



### IMPACT OF ICT ON LIFELONG LEARNING IN SELECTED DEGREE COLLEGE LIBRARIES IN THANE REGION

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#### Abstract:

*ICT has transformed traditional library systems into dynamic knowledge centers. The integration of ICT in libraries has significantly enhanced learning by improving access to information, promoting digital literacy and enabling user-centric services. This study examines the impact of ICT on lifelong learning in selected degree college lib in the Mumbai region.*

*The research explores the visibility of ICT infrastructure, digital services, user engagement and challenges faced by libraries. The study adopts survey method using questionnaires distributed among students and librarians. Findings reveal that ICT enhances access to information, promotes self-directed learning and supports continuous skill development. However, issues such as inadequate infrastructure, lack of training and financial constraints affect library usage. The paper concludes with recommendations to promote ICT integration in academic lib.*

**Keywords:** *ICT, Lifelong Learning, Academic Libraries, Digital Resources, Thane, Library Automation*

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#### Introduction:

Libraries have evolved from traditional repositories of printed materials to modern digital information center. ICT plays vital role in this transformation by enabling efficient storage, retrieval and dissemination of information. The integration of ICT has reshaped the learning process by making information more accessible, interactive and user-friendly. ICT enables lib to provide access to wide range of e-resources, online databases and virtual learning environments. It removes barriers of time and space, allowing users to learn anytime and anywhere. Hence libraries have evolved into active centers of lifelong learning.

#### 1. Concept of Lifelong Learning

Lifelong Learning refers to the continuous

acquisition of knowledge and skills throughout life. It includes formal, non-formal and informal learning. Libraries contribute to Lifelong Learning by providing access to diverse info resources supporting self-directed learning, offering digital literacy programs and facilitating skill development. Libraries are now recognized as essential institutions that promote continuous education and knowledge sharing.

#### 2. Role of ICT in Academic Libraries

ICT has revolutionized the functioning of college libraries by improving efficiency, accessibility and providing services. Key ICT applications in library are:

- Lib Automation systems
- Online Public Access Catalogue OPAC

- Digital library and institutional repositories
- E-books and e-journals
- Internet and Wi-Fi services
- Virtual Reference services

ICT provides faster access, storage, retrieval and dissemination of information making lib services more efficient and user-friendly.

### Aim of the Study:

The present study is titled as, "Impact of ICT on Lifelong Learning in selected Degree College Libraries in Thane Region" and aim of its study is to examine the impact of Information and Communication Technology (ICT) on lifelong learning practices among users of selected college libraries in the Mumbai region affiliated with the University of Mumbai, with a focus on how ICT-based resources and services support continuous learning, skill development, and user engagement.

### Review of Literature:

1. Tripathi et al. (2026) has done this study to understand how **Information Literacy (IL) Standards** are developed and used in different types of libraries—public, academic, and special. It compares how these standards are applied, how they help in assessing users' IL skills, and where improvements are needed. The study uses a comparative approach by examining IL standards created by major national and international organizations. The article also explores how IL standards are used in different subjects, library types, and regions, keeping in mind the diverse needs of users. It highlights that IL standards should be flexible so they can work in different cultural and academic contexts. Finally, the study suggests that libraries and policymakers should adopt adaptable IL standards and create customized programs. This will help improve users' information literacy skills and make IL initiatives more effective for different groups.
2. Kumar & Nandeesh (2025) have done this study to examine how students at different education levels use the Sri Venkateswara Veterinary University library. It finds that: PhD students use the library most often, depend on research materials, and prefer advanced, technology-based services. Postgraduate students actively use digital resources and find library materials very helpful. Undergraduate students use the library less, showing a need for more awareness and motivation. The researchers highlight the need for user-focused library services so that libraries can better support students at all levels.
3. Khan & Ahmed (2022) have discussed in this paper the link between **organizational culture (OC)** and **lifelong learning (LLL)** among library and information science (LIS) professionals in university libraries of Pakistan. The study finds that a **positive organizational culture** encourages better lifelong learning practices and all aspects of organizational culture have a strong influence on how professionals engage in lifelong learning. The researchers suggested that Library leaders should create a supportive work environment to promote continuous learning. The findings can help universities develop better **policies and strategies** to improve lifelong learning among library staff.
4. Thorpe (2021) has done this study to find ways to promote a culture of professional learning in an Australian academic library. It highlights that after COVID-19, library roles have changed, and staff need new skills that they may not have learned earlier. The study suggests using the idea of a learning organization, where Staff at all levels value continuous learning and employees take responsibility for updating their skills and promoting learning through collaboration with others. The study shows that libraries can gradually

build a strong learning culture by supporting continuous skill development among staff.

