transition of the "information society" is a transition from traditional forms of authority to a much greater focus on community: to collaborate and personalize with traditional barriers broken down (Broady-Preston, 2010). The advancement of technology and social media platforms "force" new-age information professionals to enhance their

technological skills, as opposed to conventional know-how they should possess (Broady-Preston, 2009). The Twitter marketing model that has been created will offer great help to information professionals to the extension of skill on the Twitter platform. This model is created by mastering the tools provided by the platform (or third-party tools) and then by analyzing the aims that can be accomplished through it. It will also offer a great help to the decision-maker of the model to create an interactive community through this social network and achieve his goals (deliver traffic to library's website, promote the brand, etc.). That digital community will also facilitate the existing need (Broady-Preston, 2010) for dialogue between individual and collective professions.

3.4 FEATURES AND FUNCTIONALITIES OF TWITTER

Part 1: Twitter marketing targets and parameters. The social network in question is governed by special terminology, analyzed in Part 1.1. The aims and potential abilities the Twitter platform provides its users with will be examined.

Part 1.1: Twitter terminology

• Tweet: When a user posts the 280-character message and presses "send", that is termed tweet or tweeting.

• Handle: The username on Twitter, in a @name form, having a unique URL.

• Follow: The mere addition of User B to the list of users followed by User A. That makes User B's tweets visible to User A.

• Replies: User B tweets directly on User A's handle. For example: @ name reply.

• Retweet: It means that a tweet originally sent by User A is forwarded by User B. The original User A's tweet remains unaltered, simply being visible to User B' followers (User B can add a short comment along with

the retweet). That operation accommodates many users, allowing them to add to their website content, giving credit to the original user.

• DM (Direct Message): A message sent directly to someone on condition he/she is a follower. It is a very useful tool aiding personal communication among users. Not all of User A's followers may be interested in a message he/she wishes to send, so User A may as well select a group of followers to whom it will be visible.

• Hashtag (#): It is a word or an un-spaced phrase prefixed with the number sign"#". It is used to categorize tweets. Thus, another user with the same hashtag is able to see other tweets likely referring to the same topic. For example: #marketing.

3.5 AIMS AND ABILITIES AT TWITTER

Libraries have been tweeting regarding five elements: Tweets about physical libraries, Tweets about resources, Tweets on Community Relations, Sharing of general/fun content and tweets to interact. (Vanscoy et al., 2018)

Table 2: Five Elements of Library Tweets and their contents

Element type	Content of the Element
The physical library	o Building o Spaces
Resources	o Programs o Services o Collections
Community relations	o Community Event o Partnerships
Sharing	o Humor o General Interests
Interaction	o Responses o Soliciting user feedback o Soliciting participation

3.6 HARBORING THE EFFICIENCY OF TWITTER

Inorder to achieve the maximum potential of Twitter, tweets should be easily understandable, short, visually appealing (images), personalized and not authoritative. Moreover it should be very engaging inorder to increase the likelihood of liking, retweeting, replying, commenting, sharing, listing and eventually following. Various initiatives can adopted by the library account to sustain the usage like Book of the day, Fact of the day, Days of Importance, Polls, Threads, Monthly Spaces, local hashtags, tweeting inspiring quotes, joke once in a while, partnering with similar accounts greatly help in developing the library's influence on twitter users on both members and non-members of the library.

3.7 APPLICABILITY OF TWEETS TO VARIOUS LIBRARY PREPOSITIONS

Tweets may refer to the accessibility problems related to website maintenance, library maintenance, power outage, different formats of digital items, etc. Tweets also refer to tweets created to update and inform a twitter user about a newly added item to a digital collection or new collection in general. Promotional tweets allow the libraries to advertise their collections in an online setting. One of the purposes of it is to allow more access to collections that might now otherwise be accessible to users. Libraries that promote their collections on twitter open the door to allow users access who may have not otherwise found the library's website. Tweets allow interaction of any kind that takes place within twitter feed, specifically more general social interactions are categorized in other codes. Tweets that allow followers to continue finding additional information on the subject that are related to collections, if not from that specific library but from a related one. Tweets that provide followers with a general sense

of the type of library through the contents of the collection. It is crucial for a library to build a profile that shows its characteristics because it is critical that users understand the identity of the digital library's presence. Users need to feel a connection with other followers on twitter, the fact that the library has a twitter profile and is not a single person does not make a difference. The data collected demonstrates that the development of a profile is one way to articulate the potential use of the dls characteristics. For example, tweets that display an aspect of the library and also encourage interactions are great ways to build a social identity for libraries on twitter.

3.8 BUILDING AND MAINTAINING LIBRARY PORTFOLIO ON TWITTER

Twitter is most commonly used to broadcast information about the library (gunton & davis, 2012; milstein, 2009). Eleven out of twenty suggestions provided by cole (2009) involve sending

out information to followers, while five are devoted to promotion of the library and its services. In their broad review of twitter use by academic libraries, del bosque et al. (2012) found that libraries primarily used their accounts for discussing resources (55% of libraries), announcing events (24%), and communicating hours (14%). While twitter is an effective tool for broadcasting library information, the scholarly community appears to be united in the belief that twitter should be used by academic libraries to interact with followers in order to take full advantage of the platform (cole, 2009; cuddy, graham, & morton-owens, 2010; del bosque et al., 2012; dickson & holley, 2010; gunton & davis, 2012; milstein, 2009; sewell, 2013). Gunton and davis (2012) suggest that limiting a library's social media activities to the distribution of information represents a failure to appreciate the interactive nature of the modern internet. It appears that academic libraries have been slow to adopt such advice. Del

bosque et al. (2012) found that 54% of libraries interacted with followers and less than 10% used twitter to answer reference questions, although most libraries did have some version of electronic reference. The authors encourage libraries to take advantage of twitter-specific features such as direct messages, @replies (replying to an account by using @ followed by the account name), and hashtags (keywords preceded by the # symbol, e.g. #libraryscience). Hashtags allow twitter users to easily follow discussions on a topic simply by searching for the hashtag. Del bosque et al. Also advocate the use of library-specific hashtags. Information dissemination via twitter it is clear that social media is used by academic libraries as a means to transmit information to and connect with patrons. Thus, an effective program will reach many people. This is a question of information dissemination.

Dissemination via twitter has been studied by several groups. Much of the focus has been on retweeting, or the forwarding of a tweet composed by another, since, according to suh et al. (2010), "retweeting is the key mechanism for information diffusion in twitter." Several account properties are associated with high levels of retweeting, the most obvious of which is the number of followers (petrovic et al., 2011; suh et al., 2010). Perhaps more surprisingly, the number of followers is also related to the generation of retweets (suh et al., 2010) as is the account being a member of twitter lists (petrovic et al., 2011). Kim, abels, and yang (2012) studied information dissemination by academic libraries. The study examined the account types that retweeted library content. Retweeters were grouped into twelve categories, e.g. Librarians, students, scholars, and university organizations. University organizations did the most retweeting and was the largest intermediary, garnering more retweets of library messages than any other group. Such accounts are central to the twitter network and are responsible for circulating much library content. Students were found to retweet messages both directly from the library and also those that were

previously retweeted by other groups. A moderate number of retweeters were categorized as local organizations; however, this group was responsible for spreading the second highest number of messages. This indicates the importance of cultivating relationships between academic libraries and such accounts. This work is concerned with the twitter networks and influential accounts within them. However, for completeness, it is worth noting properties of individual tweets that are associated with retweets and information propagation. The inclusion of both urls and hashtags has been shown to increase the retweet ability of a message (petrovic et al., 2011; suh et al., 2010; yang & counts, 2010).

Suh et al. (2010) found that the impact of including urls in a tweet is domain specific. Some urls enhance the appeal of the message while others reduce it. This was also found for hashtags. Overall, however, messages with these features are more likely to be forwarded by other users. Sewell (2013) performed a comprehensive investigation of the twitter followers from a particular library. This analysis is critical to the development of targeted marketing and relevant tweets (cuddy et al., 2010). For example, this knowledge can indicate which communities are heavily represented, and moderators can tailor content to these groups. Furthermore, once known, underrepresented populations can be engaged and recruited. Each was individually examined and placed into one of eleven categories, e.g. Student, faculty/staff, and alumni. Other social media sites were examined to locate this information, if necessary. In addition, sewell created other account properties such as affiliated/unaffiliated with the university, active/inactive, and number of tweets. Categories also had subproperties associated with them. For example, student accounts were further partitioned by academic program and year. Forty-five percent of the followers were associated with the university. Students represented the largest population of followers (24%). Out of these, 81% were undergraduates. Corporations (20%) were the

second most represented population. Other groups to note were university departments/organizations (9%) and faculty/staff (5%). As mentioned above, an analysis of an account's followers can provide valuable insight into the accounts that receive library information. It can help librarians determine policies ranging from simple tweet development to large-scale policy decisions such as whether to allocate resources to social media (sewell, 2013). However, there are difficulties associated with such endeavors, the foremost of which is the enormous time investment. The account of each follower must be visited and details copied. Personal information, such as graduating year, department, or even gender is not always easily accessible. The account must be combed if such information is needed, requiring more time. Sewell was forced to search for and access other social media accounts to locate the information required by her study. Another difficulty with a follower examination is the analysis of such a large volume of irregular data. Developing a big picture from the many details of accounts is not straightforward. The purpose of this work is to complement this microscopic analysis of a library's twitter community with a multiscale examination. A simple method to extract communities as well as key accounts in the twitter network is presented. Importantly, the data collection and analysis is automated, thus requiring little time from librarians.

3.9 TWITTER AS MARKETING TOOL

The library/information professionals should become "part-time" marketers to ensure customer satisfaction both in internal (Broady-Preston and Steel, 2002) and external marketing. Models help them manage complexity and make substantiated decisions based on the well-understood and explicitly formulated essentials of the modeled situation. A sustainable Twitter model is a model that can predict with great precision the outcome and the profit, with specific resources. This model has been studied with real numbers and a variety of situations with the currentTwitter algorithm.

Twitter changes their algorithm from time to time. So, depending on the new algorithm, we have to adjust the Twitter model dimensions (sub-models) and percentages to be accurate and maximize the total profile. The research study at hand refers to the public benefit of libraries providing them a decision tool that can predict the outcome of each action on Twitter and ensure a positive return of investment (ROI) to the library itself. Further research must be conducted to adjust the model for each type of product or service, depending on the circumstances. (Sakas & Sarlis, 2016)

Chapter 4

Data Interpretation and Analysis

DATA INTERPRETATION AND ANALYSIS

4.0 DATA INTERPRETATION

A questionnaire was mailed to 737 Goa University students out of which 90 responded. The questionnaire was framed keeping in mind users needs from the Goa University Library. It asked questions on Social Media and specifically Twitter to know their views on the same.

Also the well ranked libraries' Twitter handles were analyzed to understand their technique in benefiting from the twitter accounts.
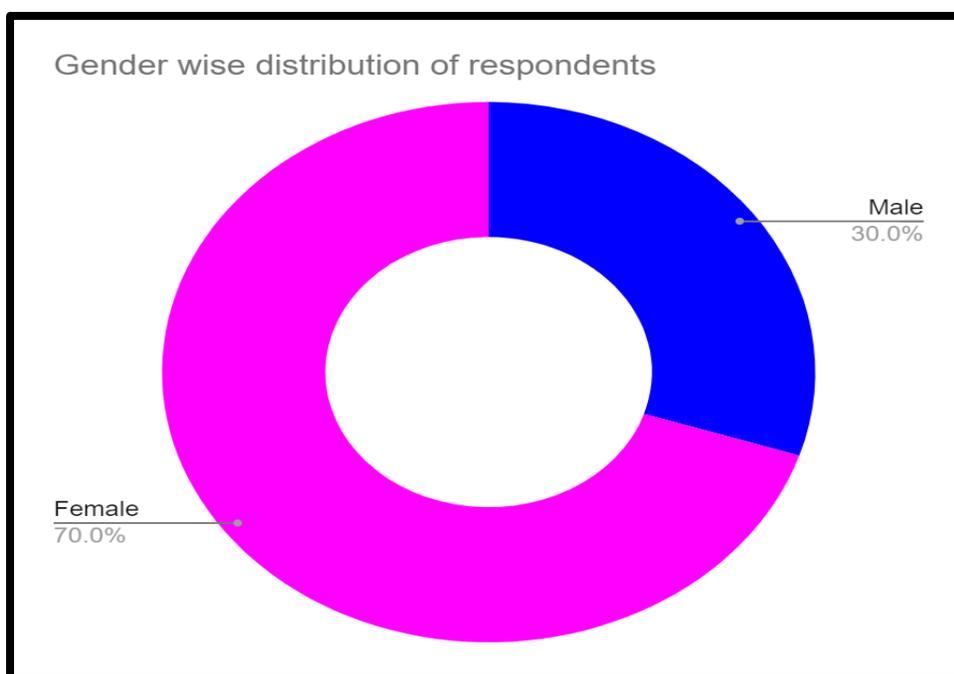

Figure 4.1

The above chart suggests that women form the majority of my respondents. Also men are only at 30%. We can assume that Goa University has more females than males in its classrooms. Library's Twitter handle should be in such a way that it is more pleasing to the ladies. However, by overall usage, men constitute 54% of its audience and 46% are women.

Figure 4.2
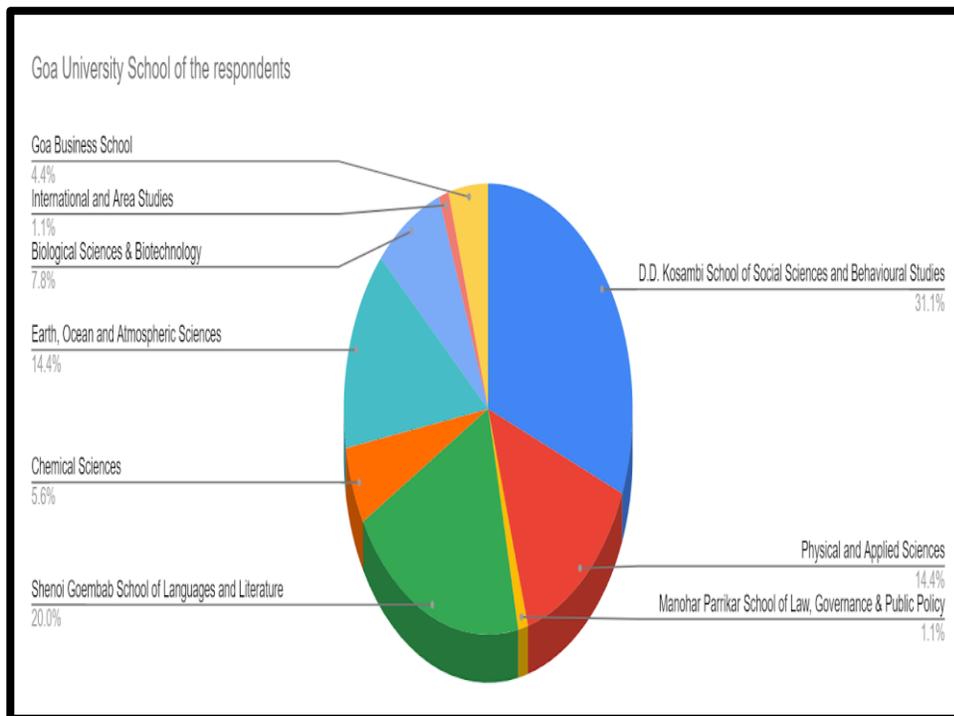
The given diagram shows the division of respondents among the different schools of Goa University.

D. D. Kosambi School of Social Sciences and Behavioural Studies provided the maximum of 31.1% of the responses. 20% of the responses were given by Shenoi Goembab School of Languages and Literature.Both School of Physical and Applied Sciences & School of Earth, Ocean and Atmospheric Sciences constituted 14.4% of the respondents each. School of Biological Sciences and Biotechnology makeup 7.8% of the total respondents. The School of Chemical Sciences formed 5.6% of the feedback. 4.4% of responses arrived from Goa Business School. School of International and Area Studies & Manohar Parrikar School of Law, Governance and Public Policy submitted 1.1% responses each.

Figure 4.3
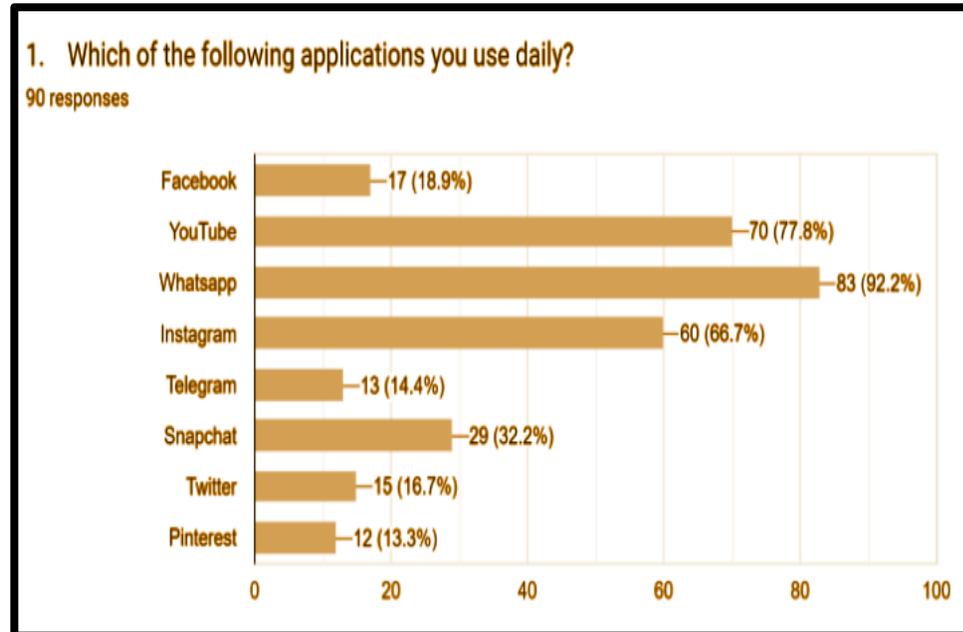
From the above bar diagram, it is evident that Whatsapp is the most widely used social media platform. Pinterest on the other hand was the least used from the given platforms. 92% of the students used Whatsapp daily. However it is a closed networking site which operates only via mobile numbers. Library doesn't have any benefit from it.

Other platforms such as YouTube (78%) and Instagram (77%) too are based a lot on video and photo aspects of the technology. Snapchat at 32% struggles at gaining the attention of men. All the remaining platforms are being used daily by less than 20% of the targeted population.

From these platforms Twitter stands out as it has seen a steep increase in its user base at least here among the University students. Also with the takeover of Twitter by multi-billionaire Elon Musk, it is likely that it will come in top 3 of social networking platforms.

Figure 4.4

Online library service satisfaction of respondents
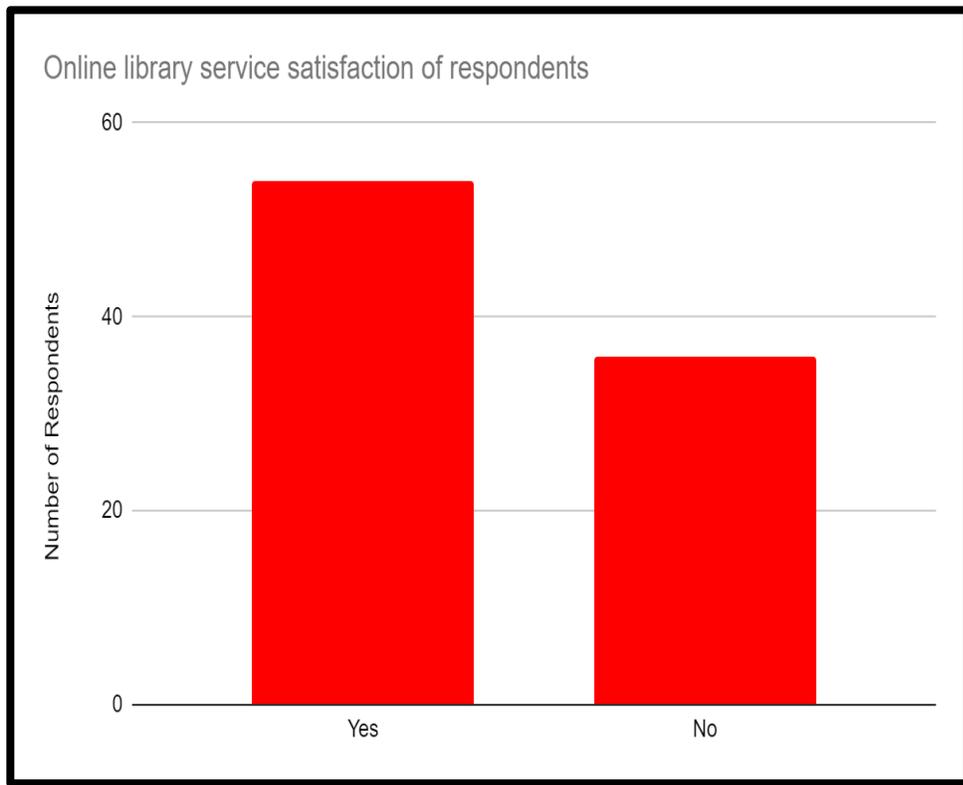
The above bar graph shows the satisfaction level of the Goa University students with regards to online library services. 54 respondents were happy with online support the library is offering. 36 respondents were not quite happy with the current system of library access. There's a need to improve the already satisfied user to another level and also the unsatisfied users must be provided with better experience during future attempts of interaction.