### Scope & Limitation of the Study:

Scope: The present study focuses on general degree college libraries (Arts, Commerce, Science) in the Thane region affiliated with University of Mumbai. It examines the role of library services and ICT facilities in promoting lifelong learning. The study includes students (UG & PG), faculty members, and library professionals as respondents.

Limitations: The study is confined only to selected colleges in the Thane region, so findings may not represent all colleges under University of Mumbai or other regions. The research focuses only on general degree colleges and does not include professional colleges (engineering, medical, law). Data is collected through questionnaires/interviews, so responses may be subjective or biased.

### Objectives of the Study:

The present study has following objectives:

1. To examine the visibility of ICT facilities in selected degree college libraries in Mumbai
2. To analyze the role of ICT in promoting lifelong learning

3. To study user awareness and utilization of ICT based services
4. To identify challenges in implementing ICT

### Research Methodology:

#### • Research Design:

The present study is done using Descriptive Survey Method.

- Population of present Study: General Degree college libraries in Thane region affiliated to University of Mumbai

The study includes 10 General Degree colleges (Arts, Commerce & Science) in and around Thane region

#### • Sample

105 students and 30 Faculty and 15 Library Staff (including Librarians)

- Data Collection Tools
- ❖ Structured questionnaires
- ❖ Interviews with librarians

#### • Data Analysis:

Percentage method long with Tables and Charts

### Data Analysis:

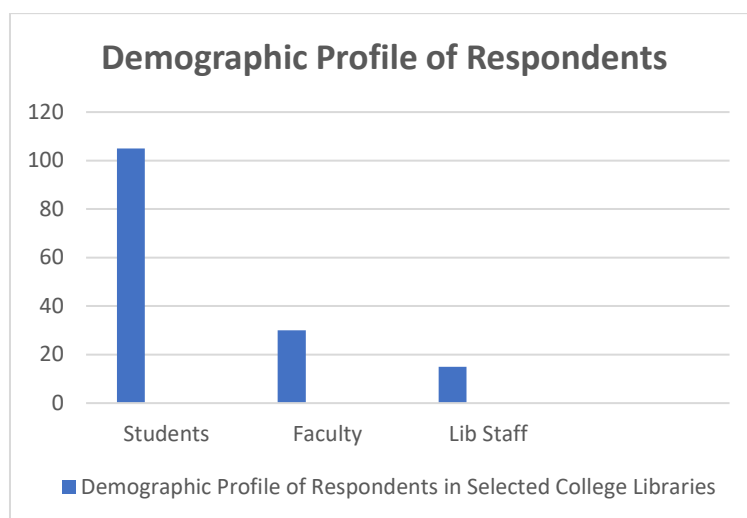
#### 1. To find out Demographic Profile of Respondents in Selected College Libraries

The following table 1. shows Demographic Profile of Respondents

**Table 1. Demographic Profile of Respondents**

Sr. No.	Category	No. of Respondents	%
1	Students	105	70%
2	Faculty	30	20%
3	Lib Staff	15	10%
	Total	150	100%

From the above table 1., it is seen that maximum respondents for the present study are students nearly 70% of the total, followed by Faculty members that are the teachers using the libraries nearly 20% and the least is Library Staff only 10% including Librarians of each colleges.



*Fig 1. Demographic Profile of Respondents*

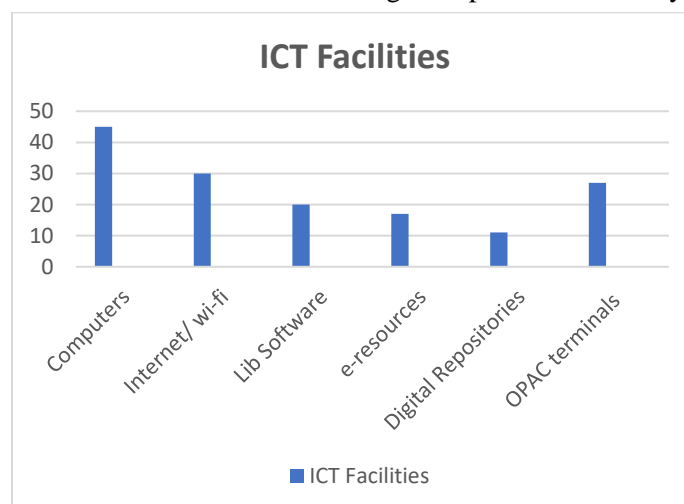
## 2. To find out ICT Facilities in Selected Lib

The following table 2 shows ICT Facilities in Selected Lib

**Table 2. ICT Facilities**

Sr. No.	ICT facility	No. of Respondents	%
1	Computers	45	30%
2	Internet/ Wi-Fi	30	20%
3	Lib Software	20	13%
4	e-resources	17	11%
5	Digital Repositories	11	7%
6	OPAC terminals	27	18%

From the above table 2, it is seen that computers are broadly used in ICT facilities of the libraries almost 30%, followed by Internet/ Wi-Fi facility for 20%, next is OPAC terminals nearly 18% followed by Library Software for 13% and the least is use of e-resources 11% and the last is digital repositories for only 7%.



*Fig 2. ICT Facilities*



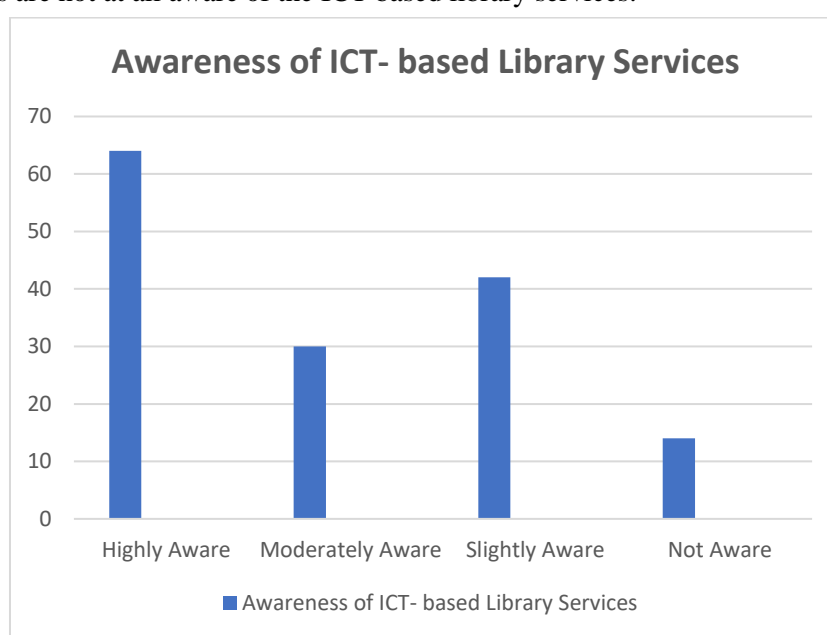
### 3. To find Level of Awareness of ICT- based Library Services

The following table 3 shows Level of Awareness of ICT- based Library Services

**Table 3. Awareness of ICT- based Library Services**

Sr. No.	Awareness Level	No. of Respondents	%
1	Highly Aware	64	43%
2	Moderately Aware	30	20%
3	Slightly Aware	42	28%
4	Not Aware	14	9%

From the above table 3, it is seen that most of the respondents are highly aware of the ICT based Library services almost 43%, followed by slightly aware respondents 28% next is moderately aware users of 20% and the least is 9% where the respondents are not at all aware of the ICT based library services.



*Fig 3. Awareness of ICT- based Library Services*

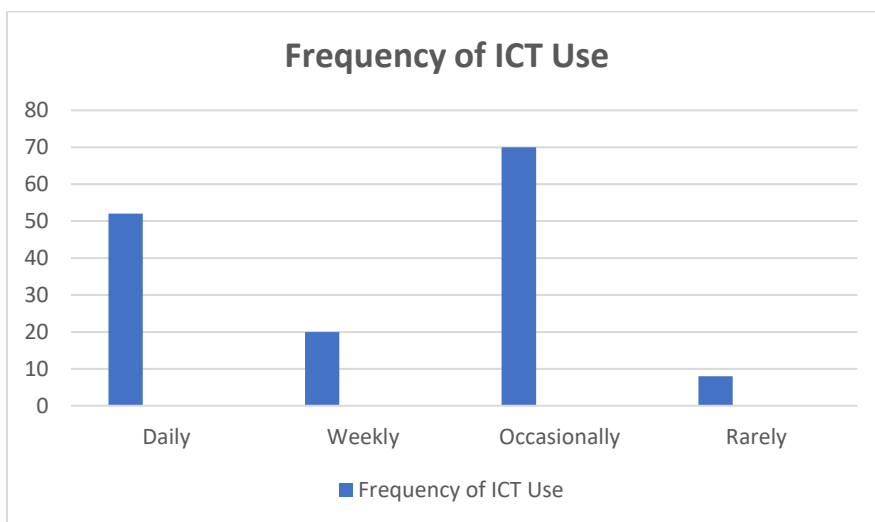
### 4. To find out the Frequency of ICT Use in Libraries