Figure 4.5

Awareness of Twitter by the respondents
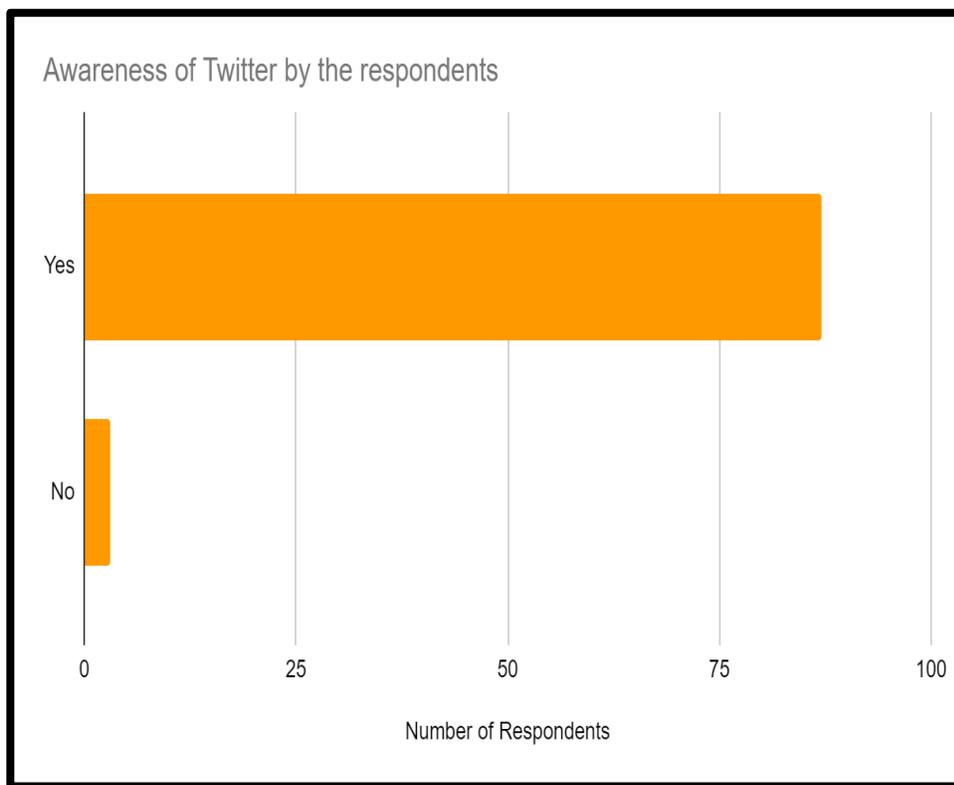
The given bar graph clearly states the majority of 87 respondents were knowing the social platform of Twitter. Only 3 of them were unaware of it. Since all are very much aware of it, libraries don't need to put in much effort to introduce the concept of library services via twitter. This level of awareness should get converted into usage of Twitter for library purposes.

Figure 4.6
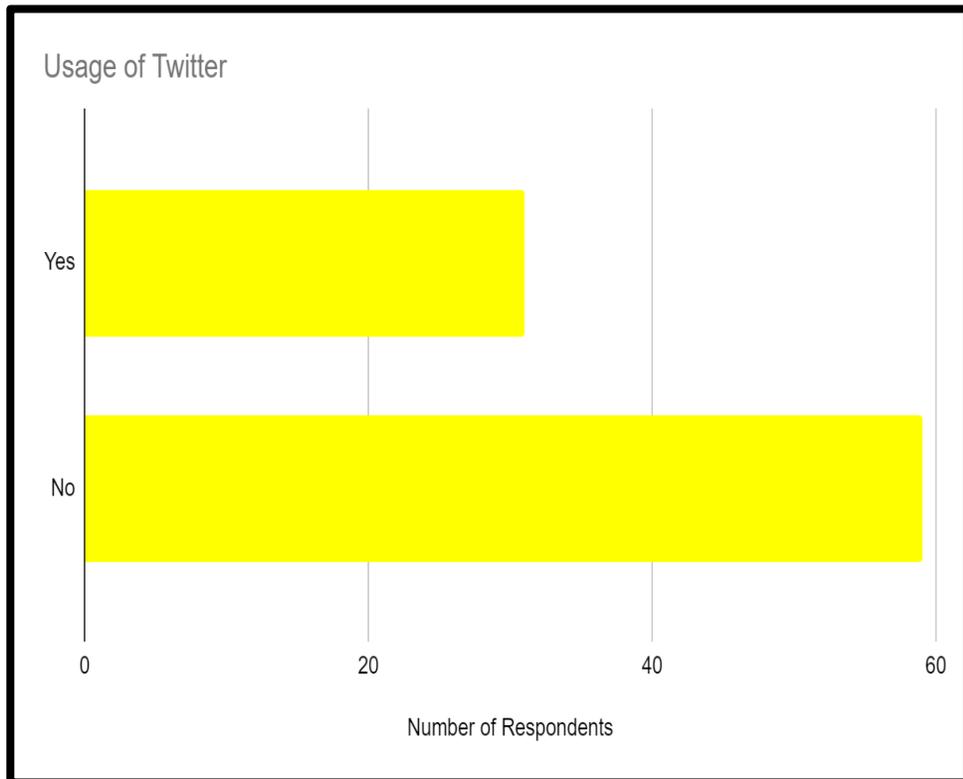
The awareness of Twitter does not translate into its usage. Only 30 out of 90 were using Twitter. 60 are non-users of it. But from the data collected it is obvious that the number of Twitter users is growing exponentially. Since this graph is for daily Twitter usage, there will be a few who may not be not everyday users of it. Libraries shouldn't worry about less user connect and should engage initially with only a small targeted population which will increase with the continuous and effective use of the platform.

Figure 4.7
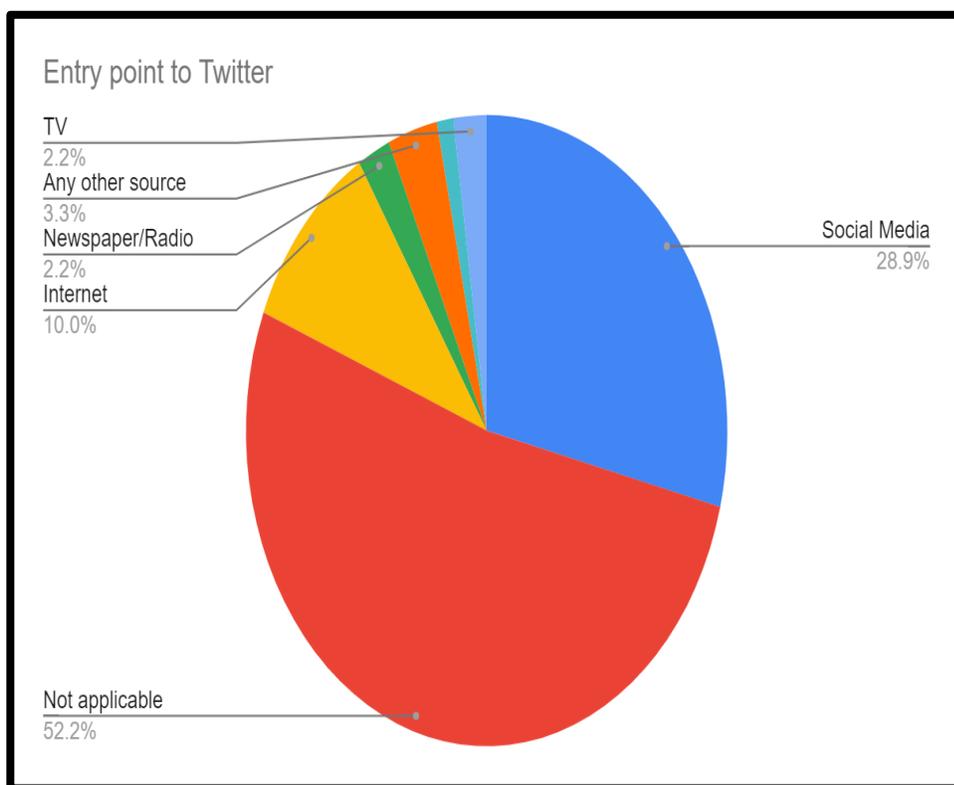
The pie-chart shows around 29% of people were brought to Twitter via other social platforms. Internet/WWW is the source for another 10% users of Twitter. 9% is constituted by Newspaper/Radio, Friends/Colleagues, which have been the referral point to Twitter. Libraries if possible can advertise their collections via other social platforms/Internet and bring them under Twitter's fold later on.

Figure 4.8

Familiarity of using Twitter
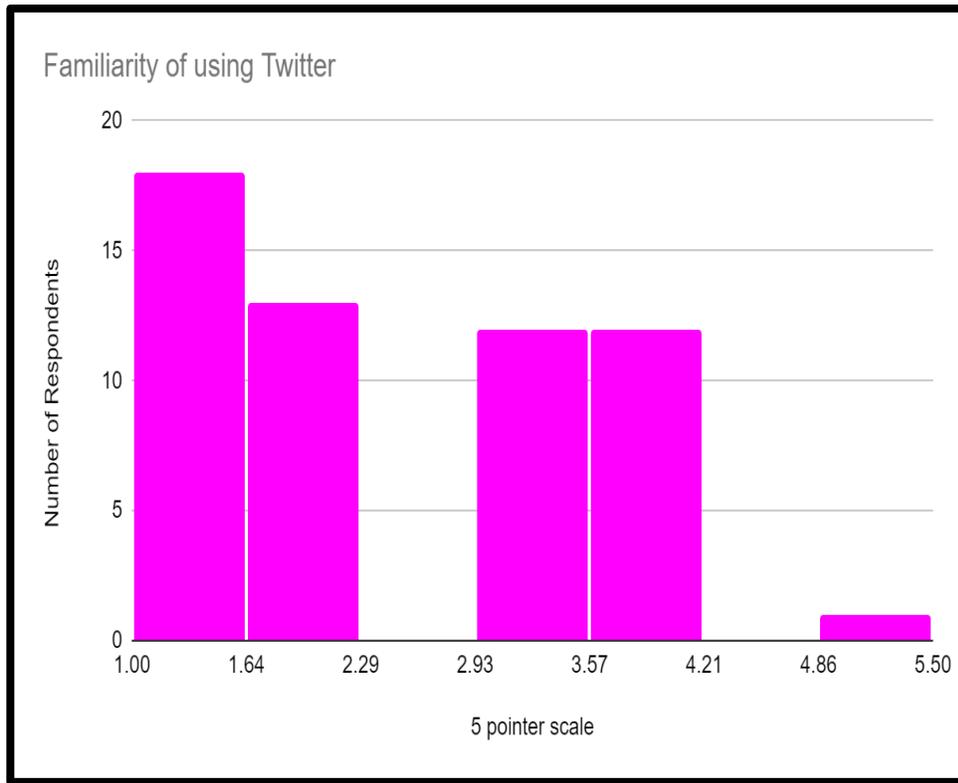
The 5 pointer scale denotes familiarity of users with Twitter. 1 point being least familiar and 5.5 being most familiar. The largest number of students are not familiar with the application of Twitter ie. 30 students claim less than 2.3 points out of 5. Around 25 students had mid-level (2.9 to 4.2) familiarity. Only one student was most familiar with Twitter. Over here not much can a library do regarding a user's familiarity with Twitter but it may become familiar with everybody once it becomes mainstream.

Figure 4.9

Recommendablity of Twitter
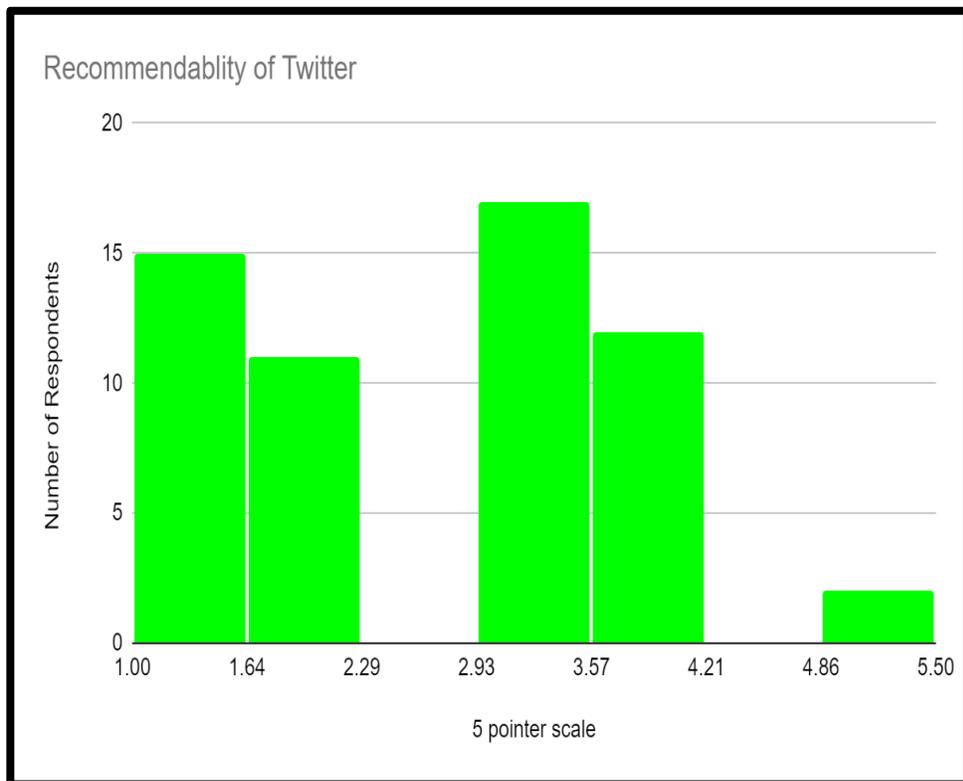
The five pointer scale denotes the recomendable nature of Twitter. 1 point being least recommendable and 5 being the most recommendable. 26 students state it's recommendable below 2.3, around 30 of them call it (2.9 to 4.2) recommendable. Only 2 call it very recommendable.

Recommendation power of Twitter stands very tall compared to other platforms. With its share, retweet, quoted retweet, threads, it is built to reach a wide audience within little time.

Figure 4.10
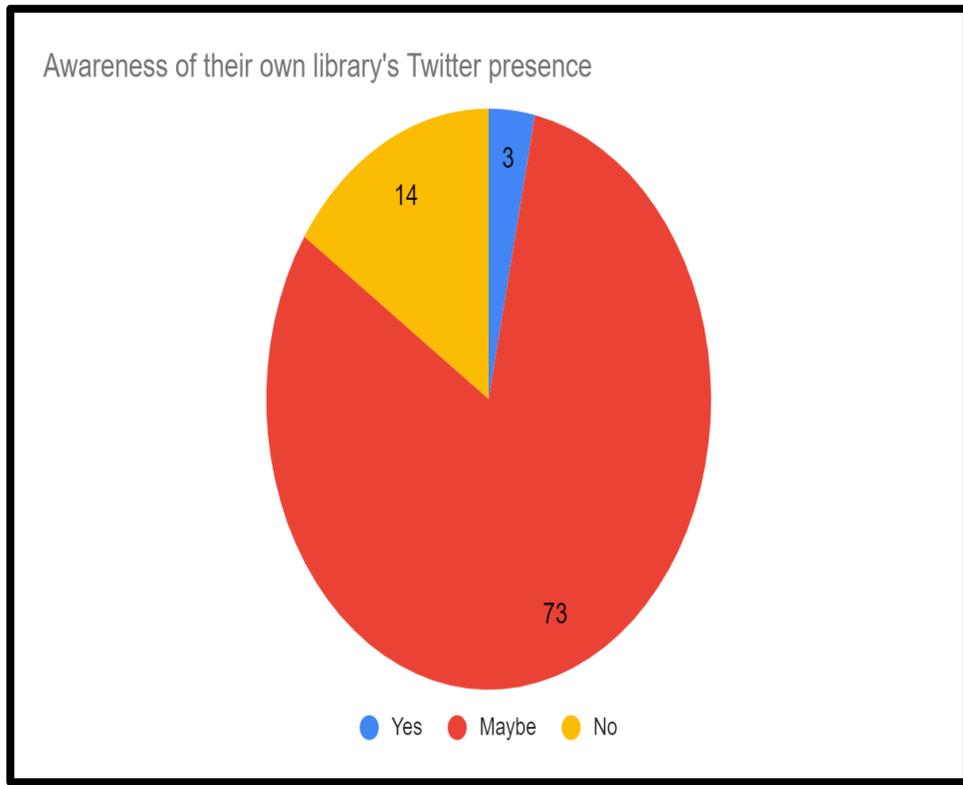
The above pie-chart shows the respondents awareness of Library's Twitter handle (which does not exist). But still 3 students are confident enough to claim that they know it exists. 14 are absolutely aware that the Library is not using Twitter. The respondents who have suggested 'Maybe' are split between yes and no. This is the potential future library client via Twitter.

Figure 4.11

Respondents approval of university's social media usage
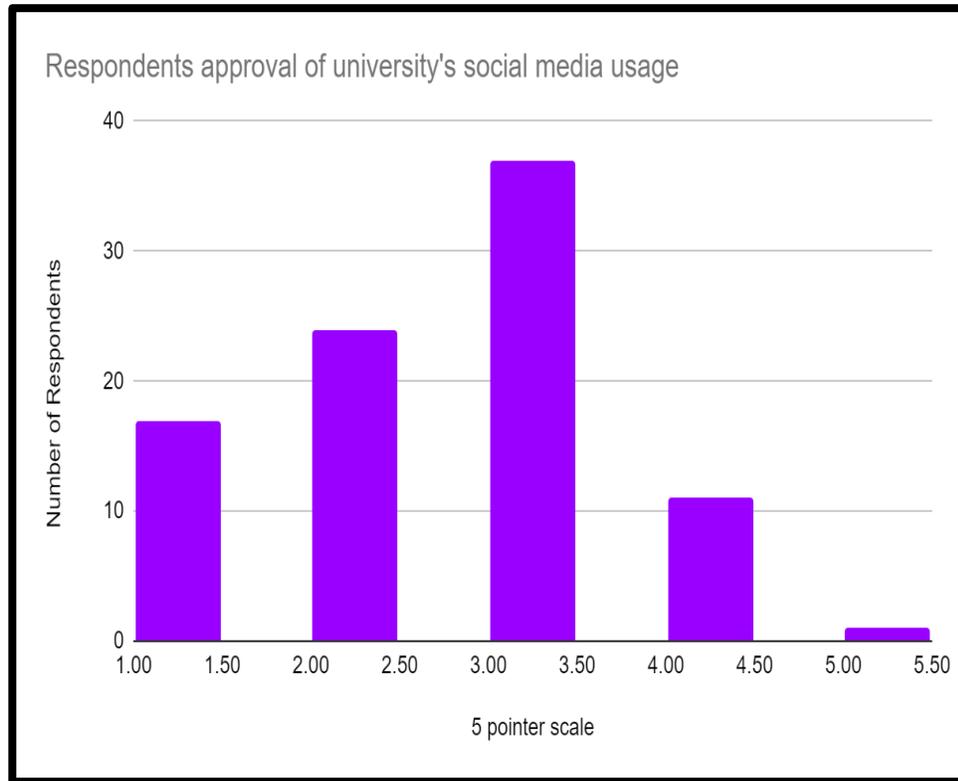
The above Bar diagram shows the approval of University's social media usage among the respondents. 1 being least approvable and 5 being highly approved. 37 students are moderately satisfied by the library's current online strategy. Around 40 students are on the negative side of the spectrum which is less than 2.5. Only 12 students rate it fairly well. Presently the library the university doesn't have any social platform besides the library website. However, University is using Twitter, Instagram, Facebook, Youtube, LinkedIn and ResearchGate.

Figure 4.12
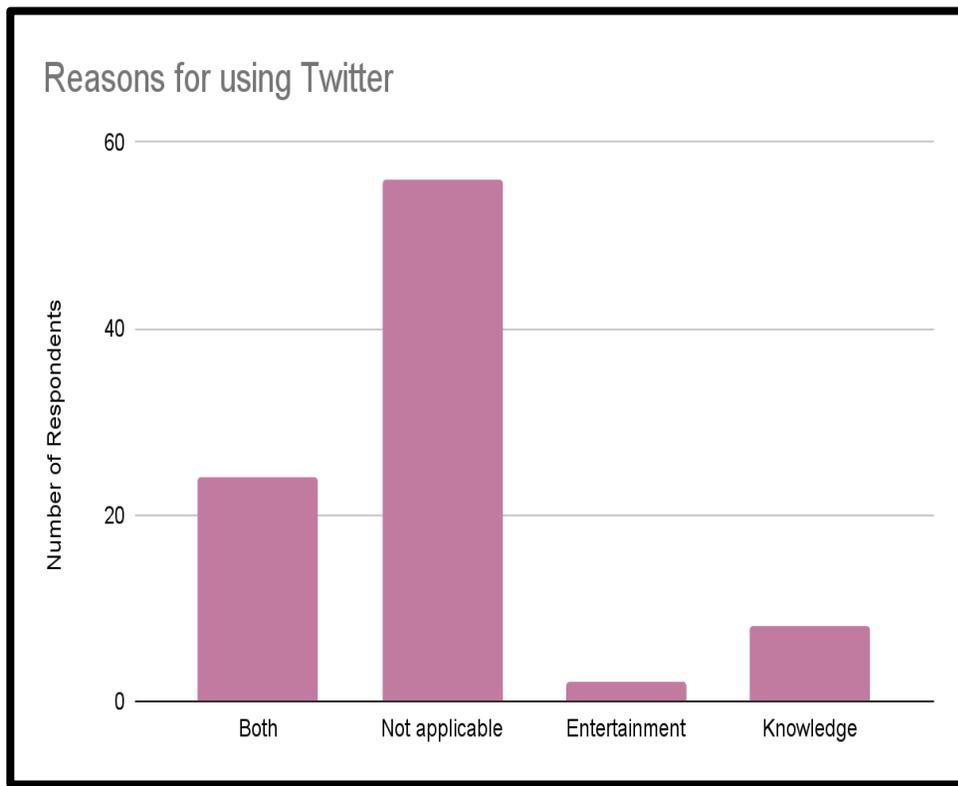
The bar diagram shows students prefer Entertainment and Knowledge. Few chose it only to access knowledge and very few use it only as a platform for entertainment. Often a library's Twitter handle should become informal just to ease the burden. People will not use the platform if it only serves as a means for entertainment. Similarly providing only knowledge too can be a little push factor for the libraries on Twitter.