The following table 4 shows Frequency of ICT Use in Libraries

**Table 4 Frequency of ICT Use**

Sr. No.	Usage Frequency	No. of Respondents	%
1	Daily	52	34%
2	Weekly	20	13%
3	Occasionally	70	47%
4	Rarely	8	5%

From the above table 4, it is seen that Frequency of ICT use by the respondents is highest at 47% occasionally use the ICT, followed by 34% respondents use daily, next is weekly use 13% and the last is 5% which use rarely



*Fig.4 Frequency of ICT Use*

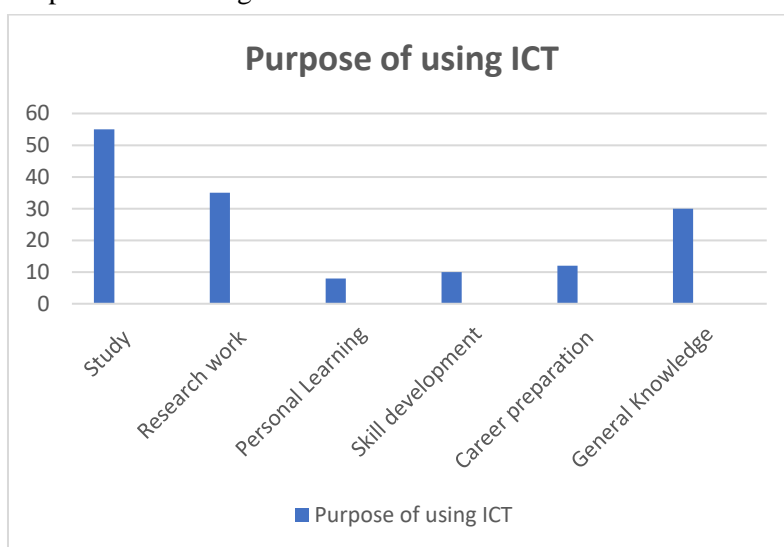
**5. To find the Purpose of using ICT in Libraries**

The following table 5 shows the Purpose of using ICT in Libraries

**Table 5. Purpose of using ICT**

Sr. No.	Purpose	No. of Respondents	%
1	Study	55	37%
2	Research work	35	23%
3	Personal Learning	8	5%
4	Skill development	10	7%
5	Career preparation	12	8%
6	General Knowledge	30	20%

From the above table 5, it is seen that purpose of using ICT in libraries is maximum 37% for study then is 23% for research work next is gaining general knowledge 20% followed by Career preparation 8% next is skill development 7% and finally only 5% for personal learning.



*Fig 5. Purpose of using ICT*



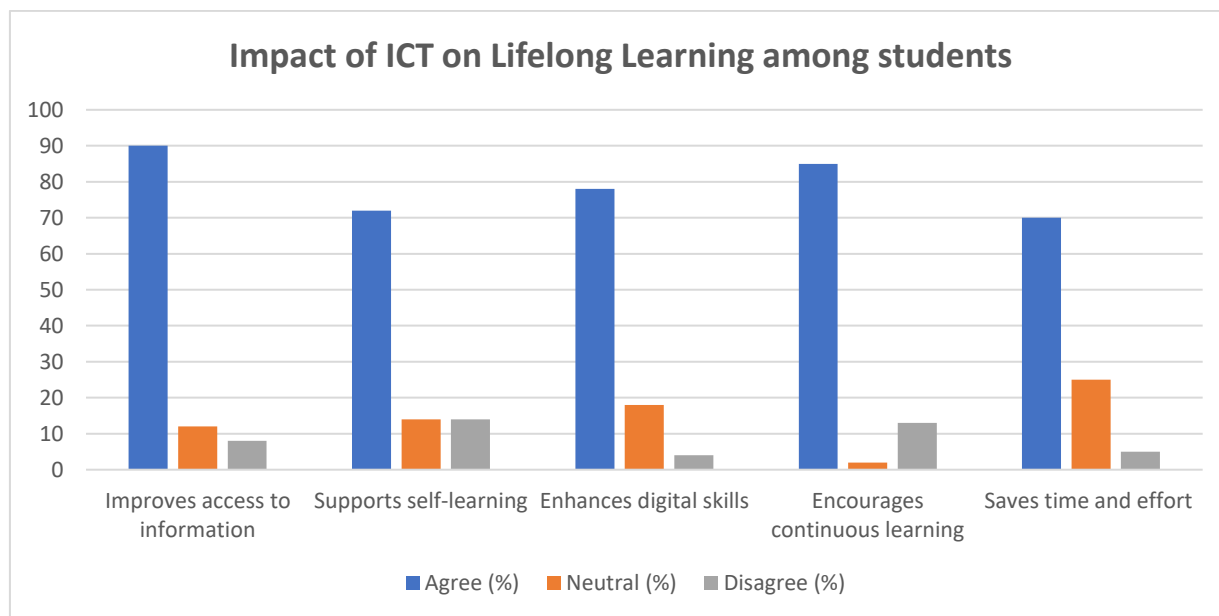
**6. To find the Impact of ICT on Lifelong learning among students**