Figure 4.13
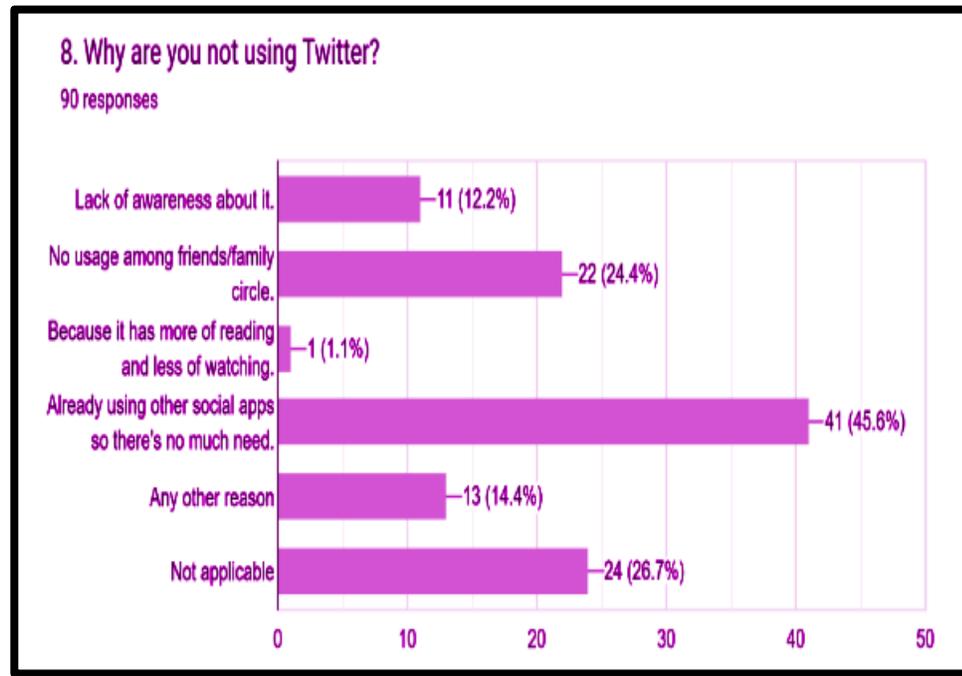
The above chart shows the reasons for not using Twitter. The prime reason was that they are already using other social apps so there's no much need. This is not much of a worry since the platform has tremendous sharing potential in itself. Also once quality service is provided with Twitter it will be a pull factor. This will work alongside the library's website.

The lack of usage among peers and family is also a deterrent. Even here as time progresses it is likely more and more people will adopt Twitter considering its advantage over other social platforms. Also there isn't much awareness of the platform generally speaking. This too will be nullified once it reaches on par with platforms. But we have to ensure we don't fall behind in connecting with current users of Twitter and bring the new users of Twitter under the online library's presence.

Figure 4.14

9. What do you like about Twitter?
90 responses

Response	Value
It feels very professional and interactive.	24 (26.7%)
It provides real-time updates.	30 (33.3%)
It allows you to express yourself in a normal human conversation.	5 (5.6%)
It suggests trending topics both nationally and internationally.	31 (34.4%)
Any other reason	3 (3.3%)
Not applicable	41 (45.6%)
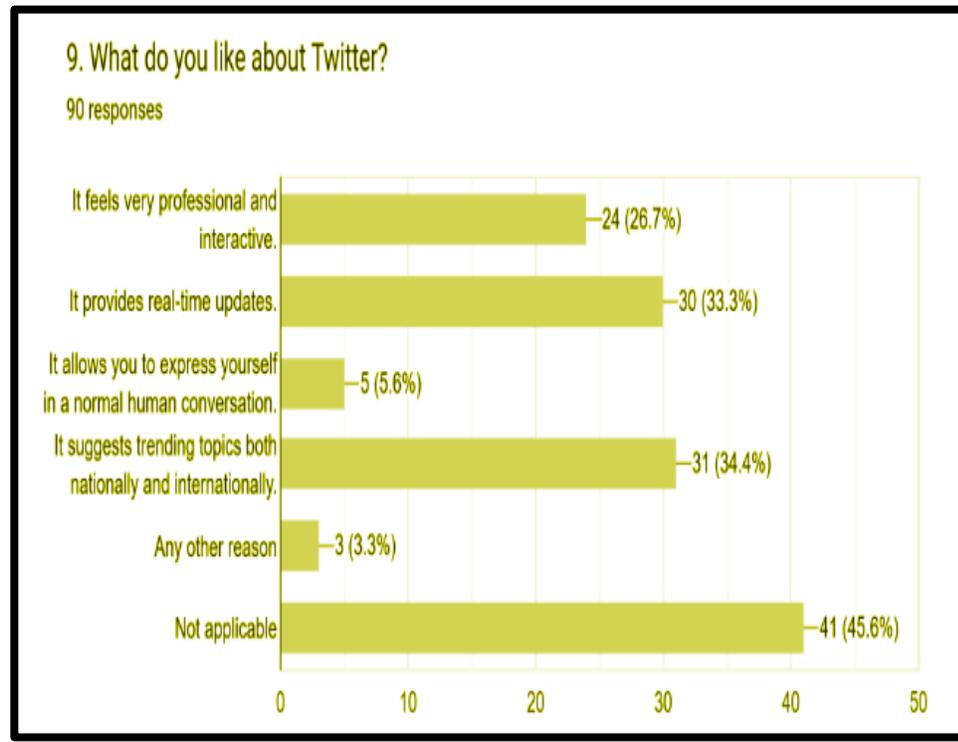
The above diagram states the features loved by the users. Users like the way Twitter provides real-time updates. With its hashtags, quickly timeline updation within seconds benefits nearly all major workplaces prefer to use the same. Also its ability to suggest trending topics is appreciated by the user. It allows you to choose your news source from the wide variety of media houses. It is more professional and interactive compared to other forms of social media. It is built to let others know what you are up to. A few of them like the ability to express yourself in a similar way to that of normal human conversation. This too is helpful to a few people.

Figure 4.15

10. What you don't like about Twitter?

90 responses

Reason	Value
It's a platform for trollers.	25 (27.8%)
More of problem creation takes place than problem solving.	11 (12.2%)
It is more of a public network than a private.	16 (17.8%)
All the tweets are not accurate, some maybe misleading.	34 (37.8%)
Any other reason	10 (11.1%)
Not applicable	32 (35.6%)
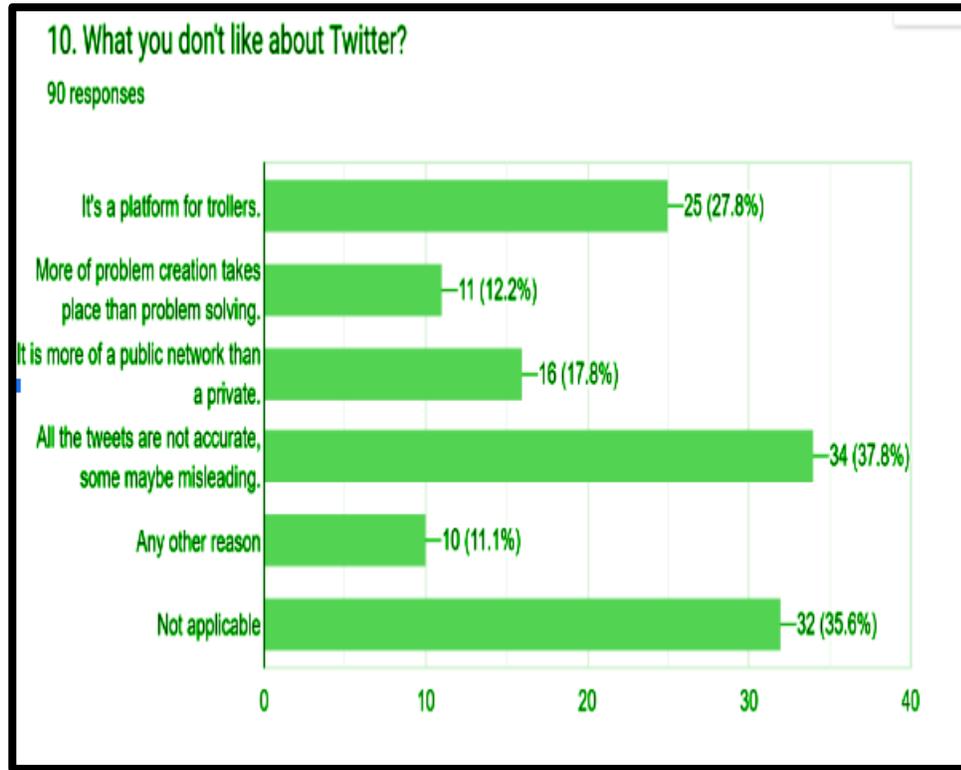
The bar graph shown above states the reasons for not liking Twitter. The major reason is that all the tweets aren't accurate, some may be misleading as well. People stay away from it due to trollers and their trolling which is the 2nd most unliked thing about Twitter. Students also feel it's a very public network with little privacy. Finally students feel there is nothing fruitful to gain from it since more problem creation takes place than problem solving.