The following table 7.6 shows the Impact of ICT on Lifelong Learning among students

**Table 6. Impact of ICT on Lifelong Learning among students**

Sr. No.	Impact idea	Agree (%)	Neutral (%)	Disagree (%)
1	Improves access to information	90	12	8
2	Supports self-learning	72	14	14
3	Enhances digital skills	78	18	4
4	Encourages continuous learning	85	2	13
5	Saves time and effort	70	25	5

From the above table 6, it can be seen that nearly 90% of respondents agree that ICT improves access to information and only 8% disagree to that whereas only 8% remain neutral on that point. Next point is that nearly 72% agree that ICT impact supports self-learning principle in their life and equal no. of respondents disagree and remain neutral for the same. Nearly 78% of respondents agree to the point that ICT enhances digital skills whereas only 4% disagree and 18% remain neutral. Next point approximately 85% agrees that ICT encourages continuous learning and 13% disagree and only 2% remain neutral. The last consist of ICT impact saves time and effort where nearly 70% of respondents agree and only 5% disagree and remaining 25% stay neutral.



**Fig 6 Impact of ICT on Lifelong Learning among students**



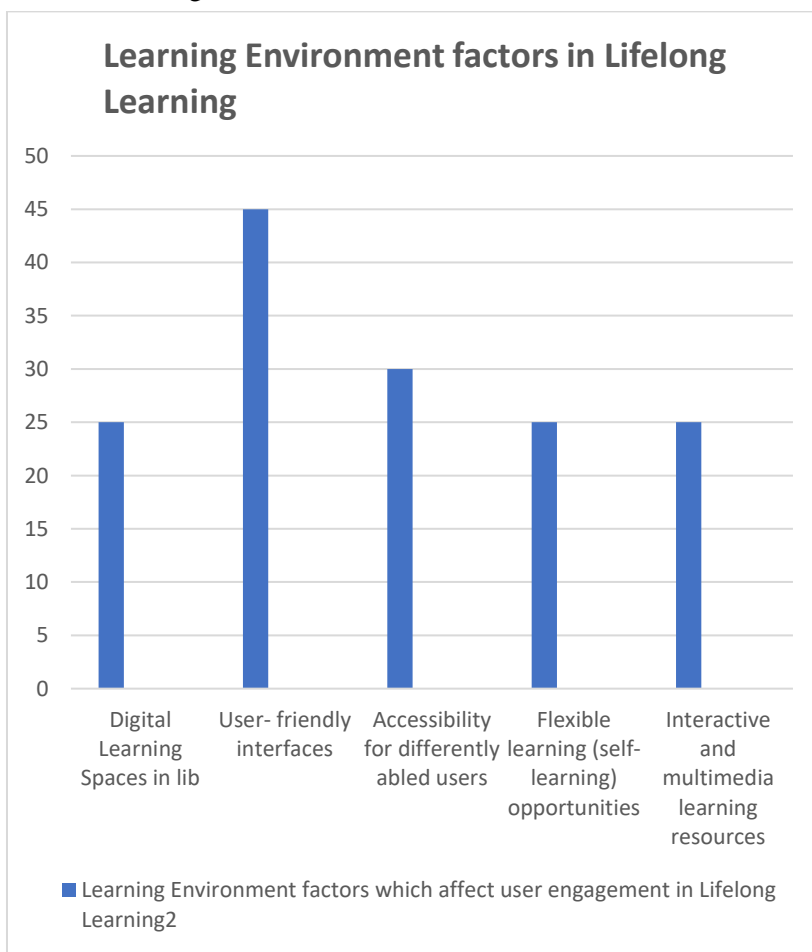
**7. To analyze Learning Environment factors which affect user engagement in Lifelong Learning**

The following table 7.7 shows Learning Environment factors in Lifelong Learning

**Table 7. Learning Environment factors in Lifelong Learning**

Sr. No.	Factors	No. of Respondents	%
1	Digital Learning Spaces in lib	25	17%
2	User- friendly interfaces	45	30%
3	Accessibility for differently abled users	30	20%
4	Flexible learning (self-learning) opportunities	25	17%
5	Interactive and multimedia learning resources	25	17%

The above table 7. suggest the learning environment factors responsible in Lifelong Learning where maximum respondents voted for User-friendly interfaces or platforms nearly 30% followed by Accessibility for differently abled users is 20% next is almost the same for Digital Learning spaces in the library, Flexible learning opportunities and Interactive and multimedia learning resources.



**Fig 7. Learning Environment factors in Lifelong Learning**



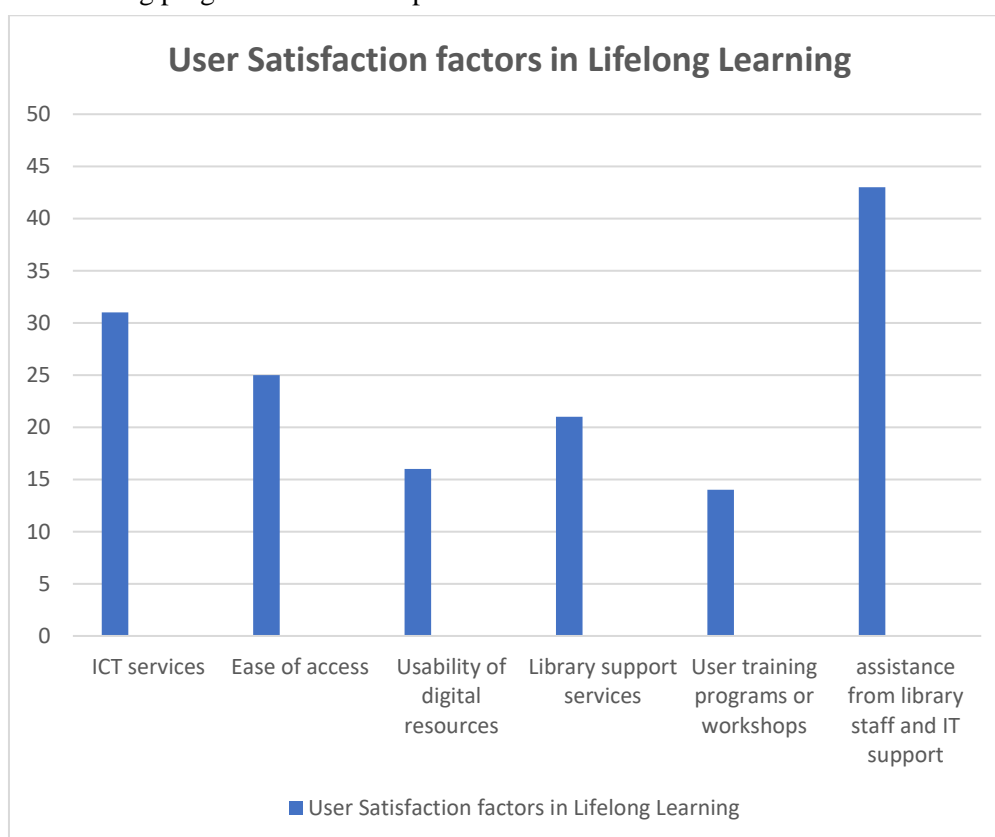
### 8. To determine User Satisfaction factors while using ICT services in Lifelong Learning

The following table 7.8 shows User Satisfaction factors in Lifelong Learning

**Table 8. User Satisfaction factors in Lifelong Learning**

Sr. No.	User Satisfaction Factors	No. of Respondents	%
1	ICT services such as OPAC, e-resources, email/sms alerts, virtual ref services, RFID	31	21%
2	Ease of access	25	17%
3	Usability of digital resources	16	11%
4	Library support services	21	14%
5	User training programs or workshops	14	9%
6	assistance from library staff and IT support	43	28%

The above table 7.8 shows that maximum users are satisfied with the assistance from library staff and IT support which is almost 28% followed by ICT services in libraries which is nearly 21% followed by Ease of access that is 17% next is library support services which is 14% and the next is usability of digital resources that is 11% and the least is 9% for user training programs or workshops.