Figure 4.16
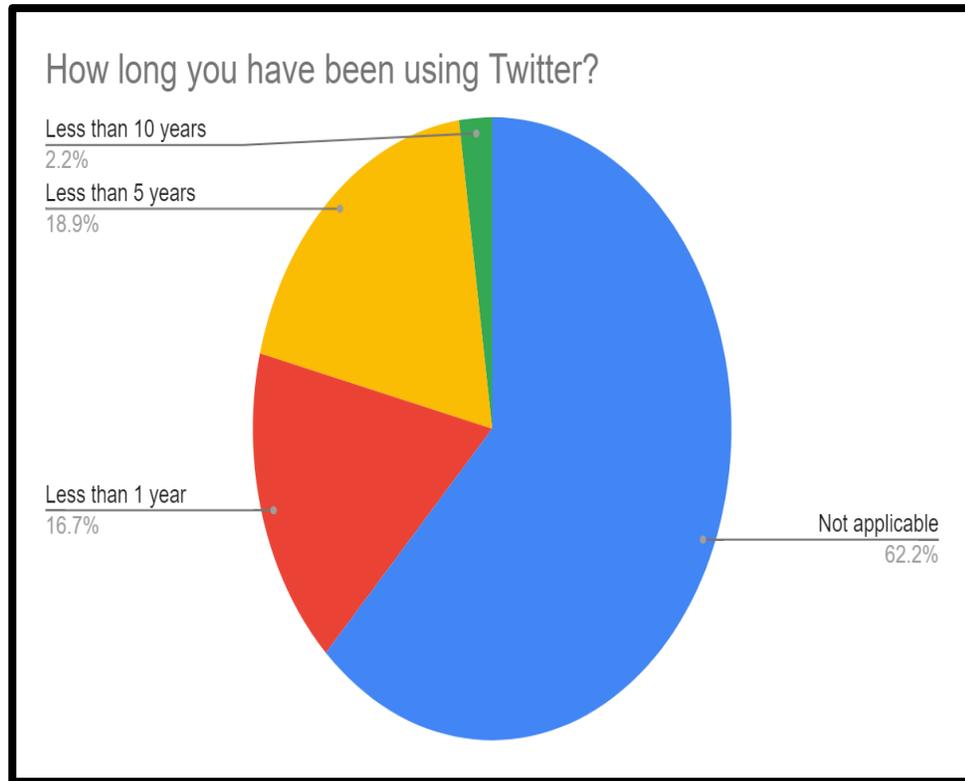
The pie chart shows nearly 17% of respondents only joined Twitter during the last one year. Only 19% started using Twitter during 2022-2017 and only 2.2% entered Twitter space during 2017-2012.

From 2012, Twitter has grown tremendously as seen from the figure. For the first 5 years, only 2 users were seen. For the next 5 years the number of users increased by 8 times and for the latest year it has increased its users by 4 times.

Figure 4.17
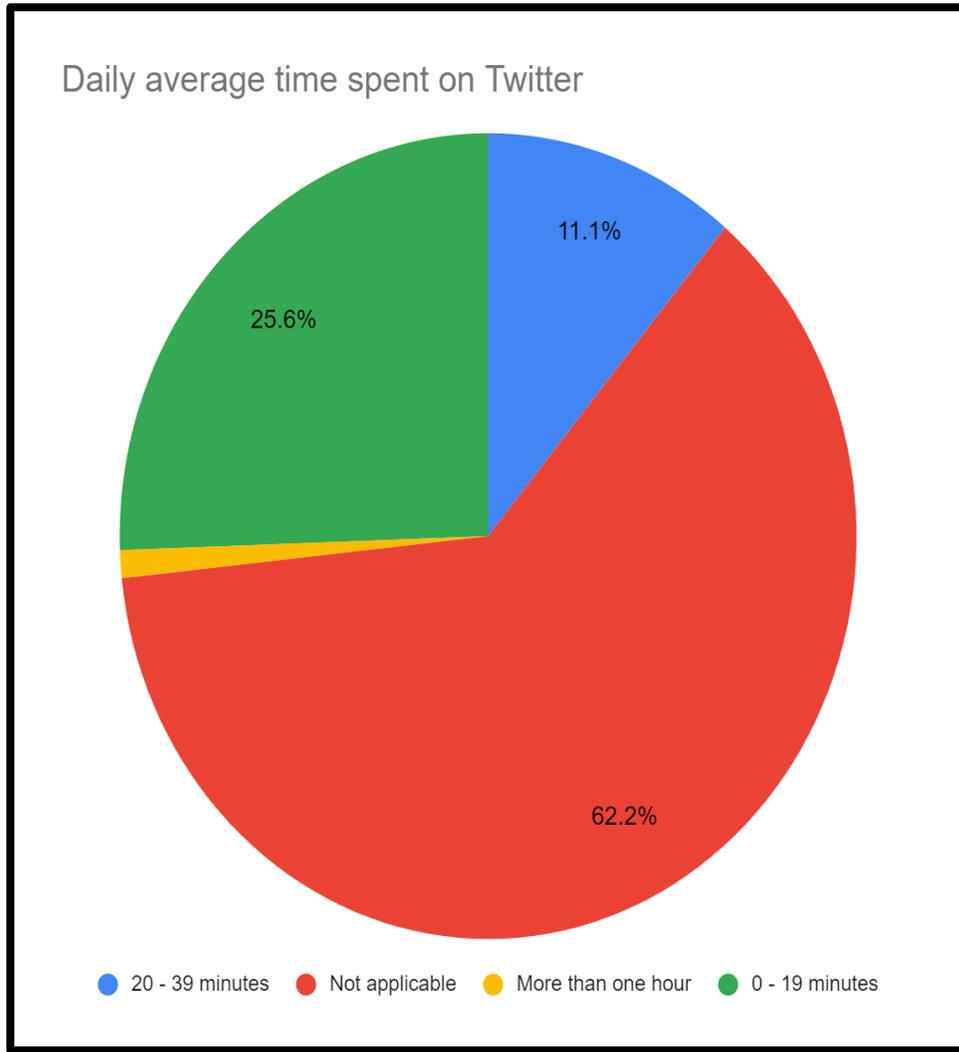
The above diagram represents the average time spent by users on the platform. 26% of the respondents spent less than 20 minutes a day, 11% spent 20 - 40 minutes a day and one person spent more than 60 minutes a day. Catching the attention of Twitter users does not require much time so even 20 minutes a day is more than enough for library space.

Figure 4.18
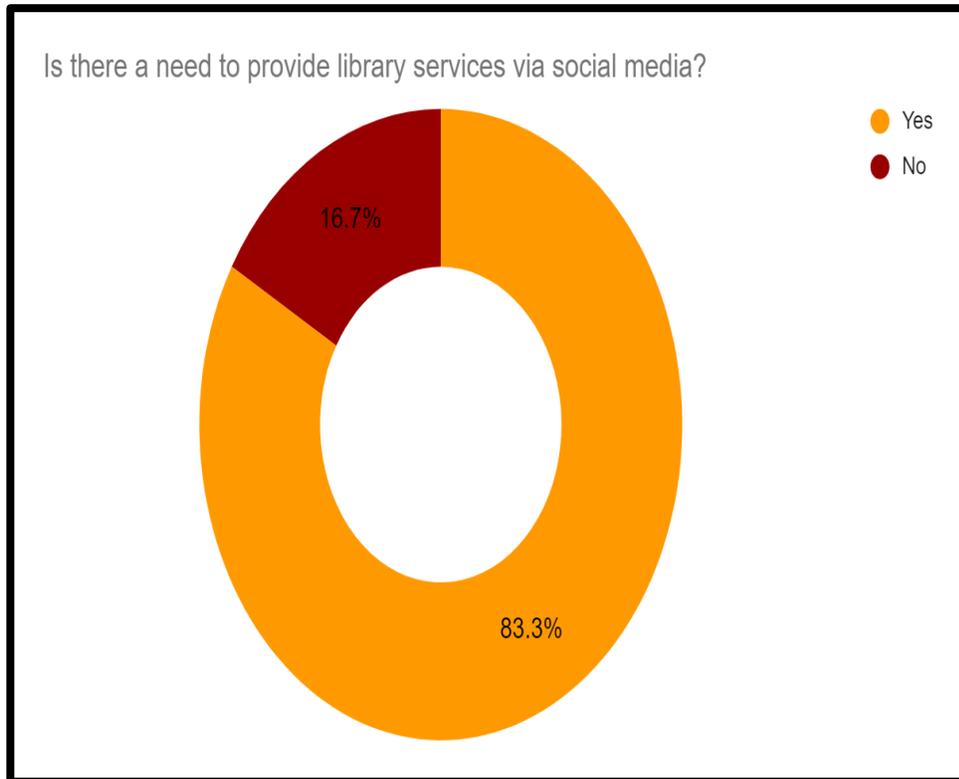
The figure represents the need to provide library service online. 83% of respondents overwhelmingly said yes and only 17% weren't in favor of it. It is beneficial to both the library and its patrons if the library has an online presence.

Figure 4.19
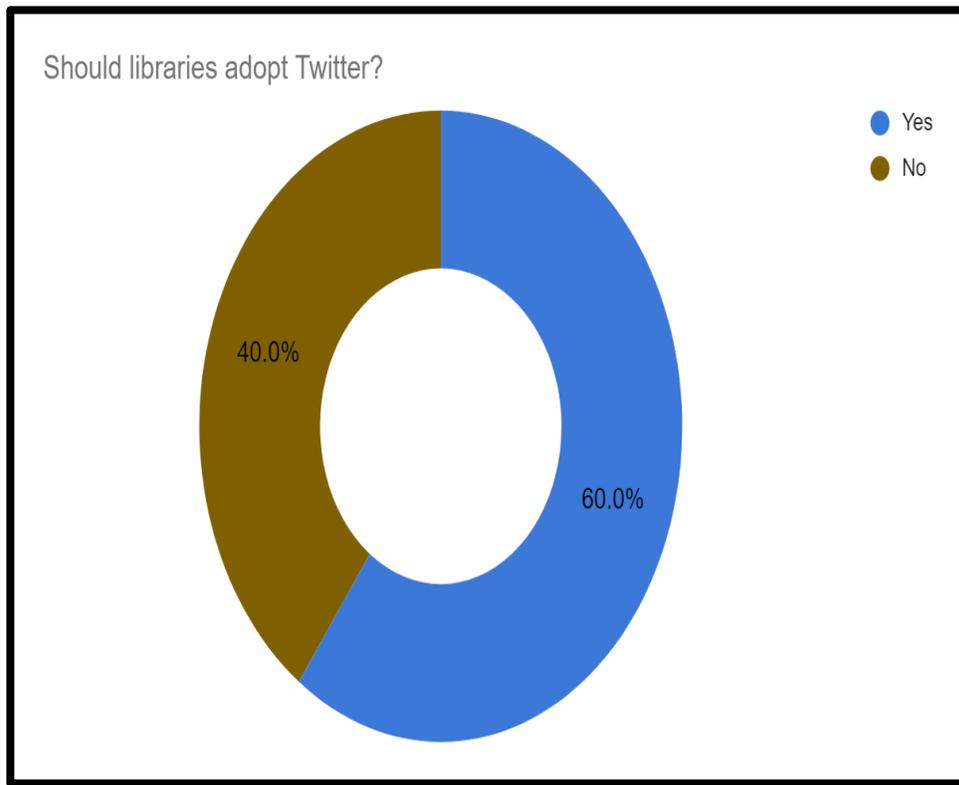
The above chart shows respondents' opinion on adoption of Twitter by libraries. 60% were acceptable to it whereas 40% had some issues over it. There's not a strong majority in favor since non users are hesitant for their libraries to adopt Twitter.

4.1 TWEET ANALYSIS OF THE SELECTED LIBRARIES

Successful Twitter handles were selected, one each from Public libraries, Academic libraries and National libraries. New York Public Library, Harvard Library and Library of Congress profile activity was observed for a certain period of time. The tweet content was studied and categorised for one library and for other libraries tweets were simply listed.

4.1.1 NEW YORK PUBLIC LIBRARY

@nypl uses its own acronym as its Twitter handle (handles are unique id given to each Twitter account) ideally it should be short & easy to remember. A brief description includes the library mission in one sentence. It states your purpose.