**Fig 8. User Satisfaction factors in Lifelong Learning**



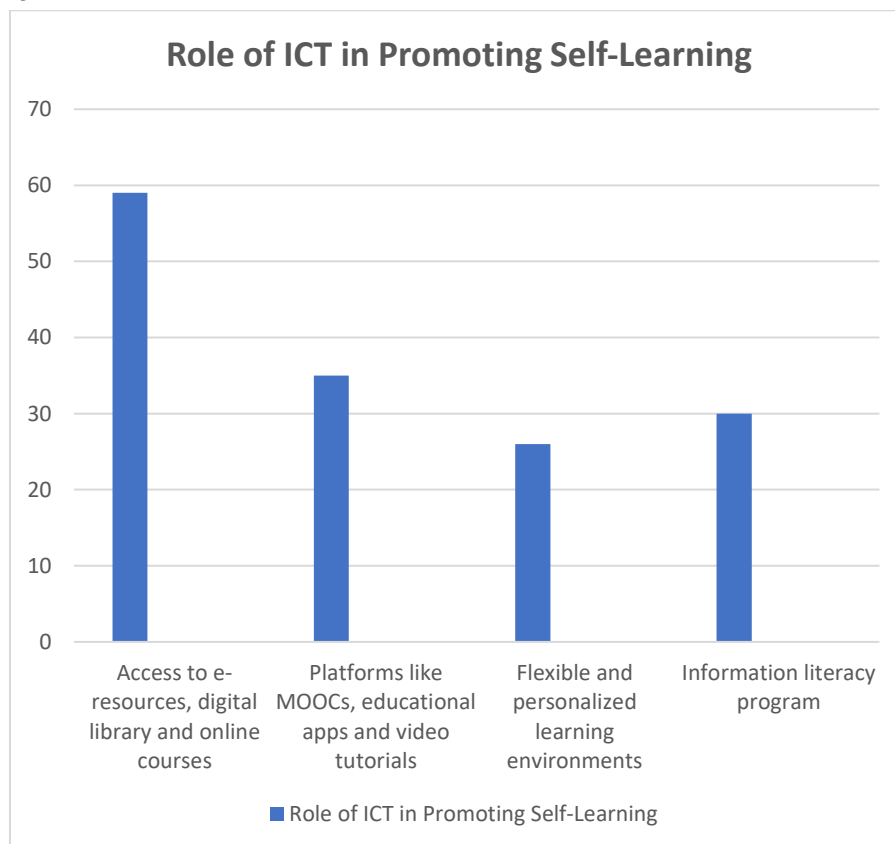
### 9. To find out Role of ICT in Promoting Self-Learning

The following table 7.9 shows the Role of ICT in Promoting Self-Learning

**Table 9. Role of ICT in Promoting Self-Learning**

Sr. No.	Factors	No. of Respondents	%
1	Access to e-resources, digital library and online courses	59	39%
2	Platforms like MOOCs, educational apps and video tutorials	35	23%
3	Flexible and personalized learning environments	26	17%
4	Information literacy program	30	20%

The above table 9. shows the role of ICT in promoting Self-Learning where maximum respondents reacted to access to e-resources and digital library that is 39% followed by platforms such as MOOCs, educational apps and videos is 23% next is Information literacy program that is 20% and the minimum respondents reacted to Flexible and personalized learning environments that is 17%.



**Fig 9. Role of ICT in Promoting Self-Learning**



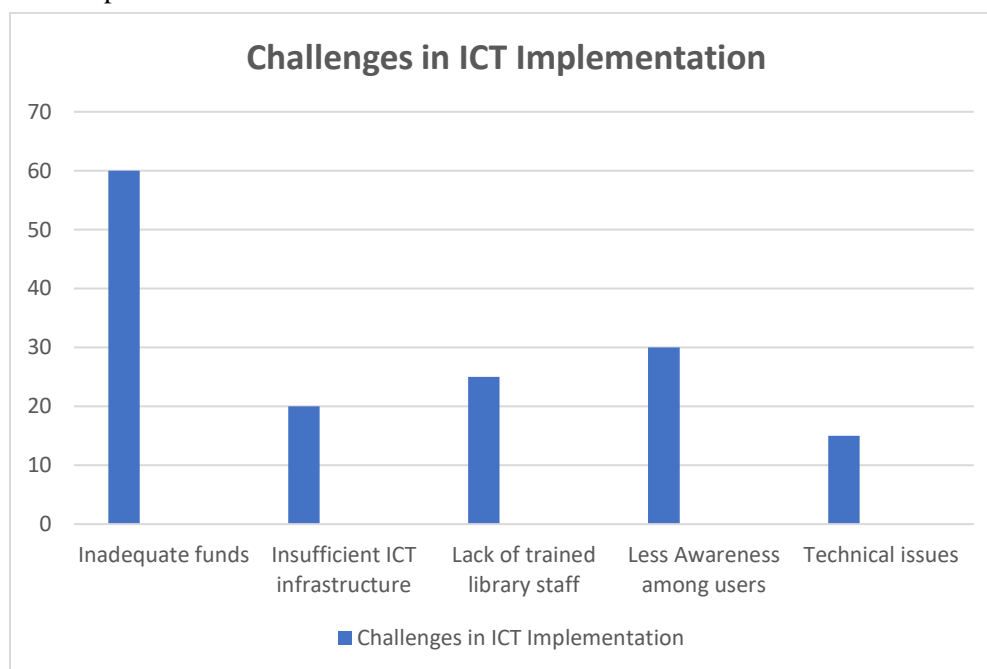
### 10. To find out Challenges in ICT Implementation