@asknypl is a dedicated Twitter handle just to look after any visitor queries just like the office front desk. Contact no. isn't directly listed on the main profile but through the website. (Further email {general faqs if not satisfied then can mail us}, Live chat, report, guidelines for authors & publishers, title recommendation, further additional contact details of each department of library) Moreover 2nd language interface is below 1st language and messages accepted.

Location is very important.

Website URL is also necessary.

Date of joining Nov 2008 (5263 days)/ Date of establishment

Direct Message closed

Quick profile statistics of the library handle

41.3k tweets (8 tweets per day)

10.8k photos and videos (1 photo and 1 video per day)

1827 likes (1 like per 3 days)

154 following and 2.4 million followers as of 31st March 2023 that is they follow 1 account for every 15584 followers. It suggests that a library doesn't need to follow every other account to grow its own follower base.

Pinned tweet - is a fixed tweet to the top of your feed. It can show what is the library about/message from librarian, important notice, any viral tweet of your own.
Here a special edition library card of a local superhero with a catchy hashtag was pinned.

4.1.1.1 TWEET CATEGORIZATION OF THE LIBRARY FROM 25-03-2023 TO 31-03-2023

Table 3: Tweet Categorisation of NYPL

Tweet content	Hashtags	Tweet Category
History Month theme, memoirs, biographies, broadcasting of resources	#Womens historymonth	Collection announcement
Retweet: Event announcement, ways to access in house newspaper		Event announcement
Chatgpt, reader advisory, 5 books		Reader advisory
Baseball season begins, baseball books of 2022 advisory		Reader advisory
Memoirs, hobbies, readers advisory, transformation		Reader advisory
Retweet: *flash sale* event announcement,		Event announcement

women, participants get special access to collections, register now later few slots on arrival			
Retweet: user's appreciation of us			User feedback
Trans day of visibility, reader advisory			Reader advisory
Protest Petition		#librariesa reforevery one	Library collaboration
title author handle one line review link of book of the day newsletter		#book of the day	Everyday event
Event announcement of anniversary celebration, Hip Hop, Cultural movement			Event announcement
Retweet: library promotion			Library Promotion
Quote tweet of sister project			Non library effort
Quote who said it: what's the connection here? International Day celebration, library extension			Library extension
Book battle of the month by polls on twitter winner title author one line review One self written		#literarym archmadn ess	Library's initiative

	article on the same book		
	International day with hashtag, thread, library promotion of photo collection (1.2 million photos in 12000 subjects), for lending for members		Library extension
	Library extension, library recommendation via separate handle, personalized recommendation based on your sent interests ie books authors genres		Library extension
	Retweet: library propagation by another user		User feedback
	Retweet: library propagation by another user		User feedback
	title author handle one line review link of book of the day newsletter	#book of the day	Everyday event
	Officers visit to library (free plant, book, pizza to students) article on same		Event announcement
	Books related to Dungeons and Dragons, book advisory emoji		Reader advisory

use 15 months ago				
title author handle one line review link of book of the day newsletter		#book of the day		Everyday event
final poll Link to webpage to article of lmm		#literarymarchmadness		Library's initiative
Genz acronyms, icymi upcoming event (book club) YT link to event video				Event announcement
Hot off the presses 1 week				Collection announcement
Retweet: library upcoming event (book club)				Event announcement
Trendy Tv show based tweet from Netflix, self created article of similar books, reader's advisory, 2 weeks		#digitalcollection		Reader advisory
Memoirs, hobbies, readers advisory, transformation 3 months ago		#lifechanging		Reader advisory
Retweet: by user of Event on women's history month, with yt link				User feedback
Readers list on books similar to derry girls 5 months ago				Reader advisory
title author handle one line review link of book of the day		#book of the day		Everyday event

newsletter			
Semifinal of lmm link to lmm article			Library's initiative
Reader's advisory on self help group for weather and house cleaning 3 months ago			Reader advisory
President explains importance of using library special exhibits, in partnership with another private brand			Library collaboration
Semifinal of lmm link to lmm article			Library's initiative
Books related to Dungeons and Dragons, book advisory 15 months ago			Reader advisory
Retweet: library event			Event announcement
Career options at library's 92 location			
title author handle one line review link of book of the day newsletter		#book of the day	Everyday event
allows members to free visit partner nearby museums, theaters		#CultureP assNYC	Library collaboration
Quarterfinal of lmm link to lmm article			Library's initiative

Spring brings love, book advisory for the upcoming season 10 months ago			Reader advisory
Quarterfinal of lmm link to lmm article			Library's initiative
Empire State Building Link to self made article 11 months ago		#digitalcol lections	Library extension
title author handle one line review link of book of the day newsletter		#book of the day	Everyday event
title author handle one line review link of book of the day newsletter		#book of the day	Everyday event
Quarterfinal of lmm link to lmm article			Library's initiative
Succession series based book advisory self article on same article from 5 months ago			Reader advisory
Persuasion by jane austen, book adaptations of it , book advisory, article from 10 months ago			Reader advisory

4.2 LIBRARY OF CONGRESS

It uses the @librarycongress handle. Following this there's a brief introduction. The Twitter handle of the chief Librarian is also shown. Location is mentioned. Library website is listed.

The date of joining Twitter was June 2007 (5782 days). Direct message is closed.

Quick profile statistics of the library handle

- 23.9k tweets (4 tweets per day)
- 11k photos and videos (1 photo and 1 video per day)
- 5143 likes (1 Like per day)
- 13 following 1.2m followers as of 31st March 2023 that is they follow 1 account for every 92307 followers.

Tweets as on 31st march 2023 (1 week period)

I.	Event announcement
II.	Event announcement
III.	Event announcement via news article
IV.	Event announcement
V.	Today in history self article linked
VI.	Event announcement
VII.	Event announcement
VIII.	Event announcement
IX.	Thread on history, constitution, library possession
X.	Retweet of chief Librarian
XI.	Event announcement
XII.	Today in history self article linked
XIII.	Job opportunity : link to website
XIV.	Event announcement
XV.	Retweet of chief Librarian

XVI.   Event announcement

XVII.   Event announcement

XVIII.   Retweet of head librarian

XIX.   Job opportunity link to website

XX.   Retweet of sister project

XXI.   Event announcement

XXII.   Event announcement

XXIII.   Event announcement

XXIV.   National poetry month therefore poem a day by invited poet

XXV.   Retweet of chief Librarian

XXVI.   Job opportunity: AHHA internship program

XXVII.   Event announcement every Thursday

XXVIII.   Monument surrounding seasonal change

XXIX.   Fact from history relating to the same

XXX.   Using in house newspaper archive

XXXI.   Event announcement

XXXII.   Today in history

XXXIII.   Event announcement

XXXIV.   Job opportunity

4.3 HARVARD LIBRARY

@harvardlibrary is being used by this academic library. It describes itself as the largest academic library in the world. They have been supporting research & development since 1638.

Location: Cambridge, Massachusetts, the website url is also attached and the date of joining is mentioned.

Quick profile statistics of the library handle

- 6697 tweets (4 tweets per 3 days)
- 2 photo/video per 3 days
- 4773 likes (1 like per day)

- 1373 following 40k following (1 follow for every 29 followers)

Tweets as on 31st march 2023 (2 weeks period)

I. Reading room , manuscript and rare and archives
II. Theater Artist collection and records
III. Copyright team of library to look matters
IV. Retweet of partners
V. Islamic heritage project of diff regions language and subjects
VI. World poetry day, listening booth,
VII. Retweet of sister project
VIII. Anniversary wish to partner company
IX. #Womenshistorymonth, oral history project
X. Historical fact
XI. #didyouknow womenshistorymonth
XII. Online exhibit of music compiler's life (letters photos interview)
XIII. International women's day one women's bibliography collection
XIV. Digital photo collection of 20th century
XV. Librarian step towards a good cause open access petition
XVI. Retweet of sister project
XVII. Historical stock crash document check also digital version
XVIII. Historical photo archive, collection, repository
XIX. Spot the difference photos of libraries
XX. Fun fact. Relation to the library

Chapter 5

Findings, Suggestions and Conclusion

CONCLUSION

5.0 FINDINGS

1. The study shows that the potential of Twitter could be utilized in libraries.
2. The different libraries would require a different approach of Twitter management.
3. The study conducted has shown that the students of Goa University are using Twitter.
4. Most of the users are daily users and few tend to use it once in a few days.
5. It was noted that Goa University had a higher strength of female students than male students.
6. From the 737 mail questionnaires, only 90 responded which converted into 12.21% response rate.
7. Manohar Parrikar School of Law, Governance & Public Policy; D.D. Kosambi School of Social Sciences and Behavioural Studies; Earth, Ocean and Atmospheric Sciences, these schools provided a high response rate.
8. International and Area Studies; Chemical Sciences; Goa Business School, these schools had a low response rate.
9. Though Twitter didn't feature in the top 3 most used platforms, it is expected to grow exponentially based on the data collected.
10. However, 60% of the students were happy with the library's online presence. That is the website of the library, accessibility of resources via website, login for members, issue and return of print as well as digital resources, fee payment, new arrivals, OPAC, was hassle free.
11. There is enough awareness of Twitter among the students of Goa University but the usage is on the lower side.
12. Social Media and Internet are the top reasons which lead students to Twitter. It suggests that the more students are online the more they will get introduced to Twitter.
13. The familiarity of Twitter too remains low since the majority of the students have been using it for only a few months.

14. Recommendability of Twitter is inherently there. With greater library performance on the platform, recommendations too will increase steadily benefiting both library and it's patrons.

15. The number of users who knew about the library's presence on Twitter was mixed. This observation was a little surprising.

16. Respondents were moderately satisfied with the university's online presence. ie. via website, Facebook, Instagram, LinkedIn, ResearchGate, Twitter and YouTube.

17. A majority of respondents were using Twitter for the sake of both entertainment as well as knowledge.

18. The prime reason for less Twitter usage among the students was that they were already using other social platforms and they didn't feel any need to use Twitter. Probably with time, more people would connect with Twitter frequently.

19. The Twitter feature to be used for library's purpose would be the real time updation of Twitter feed and the trends of local, national and international nature. As a lot of respondents felt it was unique when compared to other platforms.

20. Libraries should also take care that whatever they post is accurate and not misleading because it stands as the biggest hindrance to a user's Twitter adoption or its continuous use by a user.

21. Generally a higher percentage of students are using it for less than 20 minutes and few use it for less than 40 minutes a day.

22. Respondents do agree that there is a strong need for library users to access their library via social media.

23. Finally, 60% also felt Twitter was the right platform for library propagation.

24. Goa University is doing well on the social media platforms but their library doesn't have any presence on such platforms.

25. Twitter clearly has advantages over all other leading platforms as it was designed to let others know what you are doing, helps you convey

messages as broadcast, allows maximum sharing within a short span of time, allows you to connect to any individual or organization, and offers multimedia content.