The following table 10 shows Challenges in ICT Implementation

**Table 10. Challenges in ICT Implementation**

Sr. No.	Challenges	No. of Respondents	%
1	Inadequate funds	60	40%
2	Insufficient ICT infrastructure	20	13%
3	Lack of trained library staff	25	17%
4	Less Awareness among users	30	20%
5	Technical issues	15	10%

The above table 10 shows the challenges faced in ICT implementation in college libraries where maximum respondents reacted to Inadequate funds by the management and upper institutions followed by less awareness among users regarding the benefits of using ICT services in libraries goes upto 20% followed by lack of trained staff which is 17% and the least respondents reacted to are Insufficient ICT infrastructure for 13%.



**Fig 10. Challenges in ICT Implementation**

### Findings of the Study:

The present study shows that Demographic Profile of maximum respondents are students nearly 70% of the total, followed by Faculty members that are the teachers using the libraries nearly 20% and the least is Library Staff only 10% including Librarians of each colleges. ICT facilities in libraries shows that

computers are broadly used in ICT facilities of the libraries almost 30%, followed by Internet/ Wi-fi facility for 20%, next is OPAC terminals nearly 18% followed by Library Software for 13% and the least is use of e-resources 11% and the last is digital repositories for only 7%. Awareness level of ICT based library services shows that most of the



respondents are highly aware of the ICT based Library services almost 43%, followed by slightly aware respondents 28% next is moderately aware users of 20% and the least is 9% where the respondents are not at all aware of the ICT based library services. Frequency of ICT use in the libraries by the respondents is highest at 47% occasionally use the ICT, followed by 34% respondents use daily, next is weekly use 13% and the last is 5% which use rarely. Purpose of using ICT in libraries is maximum 37% for study then is 23% for research work next is gaining general knowledge 20% followed by Career preparation 8% next is skill development 7% and finally only 5% for personal learning. Impact of ICT on Lifelong Learning among student's shows that nearly 90% of respondents agree that ICT improves access to information and only 8% disagree to that whereas only 8% remain neutral on that point. Next point is that nearly 72% agree that ICT impact supports self-learning principle in their life and equal no. of respondents disagree and remain neutral for the same. Nearly 78% of respondents agree to the point that ICT enhances digital skills whereas only 4% disagree and 18% remain neutral. Next point approximately 85% agrees that ICT encourages continuous learning and 13% disagree and only 2% remain neutral. The last consist of ICT impact saves time and effort where nearly 70% of respondents agree and only 5% disagree and remaining 25% stay neutral. Learning environment factors responsible in Lifelong Learning where maximum respondents voted for User-friendly interfaces or platforms nearly 30% followed by Accessibility for differently able users is 20% next is almost the same for Digital Learning spaces in the library, Flexible learning opportunities and Interactive and multimedia learning resources. Maximum users are satisfied with the assistance from library staff and IT support which is almost 28% followed by ICT services in libraries which is nearly

21% followed by Ease of access that is 17% next is library support services which is 14% and the next is usability of digital resources that is 11% and the least is 9% for user training programs or workshops. The role of ICT in promoting Self-Learning where maximum respondents reacted to access to e-resources and digital library that is 39% followed by platforms such as MOOCs, educational apps and videos is 23% next is Information literacy program that is 20% and the minimum respondents reacted to Flexible and personalized learning environments that is 17%. The challenges faced in ICT implementation in college libraries where maximum respondents reacted to Inadequate funds by the management and upper institutions followed by less awareness among users regarding the benefits of using ICT services in libraries goes up to 20% followed by lack of trained staff which is 17% and the least respondents reacted to are Insufficient ICT infrastructure for 13%.

### Conclusion:

ICT has profound impact on lifelong learning in academic libraries. It enables easy access to information, promotes self-learning and enhances user satisfaction. Degree college libraries in Mumbai are increasingly adopting ICT tools; however challenges such as infrastructure and awareness lackness and trained staff must be addressed to maximize its benefits.

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