5.1 SUGGESTIONS

1. The libraries constantly need to go forward with advancing technology.
2. Microblogging is not a brand new technology, but it is an effective and simple structured concept. Twitter seems best suited for the job of library development.
3. Libraries in India can observe and learn from other library handles from the platform and implement the model after justified modifications.
4. Libraries have lost the personal connection which used to be there earlier due to the internet, however Twitter might be able to build and maintain the relation by a modern strategy.

5.2 CONCLUSION

Twitter allows libraries to communicate with their patrons and engage with them in real-time. Libraries can use Twitter to share news, updates, events, and important information with their followers, fostering a sense of community and connection. Twitter provides libraries with a platform to promote their services, programs, and resources. Libraries can use Twitter to raise awareness about upcoming events, workshops, book clubs, and other activities, helping to attract more patrons and increase participation. Twitter can serve as a customer service channel for libraries. Patrons can reach out to libraries via Twitter with questions, feedback, or issues, and libraries can respond promptly, providing assistance and resolving concerns, thereby enhancing patron satisfaction. Twitter allows libraries to share relevant and timely information, such as book recommendations, research findings, educational resources, and news updates. Libraries can also use Twitter to curate and share content from other reputable sources, providing valuable information to their followers. Twitter provides

libraries with opportunities for networking and collaboration with other libraries, institutions, and professionals in the library and information science field. Libraries can connect with like-minded individuals, share ideas, and collaborate on projects, thereby expanding their professional networks and fostering innovation. Twitter allows libraries to engage with their local communities and build relationships with patrons. Libraries can use Twitter to showcase their role as community hubs, share stories, and highlight local initiatives, events, and achievements, thereby promoting community engagement and involvement. Twitter can be used by libraries as a platform for education and advocacy. Libraries can use Twitter to promote information literacy, raise awareness about library funding, advocate for library-related issues, and engage in discussions about the value and importance of libraries in society.

To conclude, Twitter needs to be properly studied before putting in dedicated effort. The targeted population has to be pleased, Return on Investment of time and energy has to be measured. Moreover one should make sure that such service is productive to both staff and the clients. Twitter's potential will only be seen if a clear cut strategy is framed and followed. Twitter has to list both knowledge and entertainment through its tweets. Also new targets have to be set and met for particular intervals. Twitter promotes rapid flow of information in a quick time. This has to be used to the fullest by the libraries. Though it serves a niche audience, it would be a great platform to build a strong community. Twitter brings both professionals and non professionals on a single interface. Twitter's role in the library will see increased use of resources due to larger audience views, likes and shares. Academic libraries know their users very well, personalized twitter experience for each individual is not a difficult task. It also manages to increase the collaboration among the students.

Overall, Twitter can be a powerful tool for libraries to communicate, engage, promote, provide customer service, disseminate information, network, build communities, and advocate for their services and resources. By leveraging the benefits of Twitter, libraries can enhance their visibility, reach, and impact in their communities and beyond.

REFERENCES

1. Aharony, N. (2010). Twitter use in libraries: An exploratory analysis. Journal of web librarianship, 4(4), 333-350.

2. Al-Daihani, S. M., & AlAwadhi, S. A. (2015). Exploring academic libraries' use of Twitter: a content analysis. The Electronic Library.

3. Bagley, C. A. (2012). Embracing Twitter as a research tool. In Social Information Research (Vol. 5, pp. 131-147). Emerald Group Publishing Limited.

4. Bikowska, K. (2020). Why not Twitter? The use of microblogging by academic libraries in Poland. Forum Bibliotek Medycznych, 26-35.

5. Carscaddon, L., & Chapman, K. (2013). Twitter as a marketing Tool for Libraries. In Marketing with Social Media: A LITA Guide (pp. 147-163). Chicago: American Library Association.

6. Castillo, C., Mendoza, M., & Poblete, B. (2013). Predicting information credibility in time-sensitive social media. Internet Research.

7. Chang, H. C., & Iyer, H. (2012). Trends in Twitter hashtag applications: Design features for value-added dimensions to future library catalogues. Library trends, 61(1), 248-258.

8. Erhel, S., Michinov, N., Noël, A., & Gonthier, C. (2022). Tweet to teach: Using a twitter-based instructional method to improve student motivation and academic outcomes in higher education. The Internet and Higher Education, 55, 100876.

9. Goldstein, S. (2020). Academic social networking sites are smaller, denser networks conducive to formal identity management, whereas academic Twitter is larger, more diffuse, and affords more space for novel

connections. Evidence Based Library and Information Practice, 15(1), 226-228.

10. Harisanty, D. (2018). How Twitter affects academic library users. Library hi tech news.

11. Humphreys, S. (2019). Tweeting into the void?: creating a UK library Twitter list and analyzing best practice–successes and myths. Insights, 32(1).

12. Hussey, J. (2011). Twitter in higher education: From application to alumni relations. In Higher education administration with social media (Vol. 2, pp. 249-272). Emerald Group Publishing Limited.

13. Kim, H. M., Abels, E. G., & Yang, C. C. (2012). Who disseminates academic library information on Twitter?. Proceedings of the American Society for Information Science and Technology, 49(1), 1-4.

14. Kushniryk, A., & Orlov, S. (2021). 'Follow us on Twitter': How public libraries use dialogic communication to engage their publics. Library & Information Science Research, 43(2), 101087.

15. Kwak, H., Lee, C., Park, H., & Moon, S. (2010). What is Twitter, a social network or a news media? WWW' 10: Proceedings of the 19th international conference on World Wide Web (pp. 591-600). New York: Association for Computing Machinery.

16. Mathews, B. S. (2008). Twitter and the Library: Thoughts on the syndicated lifestyle. Journal of Web Librarianship, 2(4), 589-593.

17. Mnzava, E. E. (2020). Twitter library account: highlights for the users and librarians. Library Hi Tech News, 38(2), 8 -10

18. Mohan, V. V., & Munigal, A. (2012). Use of community building web technologies in libraries: A study of twitter in American libraries. In I n SITE 2012: Informing Science+ IT Education Conference (Vol. 12, pp. 205-221).

19. Munigal, A. (2014). Use of microblogs in India: A study of Twitter usage by librarians and in libraries. Journal of Library Administration, 54(7), 590-608.

20. Parabhoi, L. (2019). Twitter sentiment analysis: A case study of ten university libraries. INFLIBNET Centre, Gandhinagar.

21. Patra, S. K. (2019). How Indian libraries tweet? Word frequency and sentiment analysis of library tweets. Annals of Library and Information Studies (ALIS), 66(4).

22. Patra, S. K. (2021). Is Twitter an Unexploited Potential in Indian Academic Libraries?: Case Study Based on Select Academic Library Tweets. In Big Data Applications for Improving Library Services (pp. 123-141). IGI Global.

23. Philogene, S. (2019). Twitter use by academic libraries in New York state. Urban Library Journal, 25(2), 1.

24. Rene Corbeil, J., & Elena Corbeil, M. (2011). The birth of a social networking phenomenon. Educating Educators with Social Media, 13-32.

25. Sakas, D. P., & Sarlis, A. S. (2016). Library promotion methods and tools modeling and simulation on Twitter. Library Review, 65(6/7), 479-499.

26. Shim, J. (2017). A Content Analysis on the Domestic Public Libraries' Use of Twitter. Journal of the Korean Society for information Management, 34(1), 241-262.

27. Shiri, A., & Rathi, D. (2013). Twitter content categorisation: A public library perspective. Journal of Information & Knowledge Management, 12(04), 1350035.

28. Shulman, J., Yep, J., & Tomé, D. (2015). Leveraging the power of a Twitter network for library promotion. The journal of academic librarianship, 41(2), 178-185.

29. Stuart, D. (2010). What are libraries doing on Twitter?. Online, 34(1), 45-47.

30. VanScoy, A., Hicks, D., & Cavanagh, M. (2018). What motivates twitter users to engage with libraries?.

31. Vassilakaki, E., & Garoufallou, E. (2015). The impact of Twitter on libraries: a critical review of the literature. The electronic library.

32. Xie, I., & Stevenson, J. A. (2019). @Digital Libraries: harnessing Twitter to build online communities. Online Information Review, 1263-1283.

APPENDIX

Questionnaire on **"Harnessing the Potential of Twitter for Library Development"**

Hello dear,

I am Velroy Tome Fernandes, pursuing a Master of Library and Information Science degree at Goa University. I have chosen this title as a topic for my dissertation.

Under the guidance of Ms. Novelty Ramesh Volvaikar; Assistant Professor of Library and Information Science programme, I wish to complete this research work. For this I ask a small favor from you. You need to answer this quick questionnaire.

I will ensure that the data collected from your side will be kept safe (you need not worry). It would be a great help if you could answer these questions.

Thank You

Best of luck

velroyfernandes007@gmail.com {{Switch account}}

Your email and Google account are not part of your response {{Not shared}}

* Indicates required question

➔ Name*

_____

➔ Gender*
Male
Female
Others

➔ Name of the School*

_____

1. Which of the following applications do you use daily?*
Facebook
YouTube
Whatsapp
Instagram
Telegram
Snapchat
Twitter
Pinterest

2. Is your library doing enough to support your library needs online (ie. through web, digital means)?*
Yes
No

3. Are you aware of Twitter? *
Yes
No

4. Do you use Twitter?*
Yes
No

5. What led you to Twitter?*
Friend/Colleague
Internet
Social Media
TV
Newspaper/Radio
Any other source
Not applicable

6. What is your average time spent on Twitter daily? *
0 - 19 minutes

20 - 39 minutes
40 - 59 minutes
More than one hour
Not applicable

7.   Why are you using Twitter?*
Knowledge
Entertainment
Both
Not applicable

8.   Why are you not using Twitter?*
Lack of awareness about it.
No usage among friends/family circle.
Because it has more reading and less watching.
Already using other social apps so there's no much need.
Any other reason
Not applicable

9.   What do you like about Twitter?*
It feels very professional and interactive.
It provides real-time updates.
It allows you to express yourself in a normal human conversation.
It suggests trending topics both nationally and internationally.
Any other reason
Not applicable

10.   What you don't like about Twitter?*
It's a platform for trollers.
More problem creation takes place than problem solving.
It is more of a public network than a private.
All the tweets are not accurate, some may be misleading.
Any other reason
Not applicable

11.   On a scale of 1 - 5, how well-versed are you at using Twitter?
(Non users may not answer)
Not well-versed at all
1
2
3
4
5
Very well-versed

12.   How long have you been using Twitter?*

Less than 1 year
Less than 5 years
Less than 10 years
Less than 17 years
Not applicable

13.   How likely will you recommend Twitter to others?
(Non users may not answer)
Very Unlikely
1
2
3
4
5
Very Likely

14.   Does your library use Twitter?*
Yes
No
Maybe

15.   Rate your library's use of social media from 1 - 5.*
Worst
1
2
3
4
5
Best

16.   Should social media be used in providing library services?*
Yes
No

17.   Will you prefer your library services via Twitter?*
Yes
No